



ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I PROJECT INFORMATION

PROJECT CATEFORY:	Regular
COUNTRY:	Moldova
TITLE OF PROJECT:	Talent Retention for Rural Transformation - Adapt (TRTP-Adapt)
TYPE OF IMPLEMENTING ENTITY:	Multilateral Implementing Entity
IMPLEMENTING ENTITY:	International Fund for Agricultural Development
EXECUTING ENTITY:	Ministry of Agriculture Rural Development and Environment (MARDE)
AMOUNT OF FINANCING REQUESTED:	USD 6,008,095

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Abbreviations and Acronyms

AEC	Applications Evaluation Committee
AEZ	Agro-Ecological Zones
AF	Adaptation Fund
AI	Aridity Index
APR	Annual Project Report
AR5	Fifth Assessment Report
AWPB	Annual Work Plan and Budget
CA	Conservation Agriculture
CBD	Convention on Biological Diversity
CC	Climate Change
CCA	Climate Change Adaptation
CHIRPS	Climate Hazards Group InfraRed Precipitation with Station data
CMIP5	Coupled Model Intercomparison Project – phase 5
CO ²	Carbon Dioxide
CPIU	Consolidated Project Implementation Unit
CRCA	Climate Resilience Through Conservation Agriculture
CRI	Climate Resilient Infrastructure
DO	Dissolved Oxygen
DRR	Disaster Risk Reduction
ENRM	Environment and Natural Resource Management
ESA	Environmental and Social Assessment
ESMP	Environmental and Social Management Plan
ESP	Environment and Social Policy
EU	European Union
FAO	United National Food and Agricultural Organisation
FFS	Farmer Field Schools
GCM	Global Climate Model
GDP	Gross Domestic Product
GEF	Global Environment Facility
GNI	Gross National Income
GoM	Government of Moldova
HDI	Human Development Index
IFAD	International Fund for Agricultural Development
IWRM	Integrated Water Resources Management
KM	Knowledge Management
MARDE	Ministry of Agriculture, Regional Development and Environment
MCA	Millennium Challenge Account
MDG	Millennium Development Goals
MoE	Ministry of Economy
MoF	Ministry of Finance
MTR	Mid-term Review
M&E	Monitoring and Evaluation
NBM	National Bank of Moldova
NDS	National Development Strategy
NHDR	National Human Development Report
NGO	Non-Governmental Organisations
NIE	National Implementing Entity
NPCA	National Programme on Conservation Agriculture
NSARD	National Strategy on Agriculture and Rural Development
PE	Potential Evaporation
POP	Persistent Organic Polluters
PPP	Per Capita
PPT	Precipitation
PY	Project Year
RCP	Representative Concentration Pathways
SADI	Small Area Deprivation Index
SC	Selection Committee

SCCF	Special Climate Change Fund
SECAP	Social Environmental and Climate Assessment Procedures
SP	Service Provider
SWM	Sustainable Water Management
ToT	Training of Trainers
TRTP-Adapt	Talent Retention for Rural Transformation - Adapt
Tmax	Max Temperature
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
WUA	Water Users Associations

A. Project Background and Context.

Geography

1. The Republic of Moldova, with a total area of 32,870 square kilometres, is a small, landlocked country between about 46° to 48° N latitude and 27° to 30° E longitude. The country shares borders with Ukraine to the north, east and south, and Romania to the west. The country is divided into 32 districts (raioane), 5 municipalities (muniteni, which are cities with special status), and 2 autonomous territories - Gagăuzia and Transnistria - the latter being a region subject to political conflict, claiming for an unrecognized independent status. The capital of the country is Chisinau, with a population of about 786,000 people.
2. The topography of Moldova is predominantly an undulating hilly plain sloping from the northwest to the southeast and having an average elevation of around 147 m above the sea level. The highest elevation is represented by Hill Balanesti (429.5 m) in Nisporeni district, an area with a very fragmented landscape where hilly terrain and deep valleys alternate. The parent rocks are mainly represented by sedimentary materials, such as limestone, chalk, gypsum, sand, sandstone, bentonite, tripoli, and diatomite, which can be used in construction, cement and glass production, food processing, chemical and metallurgical industries, etc.
3. About 75% of Moldova is covered by black soil, also called chernozem. In the northern hills, more clay-textured soils are found. In the south, red-earth soil is predominant. The soil becomes less fertile toward the south but can still support grape and sunflower production. The hills have woodland soils. The lower reaches of the Prut and Dniester rivers and the southern river valleys are saline marshes.
4. About 60% of the country waters drain into the Nistru river (1,352 km, including 657 km within the borders of the country), approximately 34% into the Prut river (tributary of the Danube, that flows along 695 km in the border with Romania), and the rest into a series of small rivers that directly pour into the Black Sea. Moldova has about 60 natural lakes and 3,000 reservoirs. The largest reservoirs are Costesti-Stinca (678 million m³) on the Prut river, jointly operated by Romania and Moldova, and Dubasari (235 million m³) on the Nistru river. Reservoirs in the northern and central regions play the role of seasonal regulation of water, while in the south they mainly serve for inter-annual distribution due to the region's greater water deficit.
5. The main groundwater reserves are located in deep confined aquifers. There are approximately 7,000 boreholes for groundwater withdrawal. The natural recharge capacity of the confined aquifers is limited, and there is a risk of overexploitation. The total available water resources in the country amount to 5.6 km³, including 4.3 km³ of surface water and 1.3 km³ of groundwater (including 0.7 km³ that comply with the national standards for drinking water).
6. The natural vegetation, mainly forests, steppes, lakes and rivers, cover about 15% of the territory. Forests and other wooded land (OWL) in Moldova cover 13.7% of the territory (about 462,700 ha) in highly fragmented stands ranging from 5 to 1,500 ha. The steppes occupy 1.92% of the territory (about 65,000 ha) in fragments of 0.5-300 ha. The steppe flora is rich, with over 600 plant species, most of them belonging to the families Asteraceae, Fabaceae, Poaceae and Lamiaceae. Natural meadows remain only along the Prut and Nistru river basins, covering 3% of the territory (about 101,400 ha).
7. The status of flora in steppe ecosystems is unsatisfactory throughout the republic due to the excessive and unorganized grazing and the reduction of lands with steppe vegetation. For example, the steppe zones in the southern and south-eastern regions (lower Nistru river terraces and Bugeac plains) are strongly impacted by human activities, but are still rich in typical plant communities characterized by grasses as well as oak forest groves. Rivers, lakes and other wetlands cover 2.8% of the country (95,000 ha). There are 34 dominant species of aquatic vegetation, and 83 associations, of which 37 are endangered.

Climate

8. Moldova is located in a temperate continental climate zone. The territory is characterized currently with dry or sub-humid climate ($0.50 \geq AI \leq 0.65$). Certain areas in the South-East have semi-arid climate with an Aridity Index (AI) of ≥ 0.48 , and Northern zone and the areas with altitudes above 350-400 meters above sea level have sub-humid and humid climate ($AI \geq 0.65$). Annual mean temperature averages 9.3 °C, ranging from 7.8 °C in the north to 9.9 °C in the south. Climatic seasons are a short and low-snow winter with the coldest month mean temperatures ranging from -2.8 °C to -5.3 °C – the

coldest values can go down to -30 °C -, and a long summer with temperatures averaging 20 °C., temperatures can reach up to 30 °C, and in some years to 38-41 °C. Moldova has limited precipitation, ranging from around 600 mm in the northwest to 480 mm in the southeast. The heaviest rainfall occurs in early summer and again in October, often in the form of heavy showers and thunderstorms causing erosion and river silting. Long droughts are frequent for example between 1990 and 2007 alone the country experienced nine droughts that typically occur in late summer. When combined with high temperatures and hot continental winds these events can severely stress crops and pastures during critical stages in their growth cycle, the record drought of 2007 affected 75-80% of the country area with severe consequences for the national economy.

9. Moldova can be divided into 3 major agro-climatic zones: (i) the Northern zone including the northern plateau along the Nistru river, the Transnistria highlands and the Balti rolling plain, with annual mean temperatures ranging from 6.3-9.7 °C, and annual precipitation between 550-600 mm; (ii) the central zone covering the Condrii highlands, where hilly terrain and deep valleys alternate, with annual mean temperature between 7.5-10 °C and annual precipitation from 500-550 mm, up to 60% falling during the crop vegetative period; and (iii) the southern zone including the hilly terrain interspersed with plains and large valleys of the Bugeac plain and the Tigech highlands, with annual mean temperature between 8.3-11.5 °C and annual precipitation of 450-550 mm. In all cases around half of precipitation falls during the crop vegetative period.

Socio-economic Context

10. The Republic of Moldova is among the poorest countries in Europe. Geopolitically, the country has historical ties to the CIS, in particular the Russian Federation, in terms of trade and migration. However, EU accession and strengthening relations with Romania is the country's key foreign policy goal, with far-reaching ramifications for domestic policies and practices in terms of alignment with EU requirements. A milestone has been the entry into a Deep and Comprehensive Free Trade Area agreement with the EU. This offers better access to the world's largest market but will progressively expose Moldovan producers to greater domestic competition.
11. Moldova is a lower middle-income country with a gross domestic product (GDP) per capita (PPP) of USD 2,290. It ranks 112 out of 189 in the global Human Development Index (HDI), behind Paraguay and ahead of the Philippines with a score of 0.700. Its gross national income (GNI) PPP at USD 5,554 places it behind Myanmar and ahead of Tonga, also in 112th position.¹ Moldova is one of the poorest countries in the European neighbourhood region, but has also been one of the fastest growing. Remittances and record harvests contributed to economic growth of almost 10% in 2013 and 5% in 2014. Moldova's economy benefits from remittances that are estimated to be as high as 26.1% of GDP. The economy is dominated by the service sector, estimated at 63.2% of GDP in 2015, while the agricultural and industrial sectors represented 20.7% and 16.2% of GDP, respectively.²
12. In late 2014 Moldova was hit by a number of adverse internal and external shocks. A deterioration in the international environment led to reduced foreign exchange inflows from exports and remittances. The main shock however was the largescale and well-orchestrated fraud in the banking system caused by the opaque shareholder structures, bank governance failures, and weak supervision. As a consequence, three of the main banks closed at a cost of 10 percent of GDP, external concessional financing also had largely been frozen, international reserves fell by one-third, and monetary conditions tightened significantly. Domestic political turmoil, marked by three changes in government, as well as the sudden resignation of the Governor of the National Bank of Moldova (NBM) in September 2015 added to the crisis.³
13. In 2018 growth is expected to reach 4.8% benefitting from strong domestic demand and to moderate in the near future with the outlook subject to considerable downside risks stemming from low productivity levels, lower external assistance and inefficient public spending. Foreign and domestic investments could be constrained by political uncertainty and ongoing political polarization, leaving the economy vulnerable to chronic external risks. Extreme weather may affect agricultural output with consequences for overall growth.⁴

¹ UNDP (2018) Human development report. <http://hdr.undp.org/en/2018-update>

² European Union Joint Analysis (2016). Programming in the Republic of Moldova until 2020.

³ IMF (2016) Country Report No. 16/343. <https://www.imf.org/external/pubs/ft/scr/2016/cr16343.pdf>

⁴ World Bank (Nov 2018) Moldova Economic Update.

<http://www.worldbank.org/en/country/moldova/brief/moldova-economic-update>

14. **Gender.** In the past decade, Moldova has made considerable progress in socio-economic and welfare development, attributed to a reduction in poverty and promotion of inclusive growth. However, there are some segments of the population who still face significant disadvantages, including smallholders, women and youth. Women still face discrimination and inequality in social, economic and political spheres and their representation in Moldovan politics and decision-making remains below international benchmarks. Women in Moldova face specific education and labour market barriers due to persistent patriarchal attitudes that limit their educational choices and employment options. Women also face discriminatory practices that include significant wage disparities, segregation into lower-paying occupations, unequal sharing of work and family responsibilities and limited access to childcare.
15. Agriculture is an important employment sector for women employing 36 percent of women in rural areas, where other jobs are not sufficiently developed. Women work more in low value-added agricultural production sub-sectors, operate on a smaller scale, and more likely to work as family workers. Women entrepreneurs face barriers getting access to bank loans and to state-funded business and entrepreneurship development programmes.⁵ However, the Government and donors have initiated several initiatives targeted at women such as the Ministry of Economy's initiative to help women in business and the special initiatives for women to access AIPA resources. The EU-funded Business Academy for Women (BAW) assists women to start and manage their own businesses. The project implemented by the Organisation for Development of the SME Sector (ODIMM) has contributed to the formation of a community of entrepreneurs and the creation of a National Network of Women Mentors.
16. **Youth.** Young people continue to face multiple and interconnected challenges. Migration significantly affects Moldova's economy and demographics. In 2014, 24.6% of youth aged 15-29 lived abroad with a growing number leaving for economic reasons. Poverty, lack of decent employment opportunities, and low salaries were the main push factors for youth migration.⁶ While young people in Moldova enjoy high access to education, the quality of education is a challenge. Close to one-third of young people in Moldova are not in employment, education or training (NEET). Access to well-paid jobs and high skill employment is especially low as shown by increasing unemployment rates among youth with tertiary education.⁷ In recent years, the employment rate of young people (15–29 years) has fluctuated between 28.4% and about 31–33.3%. The youth unemployment rate is about twice as high as in the total economically active population.⁸ The share of young people among entrepreneurs remains relatively small i.e. 2.4% were aged up to 24 years and 20.3% were aged 25-34 years.⁹ Young men and women try and engage in agro-based enterprise development in rural areas of very diverse nature.

Agriculture

17. Agriculture is a central pillar of the Moldovan national economy and the main source of livelihood in rural areas. Approximately 75 percent of the population live in rural areas and depend on agriculture and related activities for their livelihoods. About 60 percent of the country's agricultural output is produced by individual farmers and household plots of 10 hectares or less.¹⁰ Agriculture contributes close to 14 percent of the country's GDP (down from 20 percent in 2004), a figure that increases to 17 percent if the food processing industry is taken into account. Important crops are winter and spring grains, including wheat, barley and maize, as well as potatoes and other vegetables and horticultural crops and fruit. Agricultural output has been subject to high volatility and slow growth, driven by external weather-related factors and since 2000 agriculture has been showing much slower and unstable growth patterns than the rest of the economy. Climatic conditions have been the dominant factor with droughts becoming quite common in recent years. Crop production is particularly vulnerable to climate distress with the years of severe droughts in Moldova (2003, 2007, 2009 and 2012) having had a disastrous effect on general crop production. Research shows that the extent of

⁵ <http://eca.unwomen.org/en/where-we-are/moldova>

⁶ OECD. 2018. Youth Well-being Policy Review of Moldova. https://pjp-eu.coe.int/documents/1017981/11168156/Youth_Well-being_Policy_Review_Moldova.pdf/46b60e8a-6ca9-9d21-6aeb-9099debd361c

⁷ OECD. 2018. Youth Well-being Policy Review of Moldova.

⁸ UNDP 2017: Youth on the Labour Market in the Republic of Moldova: Competences and Aspirations.

⁹ Centru Cercetări Demografice and UNFPA. 2015. Demographic Barometer Situation of Youth in Republic of Moldova: From Goals to Opportunities.

¹⁰ FAO. Moldova and FAO partnering to achieve sustainable food systems. <http://www.fao.org/3/a-az519e.pdf>

crop failure depends on the type of crop, however the recent droughts during the plant reproductive stages significantly reduce grain yield potential, by up to 62%. During the droughts overall sugar beet yield reduced by around 38.7 percent; 23.3 percent on average for sunflower; and 30.5 percent for maize.¹¹

Water

18. FAO statistics¹² show that in 2007 total water withdrawal was estimated at 1,065 million m³ of which 883 million m³ (83 percent) for industry, 146 million m³ (14 percent) for municipalities and 36 million m³ (3 percent) for agriculture. In 2013, total water withdrawal for agriculture was estimated at 38 million m³. About 65 percent of the total population of the country, equal to 100 percent of the rural population and 30 percent of the urban population, uses groundwater delivered by the 'Apele Moldovei' water service provider as the main source of potable water supply. The remaining 35 percent of the population uses surface water as a source of water, including 32.0 percent from the Nistru river, 2.8 percent from the Prut river and 0.2 percent from other surface waters. Taking into consideration different sources of water and various usage restrictions (agreements on transboundary rivers, ecological water resources, etc.), the total economically available water resources in Moldova amount to 5.6 km³, including 4.3 km³ surface water and 1.3 km³ ground water.¹³

Available surface water resources may diminish by 16 to 20% already in the 2020s and according to the water-intensive target of national economic development, secure supply for all water users could be threatened by climate-related change already in the 2020s, when the intensity of ground water use could be close to 100%. Examples of depleted aquifers from unregulated use already exist as in the south-eastern part of the country the unconfined aquifers in the villages are becoming depleted due to diminishing recharge capacity and overexploitation. Future water availability will be aggravated by non-climate related events influencing water availability and quality, as well as have a significant impact on water demand for which population growth and economic development will play a dominant role. The water-intensive national economic development targets to ensure access to water for all water users will be threatened by a changing climate exacerbating available water supplies.

19. **Ground water extraction** in Moldova is strictly regulated as the national water availability is decreasing. Predominantly groundwater is not suitable for human consumption and is also unsuitable for agricultural use. The project design meeting with Apele Moldovei has highlighted the fact that this is a pressing political issue following complaints from agricultural producer groups to the Prime Minister, and a MARDE working group has been formed in 2018 to find technical solutions to improve ground water quality. The meeting with Apele Moldovei has also found out that while generally ground water is not suitable for consumption currently no official information is available as to the national ground water quality. Apele Moldovei also points out that where potable ground water is available (mainly in the south of the country) its use is not permitted for irrigation due to general water scarcity.
20. **Drought** leads to widespread failures of agroecosystem production and food shortages. Household production in home gardens, a mainstay of food supply for most rural families, is extremely vulnerable to drought. Smallholder farmers are directly impacted by drought and agricultural workers whose income is 40-70% weather dependant and comes from agriculture.¹⁴ Droughts considerably reduce their savings and worsen both the overall quantity of food available and the diversity of their diet. In some years the negative impact of droughts may acquire the scales of a nationwide environmental and socioeconomic catastrophes. As in 2007, the estimated losses caused by drought reached 23% of the Gross Domestic Product¹⁵ with the greatest losses experienced by fruit and vegetable growers (US\$550 million), livestock producers (US\$305 million) and cereal growers (US\$132 million).¹⁶
21. **Land Degradation.** About three quarters of the Moldovan territory are under high risk of degradation processes (75.5%, of which 11.9% is semi-arid and 63.6% dry sub-humid areas). The United Nations Convention to Combat Desertification (UNCCD) estimates that 63.6 percent of the Moldovan territory can be categorised as dryland, and 85.4 percent of the population lives in these areas . Wet sub-

¹¹ Potopová, Vera & Boroneant, Constanta & Boincean, B & Soukup, J. (2015). Impact of agricultural drought on main crop yields in the Republic of Moldova. *International Journal of Climatology*. 36. 10.1002/joc.4481.

¹² FAO (2015) Aquastat http://www.fao.org/nr/water/aquastat/countries_regions/MDA/

¹³ UNDP, 2009. Climate change in Moldova. Socio-economic impact and policy options for adaptation. National Human Development Report 2009/2010: 224 pp.

¹⁴ World Food Program. 2012. Moldova Rapid Food Security and Vulnerability Assessment in 2012.

¹⁵ Daradur, M., Cazac, V., Bejenaru, G. 2014. An introduction to new drought products.

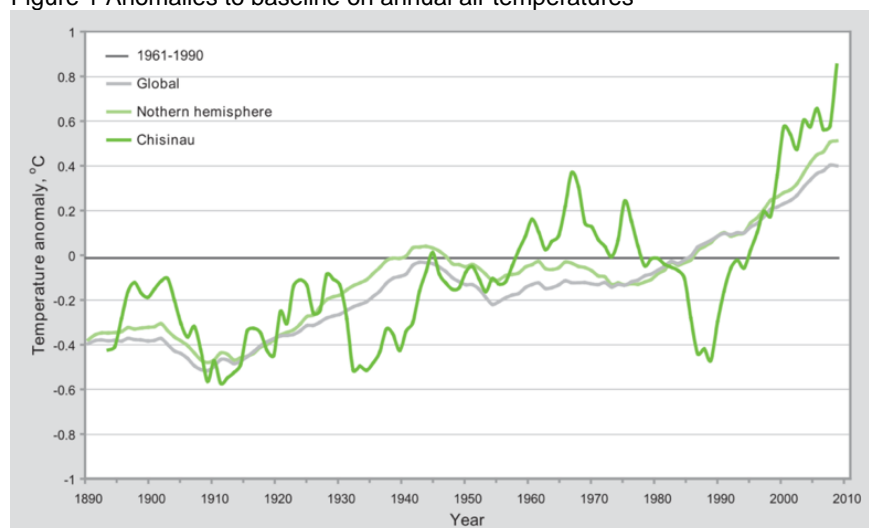
¹⁶ See reference 14

humid lands with relatively favourable moisture conditions cover 24.5 percent of the Moldovan territory in the north and in the elevated areas in the central parts of Moldova. The land classified as semi-arid covers 11.9 percent of Moldova and is located in the southern and south-eastern parts of the country, inhabited predominantly with poor rural people, most vulnerable to desertification. Following meetings with Mihail Rurac, an Associate Professor at the Department of Crop Science of the Moldovan State Agrarian University, there are already first-hand reports of desertification happening in the regions of Causeni and Cantemir. There, lengthy dry spells, combined with high temperatures, especially in late summer, create a great challenge for the environment and all development sectors in particular agriculture; this is only exacerbated by worrying trends in climate change.¹⁷

Climate Change

22. Moldova ranks as the most climate vulnerable country in Europe¹⁸. Temperature and rainfall have increased in Moldova over the last century, and severe floods and droughts have been occurring with increasing regularity. During 1984-2006 period, Moldova's average annual economic losses due to natural disasters were about USD 61 million. This trend had changed significantly recently with the 2007 and 2012 droughts having caused losses estimated at about USD 1 billion¹⁹ and USD 290 million respectively. Moldova has also been significantly impacted by floods that in 2008 cost the country around USD 120 million and in 2010 around USD 42 million in damages.²⁰
23. **Historical Trends.** The historical air temperature anomaly trends for the global and northern hemisphere baselines as well as for Moldova (figure 1) show that there has been an increase in temperature of more than 1°C in Moldova over the past century, consistent with the global average. This trend is also reflected in the regional temperature charts that are displayed in figures 3, 6 and 9 below, for the three agro-climatic regions (north, central and south). Past temperature trends depict a scenario that corroborates the near-term forecasts (2016-2035), namely that consistent increases in temperature will continue. The recent droughts that have blighted Moldova are illustrations of the trends in figures 2, 5 and 8 that show a continuing decrease in annual rainfall across the three regions. Also noteworthy is the increased incidence of torrential rainfalls across all regions of Moldova since 1981. The frequency of heavy rainfall events has nearly doubled over the period, consistent with the increased incidence of major floods.

Figure 1 Anomalies to baseline on annual air temperatures^{21,22}



¹⁷ Daradur M., Leah T., Cazac V., Bejenaru G., 2014. Aligned with UCCD 10-Year Strategy National Action Plan to Combat Desertification, Land Degradation and Reduce Drought Impact in the Republic of Moldova through Using Integrated Financial Strategy (Draft). Chisinau, State Hydrometeorological Service.

¹⁸ According to the ND- GAIN1 vulnerability assessment methodology: <https://germanwatch.org/en/cr>

¹⁹ World Bank (2016) Moldova Climate Adaptation Investment Planning Technical Assistance.

²⁰ Republic of Moldova 2020 Climate Change Strategy.

²¹ Smoothed with 11-year average

²² UNDP (2010) NHDR: Climate Change in Moldova.

Figure 2 Annual rainfall 1981-2017 Balti (north)

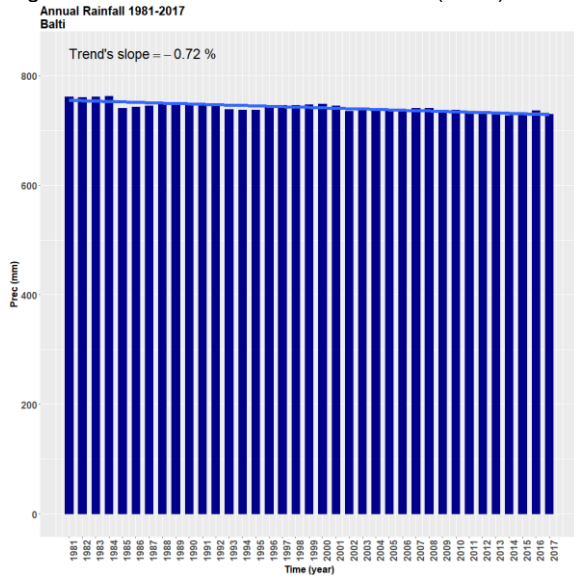


Figure 3 Average mean temp 1960-2015 Balti (north)

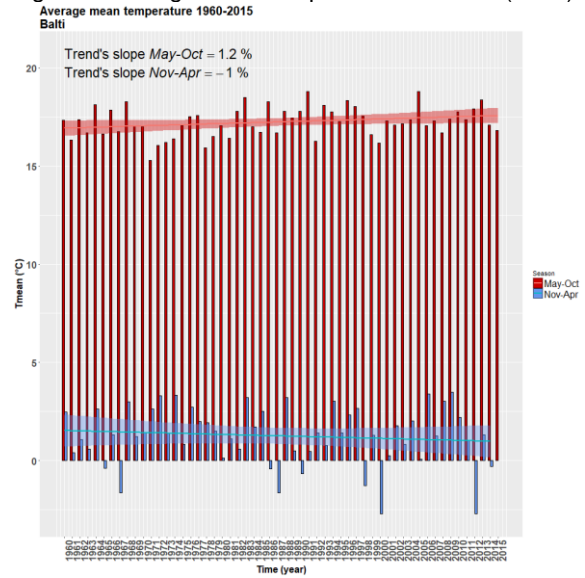


Figure 4 Heavy rainfall events Balti (north) 1981 - 2017

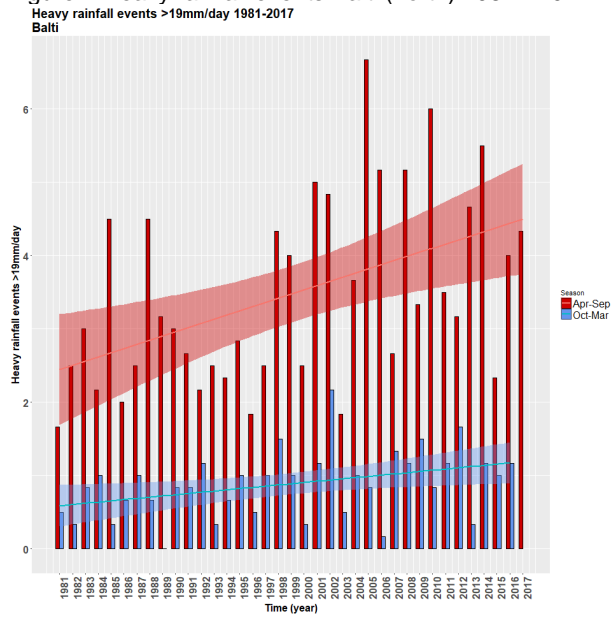


Figure 5 Annual rainfall Chisinau (central) 1981-2017

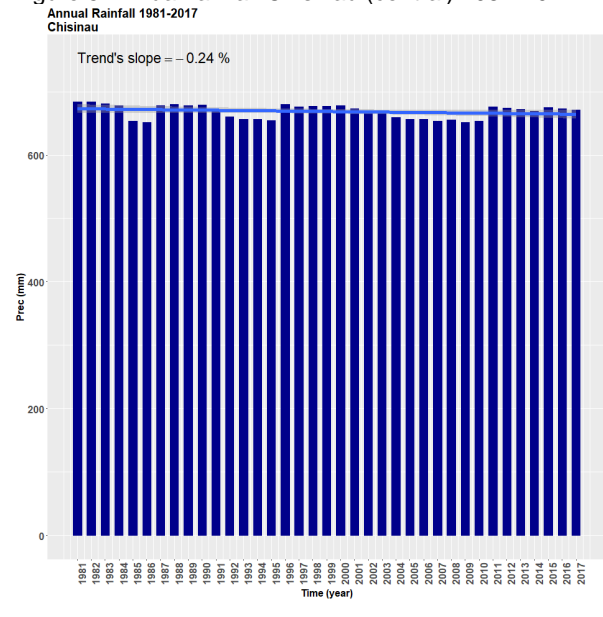


Figure 6 Average mean temp Chisinau (central) 1960-2015

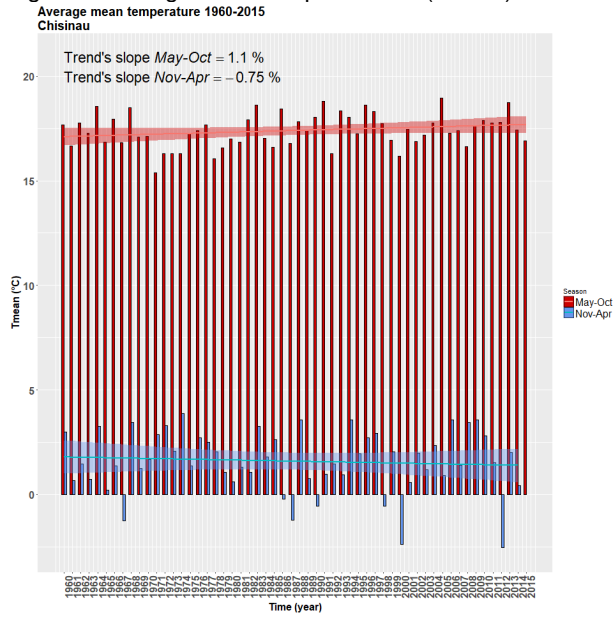


Figure 7 Heavy rainfall Chisinau (central) 1981-2017

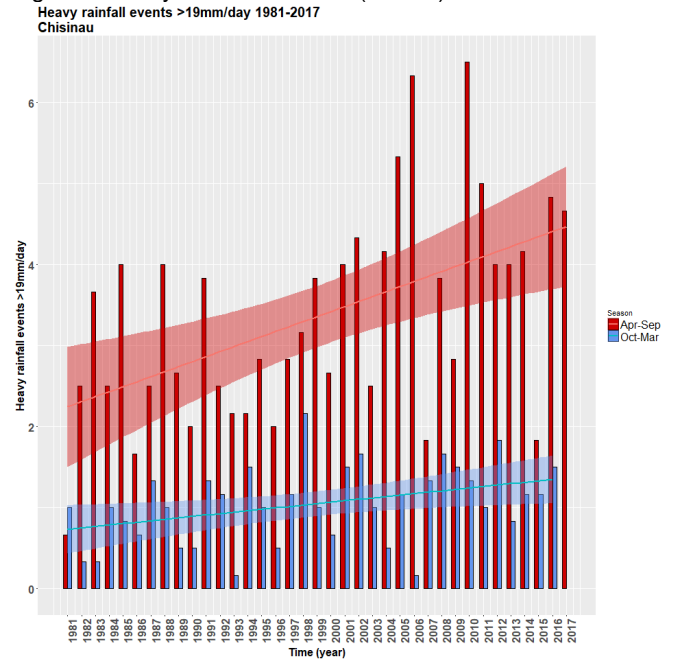


Figure 8 Annual rainfall Gagauzia (south) 1981-2017

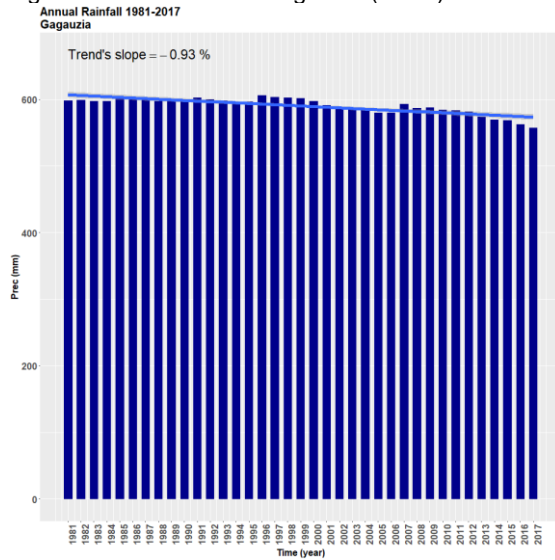


Figure 9 Average mean temp. Gagauzia (south) 1960-2015

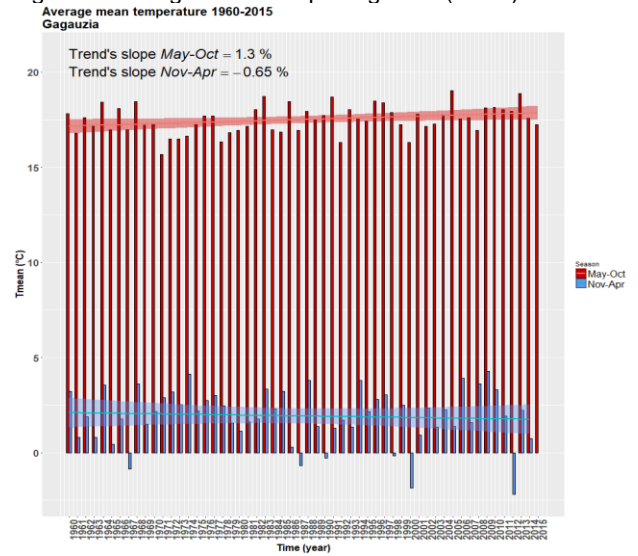
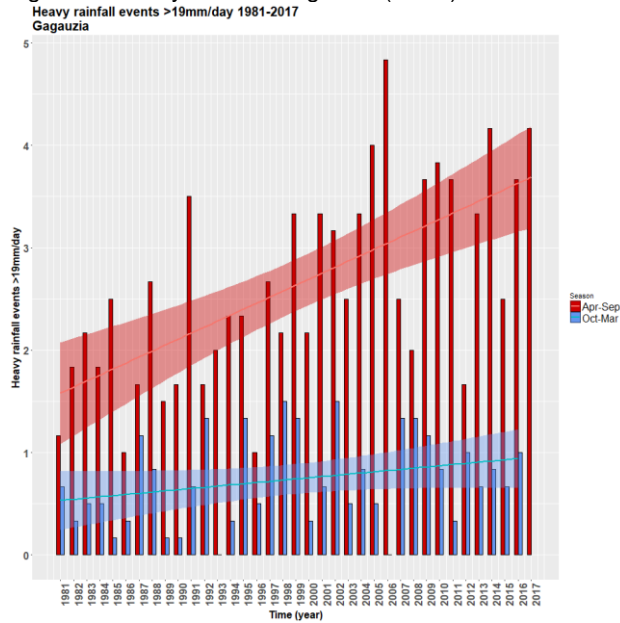


Figure 10 Heavy rainfall. Gagauzia (south) 1981-2017



24. **Temperature climate model predictions** have been made for the 2016-2035, 2046-2065 and 2081-2100 periods of the Representative Concentration Pathways (RCP). The RCP is a greenhouse gas concentration trajectory adopted by the IPCC for its Fifth Assessment Report (AR5). The AR5 depicts four pathways (of which three are represented in this analysis) that have been selected for climate modelling and research. They describe different climate futures, all of which are considered possible depending on the extent of GHG emissions in the coming years. The RCPs are labelled after a possible range of radiative forcing values in the year 2100 relative to pre-industrial values (RCP +2.6, +4.5, +6.0, and +8.5 W/m²). The three selected RCPs project similar mean annual air temperature increases in the short-term of between +0.9 and 1.1°C, significant changes begin to emerge from 2050 onwards. By the 2080's it is predicted that the rate of warming will be higher with an average +4.6°C under RCP8.5, +2.4°C under RCP4.5, and +1.3°C for the RCP2.6 scenario (see figures 11-13 below²³).
25. **Winter temperatures** in 2100 are expected to increase across the board when compared to the 1986-2005 baseline with the greatest increases expected in the north and central areas of the country. The warming is expected to be higher during winter by up to +4.6°C in the northern agro-ecological zones (AEZs), compared to +4.2 in central and southern AEZs according to the RCP8.5 scenario. The RCP4.5 scenario predicts warming to be a uniform +2.5-2.6°C, while the RCP2.6 scenario ranging from +1.2 to +1.4°C.
26. **Summer temperature** increases are expected to be higher even than in winter, albeit with different spatial distribution patterns, with the highest rises occurring over the southern and central AEZs. The RCP8.5 scenario estimates that the most significant warming during summer will range from +5.9 in northern AEZs and +6.1°C over southern zones by 2100. The pattern of change derived from the RCP2.6 scenario is quite similar, but the magnitude of change is lower from +1.3 to +1.5°C. The corresponding results from the RCP4.5 scenario show medium intensity differences in temperature increase. Estimates of simulations from the RCP4.5 ensembles predict quite uniform levels of warming of up to +2.9°C, over all AEZs.

²³ Source: Moldova Fourth National Communication to UNFCCC

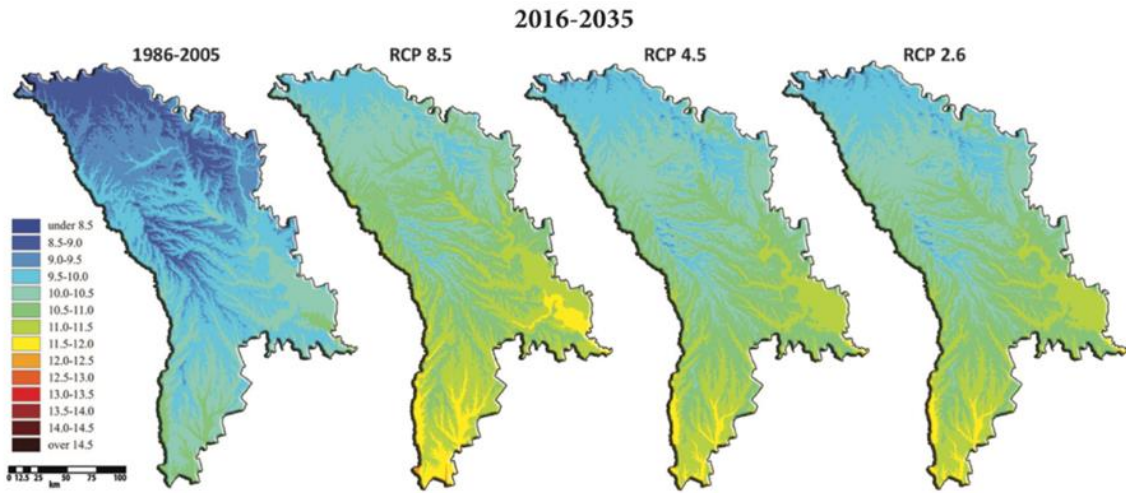


Figure 11 Projected CMIP5 GCMs Mean Annual Air Temperature °C 2016-2035

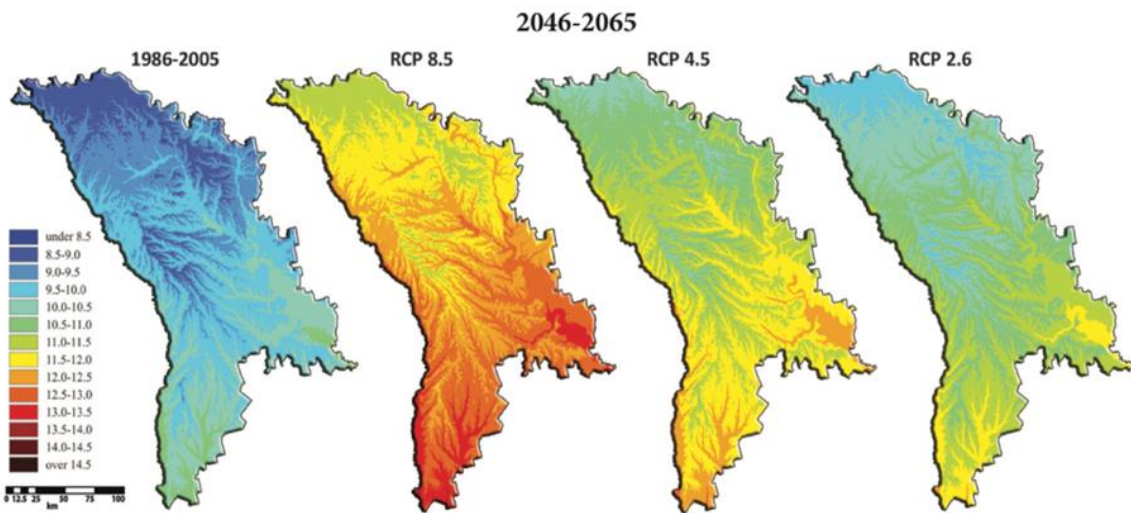


Figure 12 Projected CMIP5 GCMs Mean Annual Air Temperature °C 2046-2065

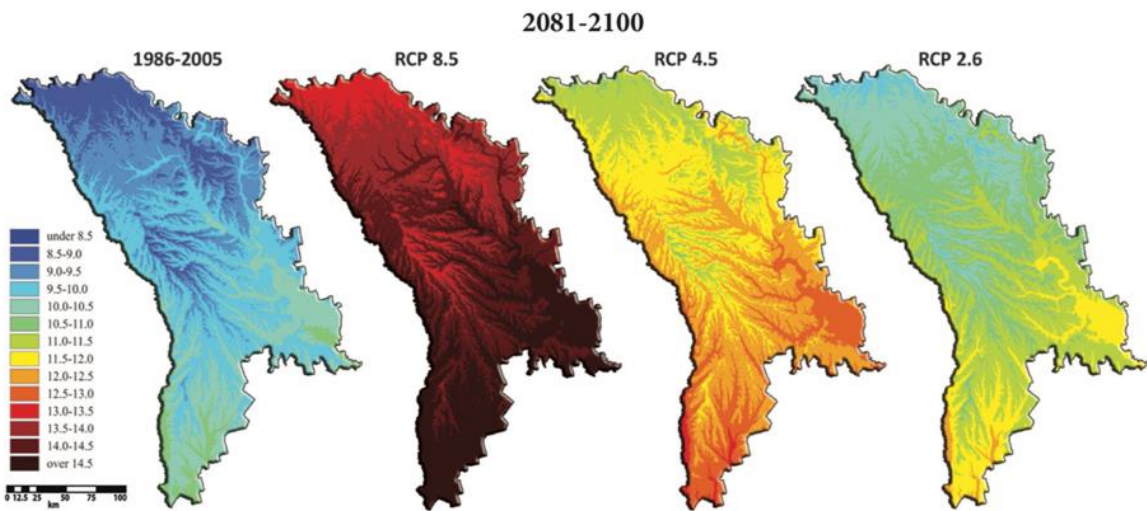


Figure 13 Projected CMIP5 GCMs Mean Annual Air Temperature °C 2081-2100

27. **Annualised precipitation climate models** paint a mixed picture, that may depart from past trends, with RCP8.5 and 2.6 scenarios seeing uniform increases of 0.6-2% in the near future, while scenario RCP4.5 shows there could be slight reductions in rainfall with changes ranging from -1.5 to 2%. By the end of the century Moldova model predictions from the RCP8.5 scenario show general annual decreases in summer precipitation by 9.9% in the northern AEZs to 13.4% in the southern AEZs. Conversely, according to RCP2.6 scenario moderate increases in precipitation are forecast from 3.1% in the north to 5.1% in the south by 2100. The corresponding results from the RCP4.5 scenario show a moderate increase in precipitation from 1.6% to 3.6% only in central and northern zones by 2100, relative to the reference time period 1986-2005 (see figures 14 -16 below²⁴).

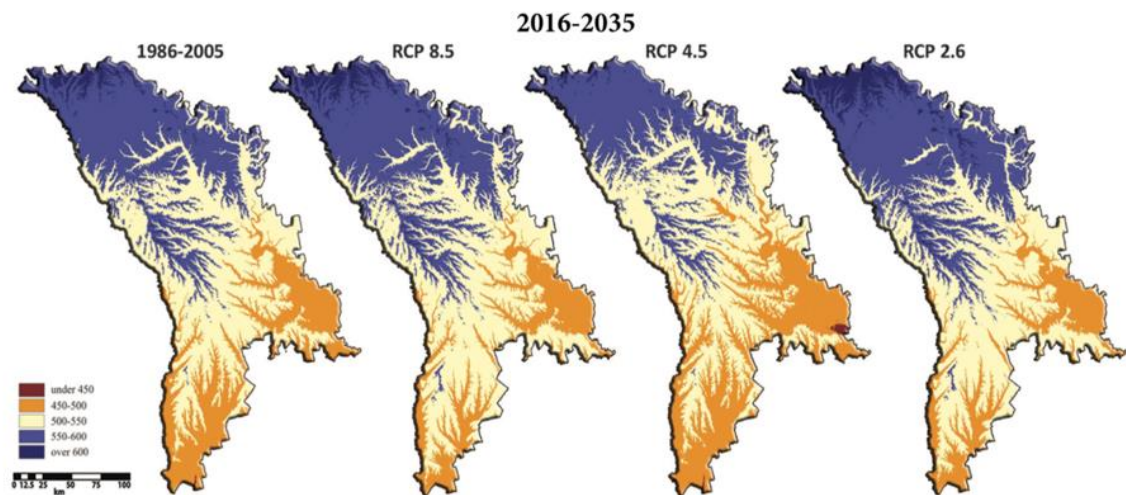


Figure 14 Projected CMIP5 21 GCMs Annual Precipitation, (mm) 2016-2035

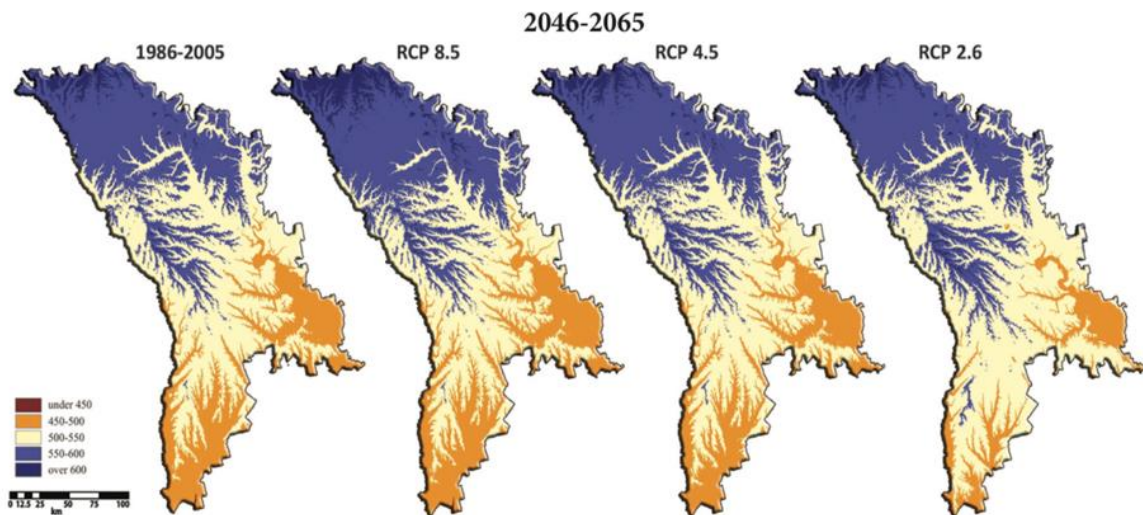


Figure 15 Projected CMIP5 21 GCMs Annual Precipitation, (mm) 2046-2035

²⁴ Source: Moldova Fourth National Communication to UNFCCC

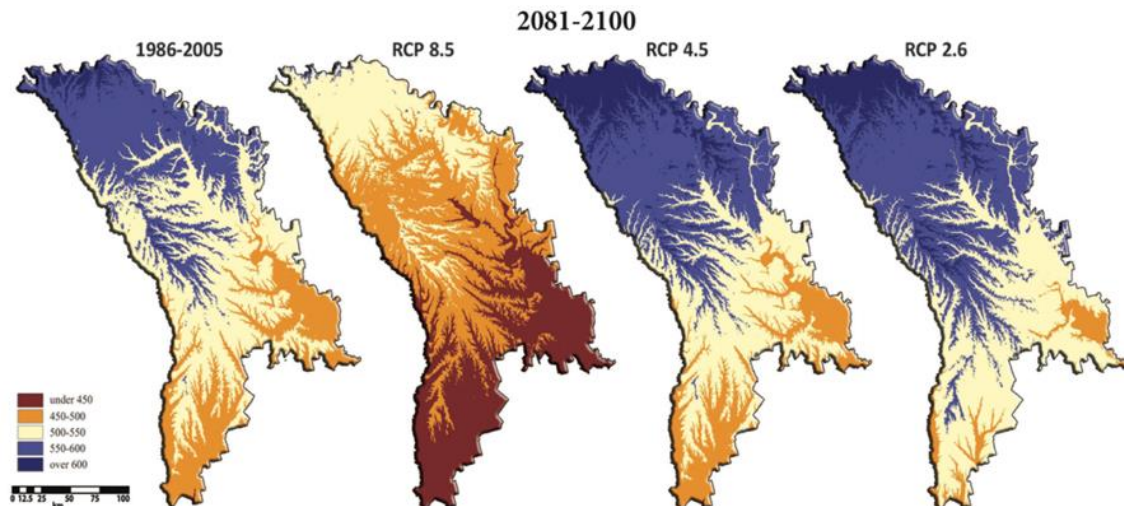


Figure 16 Projected CMIP5 21 GCMs Annual Precipitation, (mm) 2081-2100

28. **Winter precipitation climate models** for RCP8.5,4.5 and 2.6 scenarios show a general increase in rainfall during winter and spring months with the increase becoming more intense in the south during the 2016-2035 period. Multi-model projections from the RCP8.5 scenario show that Moldova would exhibit a moderate winter increase in precipitation varying from 2.0% (RCP2.6) to 5.9% (RCP2.6) over northern and from 2.2% (RCP2.6) to 6.3% (RCP8.5) in southern areas. Conversely, in spring, increase in precipitation is projected to be more intense from 4.9% (RCP8.5) to 7.1% (RCP2.6) across northern and less intense from 2.8% (RCP8.5) to 4.4% (RCP2.6) across southern areas. Winters are estimated to be wetter by the end of the 21st century with projections showing the largest increases in precipitation from 4.0% (RCP2.6) to 11.8% (RCP8.5) in winter over northern areas and the lowest from 3.0% (RCP2.6) to 7.4% (RCP8.5) in the central parts of the country by 2100.
29. **Summer precipitation.** The averages for the three RCP scenarios agree that the precipitation reduction will be much greater during summer and autumn, with all regions expected to experience increased levels of drought conditions. The RCP8.5 scenario predict the greatest summer rainfall reduction of up to 25.1% in central AEZs and 18.1% in northern AEZs. The pattern for the RCP4.5 scenario is quite similar but the magnitude of change is lower, decreasing from 13.2% to 7.4% with greatest differences seen again over the central AEZs and the lowest one over northern ones by the 2081-2100, relative to the 1986-2005 baseline.
30. **Aridity index.** In order to represent the humidity conditions, which are particularly critical for the agricultural sector, Potential Evaporation (PE) and Aridity Index (AI) are included. Projections of future changes in AI and PE place Moldova moving towards a dryer climate, from dry or sub-humid climate to dry sub-humid and semi-arid climate. For all three RCPs scenarios worsening of the humidity conditions throughout the territory is expected. Reduced rainfall in the summer and autumn period (not compensated by a slight increase in winter and spring precipitation) against a backdrop of rising temperatures will cause a strong moisture deficit and a sequential increase of the potential evaporation over the coming century. Potential evaporation is likely to increase by 7-11 percent during the growing season over the 2016-2035 period, and run up to 42-47 percent by the 2081-2100 period.

Climate Change Impact.

31. Due to its overwhelming dependence on climate conditions, agriculture is the most vulnerable sector of the Moldovan economy to climate change. These agricultural ecosystems are vulnerable to droughts, floods, and extreme weather events. Climate change could undermine Moldova's future food security, and these trends will drive more rural families into poverty and further encourage the depopulation of rural areas. The table below shows impacts related to climate events experienced in, and projected for, Moldova.

Table 1 Impacts of extreme weather events

Extreme Weather Event	Impacts
Heat waves	Projections suggest that what were considered as extreme rare events for absolute maximum temperatures under the baseline climate will possibly become mean maximum summer temperatures; the frequency of hot days with temperatures above 30°C simulated by the HIRHAM4 model ²⁵ for the period 2071–2100 in Moldova, may reach 60 to 90 days a year, compared to 10 to 30 before the 1980s.
Heavy rainfall and damage from hail storms	The heaviest rainfall occurs in early summer and again in October, often in the form of heavy showers and thunderstorms causing erosion and river silting. On average, it will become (with 66% probability) more frequent, either in absolute terms or as a proportion of total precipitation – less precipitation with a higher proportion of heavy rain events. In summer, the frequency of wet days is projected to decrease, but the intensity of extreme events is projected to increase. These changes in heavy rainfall events have implications for crop damage through flash flooding, hail storms, urban drainage, water management, erosion, slope stability and reduced ground water recharge.
Drought	The combination of higher temperatures and reduced mean summer precipitation is expected to increase the frequency and intensity of droughts, with increases in the number of consecutive dry days defined as those with precipitation below 1 mm. Long droughts are frequent for example between 1990 and 2007 alone the country experienced nine droughts that typically occur in late summer. When combined with high temperatures and hot continental winds these events can severely stress crops during critical stages in their growth cycle, the record drought of 2007 affected 75-80% of the country area with severe consequences for the national economy. In southern European countries like Moldova, where the maximum number of dry days is likely to increase most substantially, the longest dry period within a year may be prolonged by one month by the end of the century. The National Hydro-meteorological Centre concluded that, based on records from 1834-2000, the probability of catastrophic droughts (less than 50% of mean rainfall) has increased significantly, from one event every nine years to almost one event every two years.

32. **The economy** is particularly vulnerable because of the limited capacity of its social and productive structures, and its heavy dependency on climate-sensitive sectors such as agriculture. Historical records show increasing temperature trends with 7 among the 10 warmest years in recorded history in Moldova have occurred in last 2 decades. Farmers are not properly prepared for the changes that are presented in the climate models, and the agricultural sector is particularly vulnerable to climate shocks. Past drought events have had a severe impact on agriculture in Moldova with the event of 2006/7 seeing yields of major crops like wheat, maize, and sunflowers being reduced by up to 50–75 percent. Droughts vary in duration from a few days to several months, however in the years (1990, 1992, 2003) the events have extended throughout the active growing season (April - September) causing particular negative agricultural impacts.
33. The economy of Moldova already bears significant costs from climate extremes and foregoes potential benefits and these real and opportunity costs will continue to grow with a future changing climate. Potential savings from better protection against current harmful climate impacts are estimated to be substantial, amounting to more than USD 100 million per annum in total. These are mostly due to damages caused by flooding and a variety of weather impacts on agriculture, as well as the cost of climate-related health impacts (extreme heat mortality and food-borne disease). The present total cost

²⁵ The high-resolution Hamburg regional climate model (HIRHAM4) estimates changes in maximum temperatures averaged over June– July–August (hereafter referred to as summer Tmax) for Central and South-East Europe of +4-6 °C in their mean values and of +6-8 °C – in their 99% quintiles.

of inaction on climate adaptation is estimated at around USD 600 million per year, equivalent to 6.5% of GDP. This value is expected to more than double in real terms by 2050 to around USD 1.3 billion.²⁶

34. **Water.** The most recent projections of climate change impacts on the water resource of Moldova are quite pessimistic, indicating that the 2 major basins of the country (Nistru and Prut) will experience 15.9%, 36% and 57.7% decline in available surface water resources for the 2020s, 2050s and 2080s respectively. Significant shifts in water demand and increased competition for water are likely to occur across all economic sectors in the coming decades. According to the water intensive target of national economic development, secure supply of surface waters for all water users will be threatened already in the 2020s, and groundwater supply as well by the 2030. Climate change will lead to an increase in the instability of annual flow and an increase in spring and early summer flash floods. Winter and especially transitional months will be the most affected by water temperature increases diminishing dissolved oxygen (DO) levels.²⁷

Target Groups and Project Area.

35. The aim of the project is to build climate resilience into the agricultural value chain, while at the same time improve productivity, product quality, food security and reduce poverty. It will do this through the promotion of climate resilient agricultural techniques, water-efficient climate-smart irrigation technologies, mainstreaming Conservation Agriculture (CA) into the higher educational system and promoting research into CA. The USD 6 million Talent Retention for Rural Transformation Adaptation Component TRTP-Adapt will be fully integrated into the USD 50.51 million IFAD Talent Retention for Rural Transformation (TRTP) project, for which a combined IFAD/Adaptation Fund full-project design mission took place in April 2019.
36. **Target group analysis.** Rural population involved in agriculture in Moldova can be divided in three categories: (i) Smallholder poor farmers with small land properties, who crop their land and own livestock, with limited access to loans; (ii) Small and medium rural entrepreneurs, “leaders” that consolidated their land into large plots by renting part of the land from rural residents, sometimes financially backed by investors; they are the major economic driving force in rural areas accounting for a significant portion of employment (permanent and seasonal) and investments; (iii) Rural residents that rent the whole or most of their land to “leaders” account for about 70% of the rural residents, and are not engaged in farming (apart from home garden and poultry); leasing agreements with farming “leaders” are often verbal and fees are in-kind through the provision of agreed quantities of crop production (about 15-20% of average harvest yields).
37. **Targeting strategy.** Project targeting will be fully aligned with TRTP and over the five-year project cycle, TRTP-Adapt will directly target 5,000 productive poor smallholder households (16,000 people) that own and cultivate climate vulnerable land. The strategy aims to empower climate vulnerable women, youth and men smallholder farmers owning and cultivating up to 10ha of land, by expanding their climate-resilient economic opportunities, access to credit, technical knowledge in agriculture, assets and productive infrastructure. It is expected that a minimum of 40 per cent of all project beneficiaries will be women, and 50 per cent will be youth. The definition of youth in Moldova includes young persons from the age of 16 to 35²⁸. However, for the purposes for IFAD projects in Moldova, women will be considered youth up to the age of 40. This affirmative action is taken to create a more level field for women who often have to opt out of economic activities due to their responsibilities for childcare.
38. The project outreach/mobilisation strategy will prioritise beneficiaries in the more climate vulnerable and deprived areas throughout the country, based on the climate vulnerability assessment carried out by IFAD. The assessment is based on the combination of the Small Area Deprivation Index (SADI) and an analysis of the raw data for the annual precipitation and heavy rainfall obtained from the Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS) data set²⁹. The precipitation vulnerability map (figure 17) has been obtained through the combining of data sets from 1981 – 2018 for heavy precipitation events (>20mm/day), average precipitation, and the general precipitation trend (as presented in figures 19,20 and 21 below).

²⁶ World Bank (2016) Moldova Climate Adaptation Investment Planning Technical Assistance.

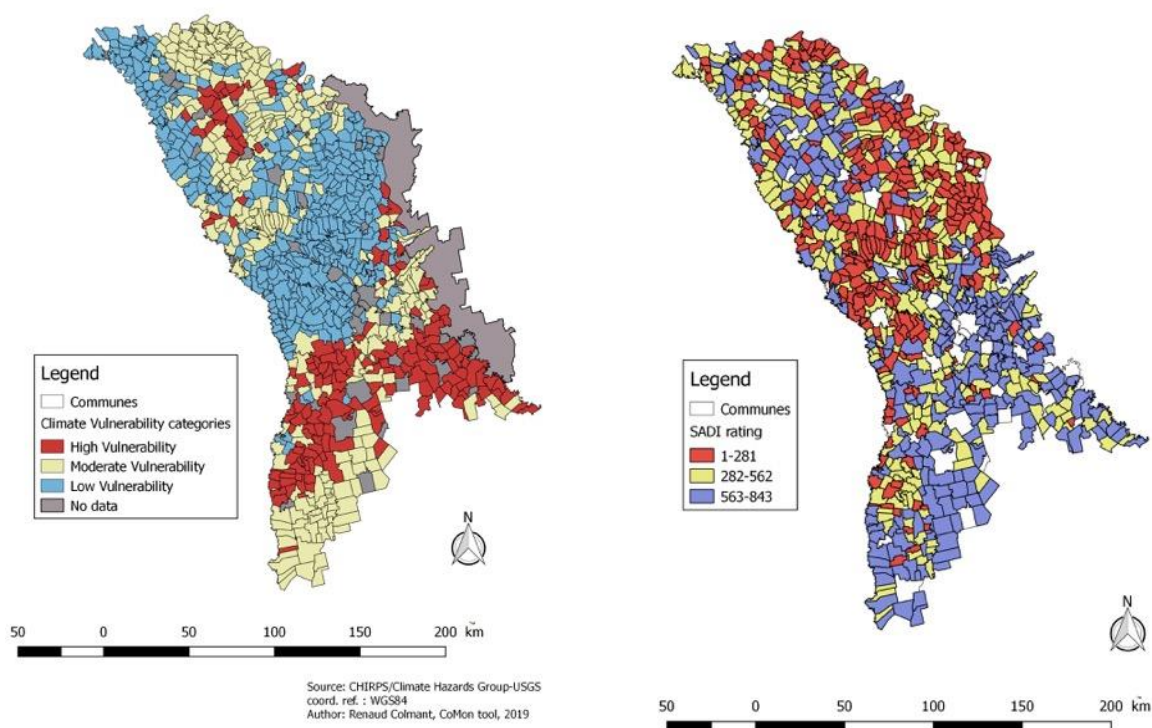
²⁷ UNDP 2009/10 HDR Moldova – Climate Change in Moldova. Socio Economic Impact and Policy Options.

²⁸ The Law on Youth No. 215 of 29 July 2016 is the national legal act that defines youth age in the Republic of Moldova. Chapter I, General Disposals, Article 2 defines a young person – a person aged between 14 and 35 years old.

²⁹ <http://chg.geog.ucsb.edu/data/chirps/>

39. **The SADI map** is a composite indicator of eight indicators³⁰ that shows the development level of a local community, covering all rural communities in Moldova. The data is calculated annually by the Ministry of Economy mainly using the data collected from local mayor's offices and has been harmonised with the existing policy framework as part of the UN Programme "Strengthening the National Statistical System"³¹. The UN Programme has helped identify qualitative data at the lowest level of disaggregation and in adjusting the calculation methodology. For the purposes of the TRTP-Adapt Project, IFAD has disaggregated the SADI data at the lowest territorial disaggregation and presented it in figure 18 below. The targeting approach will prioritise the areas with low SADI scores and high precipitation vulnerability (figure 17) first, and depending on demand, move onto the subsequent SADI rating band.

Figure 17 Precipitation Vulnerability Map (1981 - 2018) - Figure 18 Figure 19 Communal Small Area Deprivation Index in Moldova - SADI (2014)



³⁰ See annex 4 for detailed information on the indicators

³¹ <http://www.md.undp.org/content/moldova/en/home/projects/strengthening-the-national-statistical-system-.html>

Figure 19 Average Precipitation 1981-2018

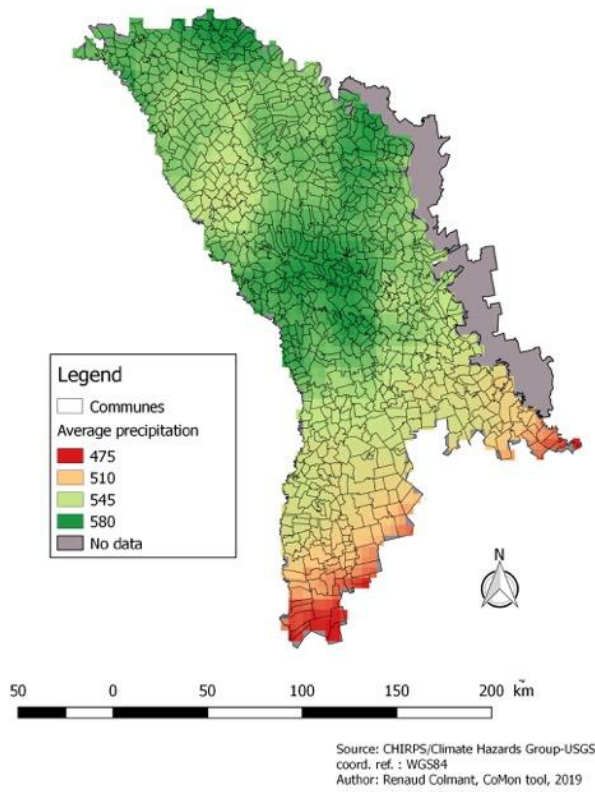


Figure 20 No. of heavy precipitation events (>20mm/day) 1981-2018

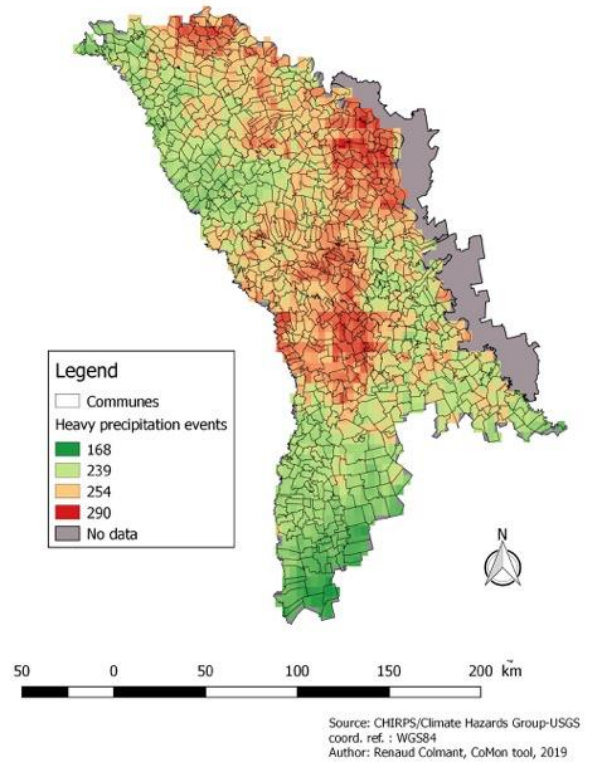
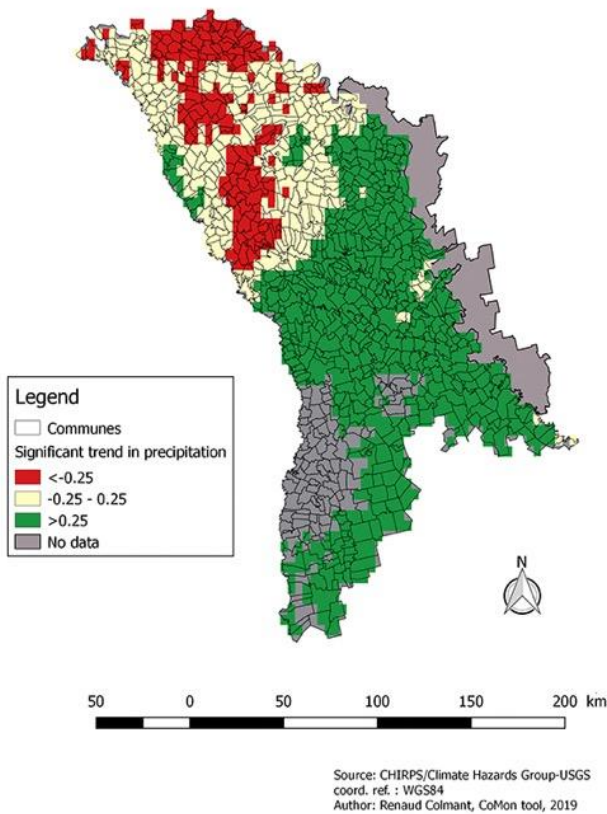


Figure 21 Significant Trend in Precipitation



B. Project Objectives

40. **The project objective** is to “strengthen the agro-ecological and social resilience to climate change in the climate vulnerable areas of Moldova, by enhancing water availability, water use efficiency, and promoting adaptive agriculture production systems and technologies for improved livelihoods and food security of rural households”.

41. The project will be structured around 3 components:

- i. Capacity development to integrate CC adaptation into agricultural production systems
- ii. Climate-resilient Agricultural Investments.
- iii. Development of a National Framework for Conservation Agriculture supported.

C. Project Components and Financing.

Project/Programme Components	Expected Outcomes	Expected Concrete Outputs	Amount (US\$)
1. Capacity development to integrate CC adaptation into agricultural production systems	1.1 Climate resilient training programme established	1.1.1 A Training of Trainers (ToT) programme designed and implemented 1.1.2 10 Demo plots identified and set up. 1.1.3 5,000 beneficiaries trained in groups of around 20 on climate resilient techniques and approaches to adapt to weather extremes of which at least 400 on water efficient irrigation.	663,738
	1.2 CA professional service provider capacity built with a focus on smallholders and gender	1.2.1 40 Professionals trained including new graduates and existing professionals in gender awareness, CA, and CA technical and service provision to smallholder farmers.	65,000
	1.3 Knowledge management	1.3.1 Knowledge management and climate change awareness raising system established and implemented.	76,000
Subtotal Component 1			804,738
2. Climate-resilient Agricultural Investments	2.1 Community mobilisation undertaken with a focus on women and youth in the most climate-vulnerable areas	2.1.1 Annual mobilisation campaign delivered and beneficiaries supported in making grant applications 2.1.2 Beneficiary applications received and screened.	70,000

Project/Programme Components	Expected Outcomes	Expected Concrete Outputs	Amount (US\$)
	2.2 Climate resilient off-farm access to water secured from tertiary canals from rivers and water harvesting ponds.	2.2.1 Improved smallholder access to water from rivers and rainwater reservoirs.	1,706,000
	2.3 Demand-driven and beneficiary co-financed on-farm water conservation management and climate adaptive techniques supported	2.3.1 At least 400 households to receive climate smart irrigation and support for banking fees for pro-poor escrow account. 2.3.2 Around 4600 supported with farm tools, to apply climate adaptive farming techniques.	2,278,000
Subtotal Component 2			4,054,000
3. Development of the National Framework for Conservation Agriculture supported.	3.1 CA mainstreamed into the educational system.	3.1.1 National overview of extent of CA adoption to inform policy and the development of a national CA curriculum. 3.1.2 National convention on CA 3.1.3 Conservation Agriculture mainstreamed into the national higher-level educational system.	164,000
	3.2 Research into CA supported with a focus on smallholders and women.	3.2.1 CA research grants, demo sites, equipment, soil laboratory supported.	300,000
Subtotal Component 3			464,000
Project Subtotal			5,322,738
Project Execution cost			214,677
Total Project Cost			5,537,415
Project Management Implementing Entity Fee			470,680
Amount of Financing Requested			6,008,095

Table 2 Project Milestones

Milestones	Expected Dates
Start of Project Implementation	2021
Mid-term Review	2023
Project Closing	2025
Terminal Evaluation	2025

PART II PROJECT JUSTIFICATION

A. Project Components.

Describe the project components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience.

42. Moldova has been experiencing severe soil fertility decline and a reduction in the resilience and functional integrity of its ecosystems hereby exposing it to an increased risk of natural hazards and is aggravated by unsustainable agricultural practices; the quantity of water resources has also been deteriorating rapidly, with severe consequences for all environment and development sectors. Agriculture is the most affected with increased frequency of severe droughts caused by climate change, along with the inappropriate soil/water management during the last decades and has resulted in a significant decline in the climate resilience of the agricultural sector. As a result, despite of the high level of natural soil fertility and, agricultural productivity in Moldova is currently very low.³² Increased exposure to land degradation and drought hazards means Moldova is exposed to increased risks that are attributable to poverty and high rural vulnerability.

Water vulnerability in Moldova

43. Water is crucial for agriculture and food production. It is required to meet personal and household needs, for energy and industrial production, and to maintain important water-dependent ecosystems and ecosystem services. Moldova is located in an insufficient wet zone that results in frequent droughts, particularly in summer and the low precipitation levels constitute the main natural factor that contributes to insufficient humidity. The extent of the impact that droughts can exert on the agriculture of Moldova was demonstrated in 2000, 2003 and most severely in 2007. The only solution for offsetting insufficient rainfall is artificial land irrigation, but it is not universally applicable in the whole country. During the Soviet period, there were about 100 centralised irrigation systems that were used to irrigate 310,000 hectares of land, but in the 1990s the irrigation system gradually went out of use. Out of the 145,000 hectares of land with irrigation potential on the right-bank of the Dniester, only 4,000 hectares were irrigated in 2001. The drought of 2007 had a significant impact on farmers' and the government's approach to irrigation, it was realised then that high-performance agriculture in Moldova is impossible without irrigation.

44. The most widespread irrigation systems in Moldova are irrigation by canals, by sprinkler and drip irrigation, that are used for field crops, vegetables, orchards and vineyards on large farms. Drip irrigation has introduced to modern agriculture the concept of combining fertilisation with irrigation, using the irrigation water to distribute the fertiliser. Although considered the most efficient system for orchards and vegetable plantations, drip irrigation is not widespread among smallholders in Moldova. In order to ensure food security and a stable harvest of the main crops it is necessary to irrigate a total of 300,000 hectares of land, and national efforts funded by a grant from the European Commission have been underway to renovate efficient irrigation networks and build new irrigation systems. Despite this, enlarging the irrigated areas may ultimately be unfeasible in the long run if climate projections for increased water scarcity materialise.

45. Experts emphasise that drip irrigation would be the most efficient approach and could generate high revenues for farmers if used in orchards, vineyards, and in vegetable growing with investments recoverable in one year. The outcome of drip irrigation however varies according to the agropedoclimatic zone of the country. In the north, irrigation may contribute to 30 to 40 per cent increase in harvest yields; in the centre by 1.4-1.8 times and in the south by 1.8 to 2.5 times. Irrigation

³² Daradur, M., Cazac, V., Mihailescu, C. and Boian, I., 2007. Climate monitoring and droughts. *Ministerul Ecologiei si Resurselor Naturale, Serviciul Hidrometeorologic de stat, Chisinau, 184.*

provides the greatest benefits in zones already experiencing water scarcity and which are expected to face more severe deficits under conditions of climate change.³³

46. **Farmer needs.** Following participatory consultations with climate vulnerable smallholder men and women potato farmers, it has been identified that one of the main barriers they are facing is primarily one of access to water as agricultural land is predominantly rainfed with the exception of the occasional rain-harvesting ponds. The design mission observed that drought was one of the main complaints of some of the rural poor farmers despite being located near one of the two main rivers. The main cause of the drought other than the lack of summer rainfall, was one of elevated water extraction costs that farmers complained amounted to 40 percent of their annual income, meaning that they have to go without. It has been calculated that water efficiency gains made through drip irrigation could save farmers up to 40 percent of the cost of water, hereby effectively bringing down the cost of water to an acceptable 3.5 Lei/m³ from 8.7 Lei/m³. At this price farmers have shown willingness to adopt drip irrigation technology however they remain unable to afford the capital investment costs.
47. Tree crop farmer consultations also showed that the main problem they are facing is one of access to irrigation that is generally not available to smallholders. Dependence on rainfall for irrigation means that water scarcity is a stress factor and is one that has a negative impact on the quality of fruit produced, with farmers consequently unable to sell and having to frequently leave their harvests to rot. Discussions with both male and female smallholder farmers in the rural villages have shown that there are currently only a small minority of entrepreneurial farmers (with small surface-water reservoirs) that are exploring options on how to get access to drip irrigation, mainly due to a lack of awareness and because of the costs involved. These farmers however complain that the main obstacles are the high interest rates banks charge for loan repayments. When asked what their needs were, the one request was to give them access to cheaper money so that they are able to invest in drip irrigation.
48. Adaptation gap - The effects of climate change are visible in Moldova and already affect agricultural production through mutually reinforcing pathways namely, drought and maladaptive agricultural practices. Damage caused by increases in severe drought events over the last 10 years have increased by over 2000 percent (USD 1.29 billion) compared to the 20-year period prior (USD 60 million). These impacts that are caused by climate change, are further aggravated by maladaptive agricultural practices that is causing soil fertility loss, land degradation and desertification. To address this TRTP-Adapt will upscale FAO-tested approaches and technologies suited to the agricultural context of Moldova that can be disseminated further with the financial contribution of IFAD. TRTP-Adapt will increase access to water, and increase the efficiency of irrigation networks through introducing water-efficient irrigation technology. The TRTP-Adapt will also train vulnerable smallholder farmers and make grants available in the form of assets that will help farmers meet these needs.
49. The design mission has shown that Conservation Agriculture is already being adopted by some of the large-scale farmers in Moldova on an ad-hoc basis as CA increases soil productivity while requiring less labour than traditional methods. CA is adaptable to climate change related problems, it is proven to increase soil fertility, reduce land and water pollution and soil erosion, reduce long-term dependency on external inputs, enhance environmental management, improve water quality and water use efficiency as well as the reduction of GHG emissions. TRTP-Adapt will support CA by supporting the development of the National Programme on Conservation Agriculture (NPCA). TRTP-Adapt will promote a national discourse on CA helping to develop consensus on its definition and mainstream it into the national higher educational system and agricultural research institutes. To achieve this the project is structured in 3 components: i) capacity building; ii) on- and off-farm water investments and climate adaptive techniques; and iii) promoting Conservation Agriculture within the higher educational system.

Component 1: Capacity development to integrate climate change adaptation into agricultural production systems (USD 804,738).

50. This component addresses the capacity development needs of component 2 and 3. Outcome 1.1 addresses the needs for component 2, while outcome 1.2 that for component 3. This component furthermore will also be instrumental in supporting the gathering, imparting and mainstreaming of knowledge and lessons learned on Climate Change Adaptation.

³³ UNDP 2009/10 HDR Moldova – Climate Change in Moldova. Socio Economic Impact and Policy Options.

51. Component 1 will build the capacity of individual farmers, extension workers, and Conservation Agriculture professionals in climate-smart water efficient irrigation techniques and Conservation Agriculture. It will also carry out annual advertising and farmer mobilising campaigns for training in climate adaptive agricultural techniques as well as supporting farmers in the initial grant application process for climate-smart water efficient technologies. Through the training and mobilisation, farmers will inter alia gain awareness about climate change, learn about the importance of sustainably managing limited and reducing water supplies and the benefits of no regret and low-cost adaptive techniques that will among other things improve soil water storage, control erosion, improve soil structure, boost nutrient management and improve yields enabling farmers to mitigate the predicted enhancement of negative climate impacts.

Outcome 1.1: Climate resilient training programme established.

Output 1.1.1 A Training of Trainers (ToT) programme designed and implemented

52. **Training of Trainers (ToT).** This output aims to build the capacity of the beneficiary farmers in all aspects related to both the climate-smart irrigation as well as the climate adaptive land management techniques. Due to the level of outmigration from Moldova, experience shows that technical expertise is sometimes a challenge to recruit. The project will therefore learn from the FAO pilot lessons and will contract a Service Provider (SP) experienced in similar agricultural projects and with the technical capacity to deliver the ToT programme, or the network from where to draw experts. The SP contract (that will include responsibilities for outcomes 1.1, 1.2 and 2.3) will be tendered and the selection will be based on weightings similar to those in the table below. The SP will recruit a ToT either nationally or internationally depending on availability, the ToT will develop the training curriculums for both the trainers and the Farmer Field Schools. Lessons from the FAO pilot have shown that training programmes need to be sufficiently flexible so as to accommodate farmers' needs. Two training programmes to be designed, one for around 400 on-farm irrigation and the other for the around 4,600 demo plot climate adaptive agricultural practices. The NGO extension services will also be receiving the same training so as to be able to support the farmers.

Table 3 Service Provider selection ranking criteria

Service Provider Ranking Criteria	Weightings %
Experience in setting up drip-irrigation demo plots / FFS projects including implementing ToT programmes, the training of extension workers and training of beneficiaries.	45
Experience in and quality of training manuals developed	10
Extent of extension worker network and experience in providing irrigation extension service support.	25
Financial proposal	20
Total	100

Output 1.1.2: Demo plots identified and set up.

53. The CPIU has experience from previous projects on the setting up and operating of demo plots and will provide oversight to the same SP tasked with this activity. The 10 demo plots will be set up 6 months prior to start of training to demonstrate the technologies and approaches that the project will aim to impart through the Farmer Field Schools (FFS), and it will demonstrate the benefits by comparing the results with controls plots on the same plot of land.

54. In collaboration with the SP, the IFAD CPIU will launch the call for proposal for the demo plots. The SPs will also use their existing network in addition to local and national mass media and social media. With IFAD CPIU oversight, the selected SP will assist in the development of business plans for each demo plot and the programme will facilitate the acquisition of the equipment needed for the implementation of demo plots activities through the matching grants programme. Farmers will be supported in the selection/choice of the most appropriate equipment and in tracking down supplier firms in Moldova or abroad, the SP will also make use of the FAO CA technology online database, which contains detailed information on equipment and suppliers. The successful demo plot applicants

will need to agree to the using of their land for training purposes for the duration of the project. The selection criteria applied and reviewed by the SP will include:

- i. Owners of FFS demo plots could be:
 - Private farmers and / or State-owned agriculture companies from rural areas, except for Chisinau and Bălți towns.
 - Scientific research institutions if they have a legal address in Chisinau or Bălți, and the farm land they own is located in rural or extra urban area.
 - Agriculture Research Institutes / Stations.
 - State Agrarian University of Moldova.
 - Agricultural colleges, boarding schools.
 - Other research institutions closely related to agriculture.
- ii. All beneficiaries should meet the following eligibility criteria:
 - Should be a legal entity in one of the geographical zones of Moldova
 - For research institutions
 - Have at least 2 ha land (owned and / or long-term leasing) he/she is willing to dedicate to on-farm irrigation and adaptive agricultural practices as well as control sites.
 - Maintain accounting evidence for overall transactions and operations in accordance with acceptable accounting procedures and standards.
 - Show a commitment to co-finance the investment with in-kind contributions to the operating costs of the farm/infrastructure.
 - Applicant should not have debts to the public budget.
 - Applicant should have satisfactory financial statements as an average for the last 3 years.
 - Applicant should present the types of activities to be undertaken on the proposed demo plot.

55. Each successful applicant will receive a USD 7,500 grant and if a female or young smallholder farmer, they will also be eligible for the TRTP financing programmes (matching grants or facilitated loans) described in outcome 2.1 and 2.2, should they wish to upscale their activities. The SP will assist in the development of business plans for each demo plot that will be reviewed by the CPIU will also facilitate the acquisition of the equipment needed for the implementation of demo plot activities. The successful applicants will be supported in the selection/choice of the most appropriate equipment and in tracking down supplier firms in Moldova or abroad, the SP will also make use of the FAO CA technology online database, which contains detailed information on equipment and suppliers.

Output 1.1.3 Beneficiaries trained on climate resilient approaches and technologies.

56. After the designing and implementing of the TOT programme, the FFS training programme implemented by the SP for around 5,000 beneficiaries will be developed of which a minimum of 400 will be part of the climate-smart irrigation grant programme. The SP will be responsible for the selection, location and implementation of the demo programme including transporting of beneficiaries. All trainings will be delivered in groups of around 20 smallholders and will be held at times of the year that will best suit the farmers but also when the results of the demo plots are most visible; the training programmes will be designed around the farmers so as not to overburden them with too many consecutive days of training. It will also reflect the gender mainstreaming approach adopted by the project, SP will therefore be instructed to make the timing and duration of trainings particularly compatible with the needs and requirements of the 40 percent of women attending. The SP will also be responsible for the development of all training manuals and simple visual manuals to provide post-training support. Experience from the FAO pilot has further shown that the training programme needs to be relevant to the needs of the beneficiaries beyond teaching them how to better adapt to climate change. Following meetings with the FAO pilot coordinator the TRTP-Adapt has inter alia incorporated lessons learned in the form of training needs in simple accounting, fiscal reporting etc.
57. **The training programmes** will be developed by the SP but depending on the type of activity being implemented will include: Irrigation systems and equipment operation and maintenance; water quality assessment and irrigation regimes; simple entry accounting and fiscal reporting; expenditures and revenues of irrigated sectors; providing advisory services in technology, economics and marketing; climate change awareness capacity building; training on the importance and necessity of sustainably utilising the limited water resources in Moldova; and composting and organic agriculture.

58. **Insufficient moisture.** Simple techniques will be taught that will help improve soil moisture, fertility and make crops more resilient to climate shocks. For example, for droughts farmers will understand the stress impact of drought on specific crops and how to adapt; to check for leaks (if using drip irrigation); irrigate during the cooler hours of the day; avoid irrigating during windy conditions; ensure water used in irrigation is not more than the soil is able to absorb; drain any excess water left in the pipes (if using) back into storage if possible. Other techniques can include explaining the benefits of weather insurance (if available); the importance of drip irrigation in reducing tree stress and improve size and quality of produce; the importance of using mulch; additional water storage; crop load management (heavier fruit loads are more vulnerable to water stress than those with less fruit). During times of drought, thinning can help to mitigate the adverse long-term effects of water stress on growth and can benefit fruit growth; summer pruning can reduce water stress while having minimal impact on fruit growth; and avoid applying foliar nutrients during heat stress because the nutrients will not be able to enter the tree and salts will concentrate too quickly in the leaves.
59. **Excessive moisture.** To cope with periods of too much moisture, farmers will be taught techniques to minimise negative impacts. These will include appropriate drainage options; the importance of land preparation, for example, application of gravel on heavier soil to improve drainage; during heavy rains allow for drainage before using heavy machinery to minimise compaction. Cover crops or orchard sod row middles can help to absorb moisture throughout the growing season and may help trees or prepare for winter. They also prevent leaching losses by tying up nutrients in organic form over winter, and releasing them in the spring when the trees can use them; and monitor soil moisture to avoid excessive irrigation.

Outcome 1.2: CA professional service provider capacity built with a focus on smallholders.

Output 1.2.1: Professionals trained in gender awareness, and CA technical and service provision to smallholder farmers.

60. As part of the capacity development programme of TRTP-Adapt and as explained earlier component 1 addresses the capacity development needs of both components 2 and 3. While outcome 1.1 meets the needs of component 2, this outcome will focus on the capacity development needs of component 3.
61. As of the end of 2018 MARDE terminated the agricultural extension services programme to farmers. The extension services such as the ones utilised for the FAO pilot the – ‘National Agency for Rural Development (ACSA)’, used to be part of the government extension services and are now independent entities often NGO’s, that market themselves as agricultural service providers to farmers. Following meetings with the General State Secretary for the Ministry of Agriculture and the Department of Crop Science at the State Agrarian University, Moldova recognises that there is a deficit in market availability of qualified professionals and particularly in the emerging field of Conservation Agriculture and they seek assistance in addressing this. MARDE is currently in the process of developing a National Programme on Conservation Agriculture (NPCA) with assistance from the State Agrarian University, as a sustainable form of agriculture that is able to adapt to climate change and reverse land degradation. The TRTP-Adapt will support the capacity building effort of this programme more broadly in terms of mainstreaming CA into the national higher educational system and research institutions as detailed in component 3, but also in terms of meeting the as yet unmet need for the development of CA professional technical support capacity to smallholders.
62. There is a knowledge gap on the extent and type of CA already adopted by farmers in Moldova and one that will be met through the TRTP-Adapt as part of outcome 3.1. The project will fund the research and development of a white paper, that will detail recommendations regarding CA practices most appropriate for the country. This will also result in a national convention on CA, the outcome of which will aim to provide a holistic way forward for CA in Moldova that will also assist future legislation. This will help design the curriculum that will be developed for the higher-level education, but also for the development of the training curriculum for the CA professionals that will provide technical advisory services to farmers including smallholder farmers. The activities will include:
- In project year (PY) 1 the project will recruit a CA expert that will design a trainers training programme and resource material for professional CA services aimed mainly at smallholders and aligned with the outcomes and recommendations of the white paper and convention on CA. The expert will subsequently train the trainers who in turn will train 40 CA professionals.

- The CPIU will mobilise interest by way of a mobilisation campaign for existing service providers and also recent university graduates in CA and sustainable agriculture to develop their capacities in providing technical services primarily to smallholders, but also the wider emerging CA farming sector to ensure that farmers currently utilising homemade CA techniques are in line with industry standard practices.
- The trainers trained by the ToT programme will be supported by the CPIU to conduct short professional courses.
- The 40 professionals will become independent professionals/advisors and also be part of the now-NGO sector extension services that will in future also recruit young graduates emerging from the new university courses as a result of TRTP-Adapt component 3. The aim is to encourage technical youth employment in the emerging sustainable and climate resilient Conservation Agricultural sector in Moldova.

Outcome 1.3 Knowledge Management.

Output 1.3.1: Knowledge management system on climate change adaptation established and implemented.

63. Knowledge generation, management and dissemination will form a core part of the TRTP-Adapt. The project will co-finance the salary of a KM Officer that will cover both the needs of the larger IFAD TRTP as well as that of the TRTP-Adapt. The KM Officer will work together with the PMU dedicated Climate Specialist and M&E Officer to set up a campaign of gathering project-related information on success stories in every aspect of the AF funded activities. The KM Officer will be responsible for recruiting production consultants and closely overseeing the production of video material on the impact of climate change and water scarcity; on the benefits of efficient water technologies and how they can save money and improve the quality and quantity of crops, and therefore also livelihoods; and on the results of the Conservation Agriculture research that is being supported in outcome 3.3. The KM officer will actively engage with beneficiaries to record farmer experiences but also digest and present the scientific research generated as a result of the project in a format that is easily understood by the general public. The KM products will raise awareness about climate change to around 10,000 people by broadcasting on the AgroTV channel as well as social media (Facebook, Instagram and YouTube). Other appropriate material will also be produced for the relevant outlets such as radio and the printed media including posters and leaflets.
64. **Studies.** The dedicated Adaptation Fund Climate Specialist will engage with the Agrarian University and post-graduate research students to generate published scientific research in key project areas such as on the impact of drip irrigation on saving money, water and improving the quality and quantity of produce; the impact that using the types of low-cost climate adaptive techniques promoted by the project have on driving down costs, improving productivity and the livelihoods of smallholder farmers. The specialist will work closely with the KM Officer to use the information generated to feed directly into the awareness campaign as outlined above.
65. **Baseline.** The TRTP-Adapt will benefit from the added value of being incorporated into the larger IFAD TRTP meaning there will be a merged baseline. As the TRTP-Adapt is planned to be implemented as of PY2 of the TRTP, the baseline study will be undertaken in PY1 of the TRTP a year before TRTP-Adapt will be implemented. The added cost-benefit of partnership with IFAD will allow the Adaptation Fund to help mainstream climate change vulnerability assessments into the combined IFAD/AF baseline project. It will include climate change related indicators on the extent of water vulnerability including for example: proportion of income spent on irrigation water, extent of water availability (rainfall or irrigation) and extent of farm land irrigation.
66. **Impact Assessment.** The impact assessment will be conducted by an external and independent consulting firm. Due to the relatively small number of beneficiaries that will be recipients of on-farm irrigation technologies the project will carry out direct surveying of the beneficiaries being supported including those receiving demo plot training. The surveys at baseline will inter alia help understand the extent of water vulnerability in terms of the type of irrigation they use, if any; the cost of water vis-à-vis their annual income; food insecurity; perception of climate change; if they already use climate adaptive agricultural techniques etc. (see section on baseline above). At project closure the impact assessment will use the same indicators to measure impact and also assess what they have learned

as a result of the project, and if they feel that they have improved knowledge and tools at their disposal to adapt to climate events.

Component 2 Climate-resilient Agricultural Investments (USD 4,054,000).

Outcome 2.1: Community mobilisation undertaken with a focus on women and youth in the most climate-vulnerable areas

Output 2.1.1: Annual mobilisation campaign implemented.

67. On an annual basis, the project will conduct a campaign to raise awareness about the project and reach out to the smallholder beneficiaries about the benefits of the project and to encourage them to apply. Information and awareness campaigns will be undertaken by the CPIU staff through workshops and seminars organised in the identified vulnerable agro-ecological regions within three months after the project effectiveness. The campaign will include local authorities, water user associations, farmer associations and smallholder farmers with up to 10 ha of land. At least one information workshop will be conducted in each of the main zones identified (North, Centre, South) and more in-depth mobilisation approaches will be adopted for some of the more particularly vulnerable Raions (Districts) and Primarias (Villages / Local Public Administrations) as identified by the precipitation vulnerability and SADI assessments.

Output 2.1.2: Beneficiary applications received and screened.

68. **Application.** All beneficiaries (400 on-farm and tertiary canal off-farm irrigation applicants) will need to submit an application and different application procedures will be applicable to the two types of beneficiaries. The applications will be screened by the CPIU according to the criteria in tables 4 and 5 below and verified through on-site verification. The applications for the climate-smart irrigation will be on an individual basis and those for off-farm tertiary irrigation may be small farmers' interest groups, Water Users Associations (WUA), formal village level agribusinesses and village councils (Primaria). All applicants will need to follow the application process detailed in section II - E that ensures compliance with national procedures in sustainable water management and forms the core element of the project's ESMP.
69. **On-farm grant applications (outcome 2.3).** As part of the grant application process a minimum of 400 grant applicants will be assisted in complying with the national water permit procedures that are applicable to all water related infrastructure applications in Moldova. The CPIU will review applications and screen them according to the criteria in the table below, it will then provide assistance and provide a roster of experienced service providers that the farmers will need to use to prepare their application. The application process takes around 30 days and consists of various stages the first of which is the water permit. Farmers will need to prepare a simple pre-feasibility study that will make their business case including the crops to be grown, the amount of water that they estimate they will need, the proposed source of water to be used and any required permits for land utilisation between the farm and the water source (if any). Once Apele Molovei and the Environment Department at MARDE have verified the water sustainability of the proposal and approved the source of water, the water permit is issued including specifications on the amounts of metered water that the applicant will be allowed to extract based on water availability and existing users – all water use in Moldova is metered and monitored by Apele Moldovei.³⁴
70. Upon securing the permit, the applicant will need to submit a more detailed project design with the assistance of a service provider from a CPIU verified roster (that will be relatively simple for smallholder farmers making micro-irrigation applications) for verification by the State Verification Enterprise. The final application inclusive of the water permit and state verification approval is subsequently submitted to the CPIU for final review and approval. The CPIU will review all the documentation and make recommendations to the Selection Committee (SC). The SC is a body mandated by MARDE decree for final approval and comprises the Ministry of Agriculture Regional Development and Environment (MARDE), Ministry of Economy (MOE), Ministry of Finance (MoF), IFAD/CPIU and Apele Moldovei.

³⁴ For more detailed explanation please refer to section II - E

Table 4 Adaptation Fund Beneficiary Screening Criteria

On-farm Grant Ranking Criteria	Points
Number of hectares cultivated	
Less than 3	0
Between 3 and 7	5
Between 8 and 10	10
Climate vulnerability (refer to the climate vulnerability map)	
From highly vulnerable geographic location	0
From moderately vulnerable geographic location	15
From low vulnerable geographic area	30
Poverty indicator (refer to the map created by IFAD based on selected SADI data).	
High	0
Middle	15
Low	30
Total (preference to lowest score)	

71. **Off-farm irrigation selection process (outcome 2.2).** Request for funding from the TRTP CRI subcomponent, that the AF will co-finance, may come from a variety of sources. Applicants may be small farmers' interest groups, Water Users Associations (WUA), formal village level agribusinesses and village councils (at the Primaria level). All applications will go through a two-step selection process of: (i) screening, pre-qualification; and (ii) qualification and ranking. All the pre-qualified investment proposals will be ranked, based on the outcomes of the feasibility studies, using a scoring system as shown in the table below, based on cost per ha.; Internal Rate of Return (IRR); number of benefitting households; climate change vulnerability; and the SADI index score. Unless thirty percent of the land that is to be irrigated is being cultivated by smallholder farmers with less than 10 ha, the proposal will be disqualified.

Table 5 Scoring for Off-farm TRTP Irrigation Investment Proposals

Value	Points
Estimated per hectare Investment Cost (VAT excluded)	
Over USD 2,500	10
Between USD 2,000 and 2,500	15
Less than USD 2,000	20
Internal Rate of Return (IRR)	
Less than 15%	0
15-20%	5
More than 20%	10
Number of benefitting households (smallholder farmers with less than 10 ha land)	
Less than 5	0
Between 5 and 10	15
More than 10	30
Climate change vulnerability (based on vulnerability map)	
From low vulnerable geographic area	0

Value	Points
From moderate vulnerable geographic area	10
From highly vulnerable geographic area	15
Deprivation (SADI indicator for irrigation)	
Low (564-843)	0
Middle (282-563)	10
High (1-281)	15
O&M is properly described and arranged	
Management institution to be established	0
Will be transferred to already established institution (WUA)	5
Already is operated by management institution (WUA)	10
Total Max 100	

Outcome 2.2: Climate resilient off-farm access to water secured from tertiary canals from rivers and water harvesting ponds.

Output 2.2.1 Improved smallholder access to water from rivers and rainwater reservoirs.

72. As outlined earlier the main challenge facing smallholder farmers in Moldova is access to, as well as availability of, water. It has emerged as result of the in-depth design mission, that the majority of the target group do not have access to irrigation water. Ground water in Moldova is predominantly unsuitable for agricultural use and where it is suitable (mainly in the south of the country) it is prioritised as drinking water and for industry, not for climate vulnerable smallholder irrigation. While the Soviet-era river water pumping stations are beyond repair some have been rebuilt but poverty levels are such that smallholder farmers cannot afford to pay for the last-mile tertiary canals required to make use of this new infrastructure or to pay for communal rainwater harvesting ponds. Many poor smallholder farmers consequently find themselves largely dependent on rainfall.
73. **Activities.** As part of the IFAD financed TRTP project there will be a sub-component called Climate Resilient Infrastructure (CRI) with a budget of USD 7.97 million. This will be dedicated to the construction of 20 micro- or small-scale off-farm tertiary canal irrigation schemes for a total command area of 2,800 ha, of which the Adaptation Fund will co-finance USD 1.7 million. It is estimated that as a result around 400 smallholder farmers will benefit of improved access to water. It was learned through the ongoing IFAD-funded 'Inclusive Rural Economic and Climate Resilience' project, also engaged in similar tertiary canal construction, that of the cluster of beneficiaries per irrigation scheme, an average of around 30 percent were within the AF target group of 10 ha or less of land owned and cultivated. It has been agreed however that any smallholder farmer benefitting from this activity will also need to adopt climate-smart irrigation technology. This activity will be open to farmers with existing water efficient schemes but farmers will also be encouraged through the awareness raising activity to participate in the AF grant scheme detailed in outcome 2.3.
74. **The investments** will be typically at the tertiary canal level linked either to independent small schemes with existing sources (pumping stations on rivers and natural reservoirs), or to larger functional secondary pipelines and supply systems such as the recently completed rehabilitation of Centralized Irrigation Systems under the Millennium Challenge Account (MCA)³⁵ operated by the state water agency 'Apele Moldovei'. It is envisioned that investment in micro- and small-irrigation would include pumping stations or water harvesting ponds lined with polypropylene protective geotextile with a storage capacity up to 15,000 m³, tertiary canal and pipeline distribution network providing the necessary conditions for supplementary or full irrigation of agricultural land in farm areas up to 200 ha.

³⁵ The MCA Moldova provides assistance to the Moldovan Government through efficient implementation of the Compact Agreement according to the Agreement signed between the United States of America, acting through the Millennium Challenge Corporation, and the Moldovan Government.

75. **Environmental safeguards.** As explained in more detail in section II-E, water use and extraction in Moldova is highly regulated. As with any new water infrastructure, interested parties need to provide detailed information on the proposed activities for review by MARDE (including previously separate Ministries of Agriculture and Environment), the water service provider Apele Moldovei, MoF and MoE. In the context of the TRTP and TRTP-Adapt projects the reviewing institutions are represented in a Selection Committee (SC) as mandated by a MARDE directive. The applications require the completion of feasibility studies by qualified specialists based on which relevant authorities provide their opinions and recommendations and issue water permits stipulating water usage rights and limits that are monitored by Apele Molodvei. This assessment is made by the Moldovan authorities based on inter alia the review of whether there is sufficient water; the number of users already using a particular source of water; the amount of metered water that each activity is allowed to extract; and on-site verifications are made prior to approval. All these steps need to be carried out before the applications undergo final selection by the SC and inclusion of the investments in the following Annual Work Plan and Budget (AWPB).

Outcome 2.3: Demand-driven and beneficiary co-financed on-farm water conservation and adaptive management techniques supported.

76. The primary objective of the TRTP-Adapt is the implementation of the integrated water resource management (IWRM) approach that aims to make climate vulnerable smallholder farmers more resilient to climate change. To help achieve this the project will target around 5,000 farmers, of which at least 400 through the upscaling of the FAO pilot. The objective is to train and equip the smallholders to reduce water consumption and simultaneously improve crop yields and product quality while also reducing other production costs such as energy and labour, hereby increasing production at a competitive cost. Following gender-balanced consultations with smallholder farmers, the project identified that while the occasional more entrepreneurial smallholder farmer is exploring ways to get affordable credit to install drip irrigation systems, there was also a clear general knowledge gap on the benefits of using drip irrigation and general adaptive management techniques. This project will therefore provide capacity building and awareness raising under component 1 to bridge this knowledge gap. This will be supported with grants to put the efficient irrigation knowledge into practice. Separately it will supply 4,600 climate vulnerable farmers with the tools and equipment needed for the implementation of the training programme on well-established adaptive techniques of coping with weather extremes such as droughts, high temperatures and torrential rain.

Output 2.3.1 Households received climate smart irrigation and support for banking fees for pro-poor escrow account.

Grants. TRTP-Adapt will promote climate resilient water saving technologies through USD 2,500 grants to at least 400 beneficiaries, that depending on the type of crop being cultivated, can be sufficient for up to 1 hectare of land. The types of equipment eligible will include pumps and pump filters; drip pipes; micro-sprinklers; water tanks; and machines for soluble and liquid fertilisers. In order to promote project sustainability and beneficiary ownership, the beneficiaries will be asked to contribute 30 percent additional money in cash which is USD 750, making the total USD 3,250.³⁶ The TRTP-Adapt is not designed to meet all the irrigation needs of the beneficiaries, but rather provide a mechanism whereby the FAO piloted technology is showcased and knowledge transferred to as many beneficiaries as possible. TRTP-Adapt is fully integrated into the IFAD TRTP project that aims to promote youth and women agricultural entrepreneurship, all Adaptation Fund beneficiaries will therefore also be entitled and encouraged, should they want to, to apply for the matching grants and facilitated loans that will provide an avenue through which farmers are able to get access to more credit to upscale their businesses and increase water-saving investments.

77. **Pro-poor financing.** One of the concerns IFAD has had for its past projects in Moldova is that the targeting has been insufficiently focused on the rural poor and instead focused more on wealthier farmers. This has been addressed in the TRTP and TRTP-Adapt with the 10ha limit, however one consequence of the previous approach has been that farmers were always sufficiently wealthy to be able to pay grant money upfront and then request refunds from IFAD with proof of purchases. As the AF target group are the climate vulnerable rural poor who include those that struggle to even pay for the extraction of irrigation water - it would effectively exclude the most in need should they be expected to pay USD 3,250 upfront. To overcome this problem while still ensuring that farmers invest

³⁶ The FAO pilot demonstrated a return on investment within one year.

the grant money in compliance with the project objectives, the project has designed an innovative solution which is to use escrow accounts.³⁷

78. The way the escrow accounts system will work, is that the CPIU will enter into an agreement with commercial banks as partners, such as MIAB, MICB and MobiosBank. The banks will provide a service where those beneficiaries unable to pay upfront will be allowed to open an escrow account (with an administrative fee of USD 150 per account paid for by the Adaptation Fund). The beneficiary will submit her or his application in the process described in section II-E, and should the project's criteria be met and the application approved, then the escrow account is opened into which IFAD pays the grant money and the beneficiary also pays the 30 percent co-financing. The commercial bank will then be tasked as part of the fee, to carry out all verifications of the supplier and contracts, and subsequently send the payment to the supplier. This process helps the most in need to benefit from the project while also ensuring transparency and full traceability of the flow of funds.
79. **TRTP credit.** TRTP-Adapt is fully integrated into the TRTP project that on top of improving access to water, is also focused on strengthening the value chains for producer groups but crucially will also provide entrepreneurship finance in the form of affordable credit with a strong focus on youth and women. The TRTP will inter alia be focused on addressing the two main bottlenecks affecting access to credit for the rural youth and women – the cost of capital and lack of collateral to access loans. The TRTP will provide mentoring support for young entrepreneurs and women to assist the target group in the formation of investment and working capital proposals; and provide grants of up to 40% of the investment costs, matched with bank credits. IFAD expects average loan amounts to be about USD 50,000, but can be less depending on the needs of smallholders and will be used for productive investment in equipment and working capital in both on-farm and off-farm activities.
80. **Output 2.3.2 Climate adaptive techniques implemented**
81. **Climate adaptive techniques.** The TRTP-Adapt will raise awareness about climate change as well as promote well-established low-cost, no regret adaptive techniques for up to 4,600 farmers. These will help improve soil water storage, control erosion, improve soil structure, and boost nutrient management to give them the tools to better cope with the increasingly more variable climate. To support the training in outcome 1.1 the activity will, depending on the need of the farmer, supply equipment such as shredders for crop residues in the field; machines for distribution of organic fertilizers; compost making machines; row cultivators; weed burners; and hand tools or provide support to minimise damage from increasingly frequent torrential rain including drainage options, laying of gravel to increase soil water uptake and reduce erosion.
82. **Flexibility.** A lessons learned exercise that has been carried out on previous IFAD projects such as the IFAD/GEF 'Climate Resilience Through Conservation Agriculture' project, has shown that there is a tendency to struggle to recruit sufficient interested farmers in Moldova. Equally the FAO pilot also demonstrated the need to remain flexible and introduce new activities based on farmer demand. Mindful of this challenge and based on the fact that the TRTP-Adapt is demand-driven, the project will build in a degree of flexibility to ensure that the project remains relevant to the needs of the farmers within the context of helping them adapt to climate change. Should the CPIU and SP notice for example that there is more interest in the drip irrigation grant scheme, then the project will be able to adjust the programme to allocate more funds accordingly. Equally, if farmers are requesting other services for example hail nets for grape production, then the SP can request changes to be considered by a panel of experts in the CPIU, who in turn will follow the standard procedure of requesting no objections from IFAD. Any changes will also need to be reflected in the training programme. In the case of hail nets the costs are significant for example USD 17,000 per hectare, therefore the USD 3,250 will not be sufficient. Any interested climate vulnerable smallholders with the financial resources and in compliance with the project's selection criteria, will be able to combine the AF grant including the 30 percent cost share, with the IFAD TRTP financing scheme explained earlier. Other adaptive activities that can be considered include support for the construction of on-farm rainwater harvesting ponds.
83. **Extension support.** In view of the fact that the GoM has as of the end of 2018 ended the agricultural extension services programme, the SP will be tasked to provide this service. The design team met with ACSA, the NGO Service Provider that implemented the FAO pilot and learned that Moldova has

³⁷ An escrow account is an account where funds are held in trust whilst two or more parties complete a transaction. A trusted third party will secure the funds in a trust account and the funds will be disbursed to the merchant after they have fulfilled the escrow agreement.

a number of NGOs effectively providing specialised agricultural, technical and advisory services that have resulted from the government's process of cost-cutting and privatisation. As a remnant of the government extension services programme the NGOs have kept their networks of extension workers alive and regularly utilise them for a number of development projects including for the World Bank, the EU, USAID and others. The extension worker network is typically large and comprise farmers living within the communities where the projects are being implemented - they will be readily available for a fee to provide technical and advisory support services. The suggested fees will be included in the package as part of the SP application by the competing NGOs in their financial bids of the tender process.

84. As part of the tendering process the SP will be required to demonstrate from previous experience, their capacity to draw from a pool of locally based experienced extension workers and submit their plans as to their costs involved and frequency of service provision that will be covered by the Adaptation Fund. The project will expect the SP to support the implementation of two types of extension services. This will include i) advisory and technical support for the minimum 400 beneficiaries that will be implementing the climate-smart irrigation; and ii) advisory support for a further 4600 beneficiaries receiving adaptive agricultural capacity building. All beneficiaries will receive support manuals that are picture-based and easy to follow, these will be designed by the SP and widely distributed as part of the training courses. Beneficiaries will receive support in any area relevant to the training, the extension workers will also function as early warning systems through text messages enabling the farmers to prepare in advance for period of drought or torrential rain. On top of this, the beneficiaries that fall within the first category will be supported by the extension workers for technical issues relating to the irrigation technologies in terms of maintenance (regular cleaning) of the drip pipes to ensure that they are fully functioning, fertiliser use and pump functionality issues etc. The farmers will be expected to pay for the regular running and maintenance of the infrastructure.

Component 3: Development of the national framework for Conservation Agriculture supported (USD 464,000)

Conservation Agriculture (CA) is an application of modern agricultural technologies to improve production while simultaneously protecting and enhancing the land resources on which production depends. The application of CA promotes the concept of optimising yields and profits while ensuring provision of local and global environmental benefits and services. CA is based on the principles of rebuilding the soil, optimising crop production inputs, including labour, and optimising profits. Conservation agriculture promotes a series of principles to achieve conservation objectives, rather than a particular technology. Through CA, farming communities become providers of more healthy living environments for the wider community through reduced use of fossil fuels, pesticides, and other pollutants, and through the conservation of environmental integrity and services.

85. CA promotes minimal disturbance of the soil by tillage (zero tillage and direct sowing), balanced application of chemical inputs, and careful management of residues and wastes. This reduces land and water pollution and soil erosion, reduces long-term dependency on external inputs, enhances environmental management, improves water quality and water use efficiency as well as the reduction of GHG emissions. CA provides good results at small and large-scale farming and it is adaptable to climate change related problems such as reduced rainfalls. CA allows for increasing soil productivity while requiring less labour than traditional methods. Higher outputs provide higher income; even if market access conditions or crop prices remain unvaried.³⁸
86. Since smallholders – and women in particular – are among the poorest in Moldova they stand to benefit from CA. CA has in fact been recommended by the UNDP Moldova National Human Development Report (HDR) of 2009/10 as a means of climate adaptation in agriculture. It formed one of the 10 strategic priorities of the former Ministry of Agriculture Food and Industry (MAFI) in the 2011-15 strategy and remains so in the current 2014-2020 National Strategy for Agricultural Development. CA in Moldova has recently been introduced by IFAD with a USD 4.2 M GEF Special Climate Change Fund (SCCF) support in the form of the Climate Resilience Through Conservation Agriculture (CRCA) project. The project complements and builds climate change resilience into the larger USD 13.8m IFAD programme for Inclusive Economic and Climate Resilience with concrete awareness raising and farming activities.

³⁸ Dumanski, Julian & Peiretti, R.A. & Benetis, J & McGarry, D & Pieri, Christian. (2006). The paradigm of conservation tillage. Proceedings of the World Association of Soil and Water Conservation. 58-64.

Outcome 3.1: CA mainstreamed into the national higher-level educational system

Output 3.1.1: National survey and CA White Paper produced.

87. CA is still a relatively new concept in Moldova despite having been around for a long time. Following meetings with the State Secretary for Agriculture at MARDE it has become evident that progress is being made in mainstreaming CA into the national agricultural sector and towards CA legislation. In particular MARDE is working with the State Agrarian University on developing the NPCA, one of the main barriers identified to the mainstreaming of CA is a general lack of information that would assist the development of legislation. Meetings have demonstrated that at institutional levels (academic, research and ministerial) there are misunderstandings with respect to the definition of CA; the extent of CA adoption by farmers is also not fully understood. Field visits by the TRTP-Adapt design team and the participatory gender-balanced focus groups have shown that interest among farmers in CA seems to be more widespread than perhaps is realised at institutional level. There have for example been instances where small as well as large-scale farmers with over 400 ha of land, are fully dedicated to adopting CA principles mainly for the economic benefits of reduced overhead and operating costs; but how farmers large and small are interpreting the concept of CA, seems to be very much an ad-hoc affair with farmers doing their own research on the internet and through word of mouth.
88. **Activities.** The Adaptation Fund will support the development of the of the 2020-2025 NPCA in a number of ways. Primarily in PY1 of TRTP-Adapt it will support the NPCA by carrying out a national inventory, or national survey to understand the extent of Conservation Agriculture adoption by all farmers. It will produce a report providing a nationwide picture on what the level of awareness is towards CA (disaggregated by gender), what practices are being applied and whether these actually can be considered CA. The CPIU will tender and recruit a specialised consulting company or a team of experts resourced from the academic, research as well as private sector institutions specialised in CA and sustainable agriculture to design a methodological approach and deliver a nationwide survey over a period of two months. The team will also consist of training experts that will train enumerators tasked with collecting the data. Over the course of two months the team will train a team of enumerators in surveying techniques and approaches; report on the number, size and location of farms and hectares of land already under CA; collate the practices being used and categorise them accordingly; report on the number of farms that have access to a source of irrigation or rainfed agriculture; assess the general knowledge of CA among the farmers practicing CA (disaggregated by gender); produce a white paper analysing the general picture of CA in Moldova and based on standard international practices in CA and make recommendations on the most appropriate forms of CA for Moldova. As a result of this activity the White Paper will be the first of its kind in getting a national overview as well as generate the knowledge-base for future CA legislative development in Moldova.

Output 3.1.2 National convention on Conservation Agriculture delivered.

89. Based on the white paper produced in outcome 3.1, the project will develop a national dialogue process to develop a national consensus on the form CA will take in Moldova. The CPIU will be responsible for the arranging and coordinating of an initial workshop / or panel of experts to review the white paper before it is officially released. Once finalised the white paper will form the basis of the CA convention that the CPIU will organise. The convention will comprise a broad spectrum of the institutions that deal with CA in Moldova, they will include relevant people from MARDE, research institutes, universities, technical colleges, farmers associations, water user associations, relevant UN agencies (FAO) but also international higher-level educational CA experts contracted to attend for technical advice. The convention will discuss the findings and recommendations of the white paper and aim to produce a national consensus on CA and agree on the basis for a CA curriculum. Based on IFAD's experience in Georgia for the development of a national Climate Change strategy more than one convention was necessary for all parties to come to an agreement, should it therefore be deemed necessary to have a second convention then sufficient budget has been allocated for this purpose. Should this not be necessary, then the project will continue with the development of the curricula in partnership with the relevant institutions.

Output 3.1.3 Conservation Agriculture mainstreamed into the national higher-level educational system.

90. **Curriculum.** Mainstreaming CA into the higher educational system both in the State Agrarian University as well as technical colleges is at the foundation of developing a future where academics,

professional advisors and ultimately farmers will have a structured and informed understanding of CA. Following meetings with the Rurac Mihail, the Associate Professor in the Department of Crop Science in the State Agrarian University of Moldova, it has been explained that the existing CA higher-level educational programmes need to be completely redesigned, as they are currently inadequate. Professors need to be trained on CA and resource material such as text books, research papers need to be translated into Moldovan. After reaching a consensus on the national approach to CA, the ultimate outcome of the convention in outcome 3.1 will enable the setting of a general direction for the development of a national curriculum on CA that can be adopted by all relevant higher level educational institutions and agricultural colleges; identify the appropriate international textbooks and research papers to utilise as resource material; and to the extent possible have a gender-balanced focus on smallholder farmers.

91. **Textbooks and Resource Material.** The convention will be followed by a workshop or a panel of technical specialists to design a CA curriculum and identify the appropriate international textbooks and research papers to utilise as resource material. The CPIU will be tasked to hire translators and to cover the publishing costs of textbooks and ensure the appropriate copyright fees are paid and reprinting rights secured.
92. **Scholarships.** The project will also support two master-level scholarships to study CA abroad. The CPIU in partnership with the Agrarian University, will oversee the selection of one male and one female candidate through transparent and competitive examinations on topics that include CA as well as language exams for the relevant scholarship country. The Master scholarships will be for one year in a relatively close-by country at a university specialised in sustainable agriculture. The design of the selection process and exams will be reviewed by a review panel comprising at least four members.³⁹

Outcome 3.2 Research into CA supported with a focus on smallholders and women.

Output 3.2.1: CA research papers, demo sites, equipment, soil laboratory supported

93. As part of the programme to mainstream CA into the agricultural system in Moldova, the project will further strengthen the linkages between academia and real-world applications of innovative CA solutions. It will achieve this through building the capacity of a selected research institute to increase the generation of CA focused research with a focus on smallholders and gender. The project had identified two research institutes that would be potential recipients these are the Institute of Crop Production "Porumbeni" and the scientific research institute for field crops "Selectia". However, in view of the former having already been a recipient of IFAD support in the past, TRTP-Adapt will focus on the latter. All requests for funding including equipment, research grants and soil lab capacity, will be reviewed by the Applications Evaluation Committee (AEC) comprising at least three CPIU staff members.⁴⁰ Requests for funding will be assessed to ensure that they will be focused on Conservation Agriculture research and that there will be a gender balanced approach and will include a focus on smallholder farmers. The activities will include:
 - Research grants over 5 years with a focus on smallholder farmers and gender. The objective will be to produce CA research papers and create gender-balanced linkages with agricultural university students where they can gain practical experience by directly working with researchers.
 - The project will conduct a feasibility study with the aim to support the institute with CA machinery that could include but is not limited to, a 6-row no-till drill and CA seeder. It should be possible to negotiate with the manufacturers for substantial discounts as these will be exclusively for academic and research purposes.
 - Strengthening soil lab analysis capacity is of significant importance in CA research, the project will therefore support the development of in-house soil testing capacity.
 - The project will support the development of demo plots to be located on land that is owned by the research institute for which it will be expected to provide in-kind contributions for operation and maintenance for the duration of the project. The project will conduct a feasibility study with the aim to support the institute with USD 100,000 towards CA machinery that could include but is not limited to, a 6-row no-till drill and CA seeder both of which cost in the range of USD 50,000 with all the accessories. This demo plot will support research by the institute,

³⁹ Programme Director, Climate Specialist, Procurement Specialist and a representative of the State Agrarian University.

⁴⁰ Programme Director, Climate Specialist, Procurement Specialist.

but fundamentally it will also be integrated into the university curriculums for CA university students who regularly visit and carry out research at the institute.

B. Economic, Social and Environmental Benefits.

Describe how the project provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

Environmental Benefits

94. Climate adaptive and environmental benefits are at the basis of TRTP-Adapt, made possible through Adaptation Fund support that helps mitigate the identified adverse environmental and climate risks from a changing climate - in terms of current and future water scarcity and the impact this will have on agricultural production and food security. Moldova is a water-insufficient country where groundwater is largely not suitable for agricultural use and precipitation is insufficient, unreliable and increasingly unavailable. Droughts and land degradation that are exacerbated by climate change are real threats to the environment, livelihoods and food security in Moldova. 75 percent of agricultural land in Moldova is at high risk of degradation with 85 percent of the population depending on dryland area for their livelihoods and around 12 percent of Moldova in the south is vulnerable to desertification - with some first-hand reports of areas in Causeni and Cantemir already being affected by desertification.
95. The TRTP-Adapt is designed in a participatory and gender-balanced way to directly address these challenges. It will co-finance a TRTP activity aimed at improving water access to 400 farmers with a built-in mechanism to guarantee it is used with water-efficient technology. Some of these farmers may possess their own drip-irrigation systems or alternatively be supported by the TRTP-Adapt, either way TRTP-Adapt will provide at least 400 farmers with grants to access improved water-efficient irrigation technology - whether through the IFAD-supported scheme, or to eligible farmers with their own water supply.
96. The IFAD scheme will be achieved through the cost-effective co-financing of TRTP tertiary level canal construction, the building of water pumps and rainwater harvesting ponds/reservoirs, to increase water access to climate vulnerable smallholder farms from rivers and existing or newly constructed rainwater harvesting ponds, as well as the promotion of water-efficient irrigation systems. Drip irrigation is widely recognised as the best irrigation solution for Moldova as it improves water efficiency by as much as 40 percent and effectively reduces the cost of water, making it more accessible to the most vulnerable. The project will also raise awareness among the smallholder climate vulnerable farmers as well as the general public (around 10,000 households) of the impact climate change is having and the necessity for better environmental stewardship. It will further build the capacity of 4,600 climate vulnerable farmers and provide them with no-regret and low cost adaptive solutions to better cope with conditions of drought and torrential rain by improving soil water retention, soil structure, and nutrient balances. Making them more resilient to drought and erosion, that are expected to increase in frequency and intensity with climate change predictions.
97. The project will also directly support the development of the National Programme on Conservation Agriculture (NPCA) through long-term solutions in mainstreaming CA into the higher-level educational system as well as supporting innovative gender-sensitive and smallholder focused research into CA. These efforts will contribute to sustainable long-term increases in the adoption of CA. The environmental benefits of CA are well documented as the combination of no-till, mulching, intermediate crops, and crop rotation significantly increases the resilience of rainfed agriculture to drought, improves soil conditions through lowering of soil temperatures, increasing soil humidity and crop yields in comparison with traditional ploughing practices. CA also contributes a number of other environmental co-benefits from the local to global levels. Notably, reduced/no till, agriculture residues as mulching and crop rotation will significantly improve soil carbon stocks and reduce CO² emissions into the atmosphere. This will furthermore protect biodiversity in and reduce the risk of desertification.

Economic Benefits

98. Since 2007, droughts in Moldova have been estimated to have cost nearly USD 1.3 billion in damages. These disasters have been increasing both in frequency and intensity over the last decades leading to ever greater financial impacts. While at present Moldova is not utilising all of its combined surface and groundwater supplies inefficient water technologies and a lack of awareness is leading to unregulated local water extraction and reduced capacity to overcome periods of sustained water scarcity.
99. By being fully integrated into the IFAD TRTP project for economic regeneration both on- and off-farm, TRTP-Adapt will contribute to the generation of economic benefits in poor and climate-vulnerable areas. TRTP-Adapt will provide economic benefits primarily through providing climate vulnerable smallholder farmers with technological solutions that have been shown in the FAO pilot to simultaneously reduce water consumption while also increasing agricultural productivity, with farmers recovering investments within a year. Reduced overall water consumption will ultimately reduce the stresses on the water supply and hence improve the resilience to climate shocks, with reduced financial impacts. The improved economic benefits will also result from the innovative financing solutions that the project has designed such as the transparent and traceable escrow account mechanism that will ensure that the most vulnerable are not excluded because of their inability to provide advance funding.
100. TRTP-Adapt will also reap economic benefits from being fully integrated into the larger IFAD TRTP project. This project is designed to promote economic regeneration and business opportunities primarily for the disadvantaged, climate vulnerable youth and women. It is through the TRTP that Adaptation Fund beneficiaries would be able to tap into financial mechanisms designed to allow the most vulnerable access to finance, especially those with little experience, capital and/or collateral. Once farmers witness the benefits of the water-efficient technologies being promoted by Adaptation Fund in terms of reduced production costs as well as improved yields, they will be informed about and encouraged to, apply for matching grants of up to an average USD 50,000 as well as reduced interest loans. Facilitated access to finance (as well as water) was one the main requests made by smallholder farmers during the focus groups.

Social Benefits

101. The social benefits of TRTP-Adapt are multiple and are both direct and more long-term. The direct social benefits will result from the improved water management practices that will produce tangible results. The increased frequency of droughts is creating significant water stresses - which happens fairly regularly and are predicted to increase in the near future. The TRTP-Adapt will promote technological solutions that increase farm productivity, improve food security and income while reducing the vulnerability of climate vulnerable farmers to water stresses in the case of drought. The more longer-term benefits will be felt through the development of university-level curricula in promoting Conservation Agriculture hereby investing in a developmental trajectory that aims at an agriculturally sustainable future - and further discussed in the youth paragraph below.
102. **Gender.** The added value of the Adaptation Fund Gender policy has been to also increase the focus of the larger TRTP project on gender as these two projects are fully integrated. Following the review of the original TRTP-Adapt concept by the Adaptation Fund it was pointed out to clarify why, if women in Moldova make up 36 percent of the workforce in the agricultural sector, was the target not at least 36 percent. As a result, the decision was made during the design of the TRTP to target at least 40 percent women as well as the 50 percent of youth. Additionally, because the TRTP is essentially a project with a big emphasis on youth employment and providing financial incentives to the young, it was also decided to adequately mainstream gender to reflect the realities of being a working mother in Moldova and the impact this has on employment opportunities. As a result, the definition of a young person for a man has been set at 35 while that of a woman at 40, this affirmative action was taken to create a more level field for women who often have to opt out of economic activities due to their responsibilities for childcare.
103. **Youth.** As explained, the TRTP and TRTP-Adapt are projects with strong emphases on youth. This is reflected in the opportunities made available through financial incentives for business development and the adoption of technological solutions that have positive impacts on the environment and on sustainable livelihood development. The TRTP-Adapt will also have a considerable focus on long-term sustainable solutions namely through the mainstreaming of Conservation Agriculture into the

higher-level educational system. This will be achieved through the development of CA university and technical college curricula, and the development of gender-balanced linkages with innovative CA research programmes supported by the AF where university students at Bachelor and Master level will be given the opportunity to work with researchers. The youth will be further supported with two (one male and one female) competitively selected Conservation Agriculture Master-level scholarships.

C. Cost-effectiveness

Describe or provide an analysis of the cost-effectiveness of the proposed project.

Lessons learned and upscaling:

104. The project will be cost-effective through upscaling the best practices and lessons learned from the FAO project that closed in 2018 and which is summarised in annex 2. This pilot demonstrated the potential of introducing modern and climate resilient, water efficient irrigation technologies and that it is possible to simultaneously increase production, with better quality agricultural produce with minimal water consumption. Farmers were also able to get their investment repaid within a year. By upscaling the FAO project, TRTP-Adapt aims to create an enabling environment for a long-term sustainable approach to climate change adaptation. The investments in innovative water efficient technologies will be recovered through improved productivity and reduced water consumption, but also by assisting in reducing future risks and financial impacts of increasingly frequent climate events.

Alignment with TRTP:

105. The Adaptation Fund project will be a blended project, fully integrated into the IFAD supported “Talent Retention for Rural Transformation Project (TRTP)” it will benefit from sharing resources and structures. This partnership will boost the cost-effectiveness of both interventions, particularly as there will be a common management structure and a linked M&E framework. Other benefits expected are improved coordination and communication, the application of common procurement and supervision procedures (reducing costs); also, the implementation of complementary project interventions in the project districts. In financial terms the IFAD loan will contribute USD 960,690 to shared costs that are going to support the delivery of the AF grant as shown in the table below.

Table 6 Table showing cost savings for fixed costs

Costs	Unit	Quantity	Cost per unit USD	Standalone fixed costs USD
CPIU salaries				
Project manager	Person / year	5 years	38,537	192,685
Finance manager	Person / year	5 years	27,097	135,485
Accountant	Person / year	5 years	15,656	78,280
Procurement specialist	Person / year	5 years	15,656	78,280
M&E specialist	Person / year	5 years	15,656	78,280
Driver	Person / year	5 years	9,936	49,680
Sub-Total				612,690
Operating costs – Office				

Costs	Unit	Quantity	Cost per unit USD	Standalone fixed costs USD
Utilities	Year	5 years	10,000	50,000
Car	Year	5 years	13,600	68,000
Communication	Year	5 years	1,000	5,000
Stationery	Year	5 years	10,000	50,000
Allowances for travel to project sites	Year	5 years	20,000	100,000
Office maintenance	Year	5 years	10,000	50,000
Website and software upgrading and updating	Year	5 years	5,000	25,000
Sub-Total				348,000
Total				960,690

106. The TRTP project uses blended finance allowing it access to different sources of funding in the form of private investments, concessional loans to the GoM, GoM co-financing and the Adaptation Fund grants. The project will inter alia be focused on addressing the two main bottlenecks affecting access to credit for the rural youth and women – the cost of capital and lack of collateral to access loans. The TRTP will provide mentoring support for young entrepreneurs and women to assist the target group in the formation of investment and working capital proposals; and provide grants of up to 40% of the investment costs, matched with bank credits. Average loan amounts will be about USD 50,000 and will be used for productive investment in equipment and working capital in both on-farm and off-farm activities. The cost-effectiveness of the partnership with TRTP means that the Adaptation Fund will benefit as its beneficiaries will have improved access to the TRTP to upscale and build on the knowledge and exposure received through the TRTP-Adapt - and hereby further reduce their climate vulnerability. The IFAD/AF partnership also means that the AF grant is targeted where it is needed most, namely in facilitating adaptive innovation, targeting activities that countries would be reluctant to take out loans for such as to support poor climate vulnerable smallholder farmers and also carry out CA studies and research.

Cost-effectiveness through TRTP and TRTP-Adapt integration

107. As shown in table 7 below, the cost-effectiveness of the Adaptation Fund project is present throughout all the project's components and activities. The TRTP-Adapt will help address some of the most pressing concerns facing Moldova in terms of reducing water supplies, degrading soils, a lack of knowledge as to what farmers are able to do to improve their livelihoods, reduce erosion and protect their soils from land degradation and inevitable desertification.

108. The Adaptation Fund mainstreams climate-related targeting into the activities of the USD 51m TRTP project that helps create an enabling environment for a long-term sustainable approach to climate change adaptation in the most vulnerable regions of Moldova. It will achieve this in component 1 by targeting the most climate vulnerable through the using of the precipitation vulnerability and SADI maps in figures 17 and 18 in the combined TRTP and TRTP-Adapt outreach / mobilisation campaign, but also through demonstrations and by providing beneficiaries with the required tools through

capacity building to apply climate adaptive agricultural techniques to around 25,000 ha of climate vulnerable land.

109. **Gender.** Adaptation Fund cost-effectiveness has been further enhanced as the targeting strategy adopted by IFAD was directly influenced by the Adaptation Fund Gender Policy and the initial TART-Adapt concept review. The strong AF gender focus has been recognised by IFAD and because the two projects are fully integrated, they share the same targeting strategy. Despite women forming 36 percent of the workforce in rural agriculture, female participation in the TRTP and TRTP-Adapt has been set at 40 percent. This has is a challenging but a realistic target for IFAD as the project aims to increase the number of rural women employed in agriculture. The definition of women youth has been set at 40 instead of 35 for men; and women and youth are also the sole beneficiaries of the matching grants activity under TRTP, should AF beneficiaries decide to upscale with their newly acquired knowledge. This focus on gender is to compensate for the disadvantages women face in the workforce and the fact more women work in low value-added agricultural production sub sectors and also face discriminatory practices that include significant wage disparities, segregation into lower-paying occupations and unequal sharing of work and family responsibilities and limited access to childcare. The adult men participants of the project will have access to other cheaper loan options through TRTP (in a separate activity), as will women and youth.
110. **Irrigation Grants.** The project is cost-effective and promotes ownership and sustainability through the requirement that smallholders make a 30 percent cash contribution for the irrigation grant activity. The smallholders will learn that drip irrigation pays for itself within a year through improved yields and product quality that meet market quality requirements instead of having to leave their produce to rot. Additionally, farmers will be further incentivized as the AF support will cover 70 percent of this initial capital investment cost, that in some cases they were unsuccessfully trying to get loans for. The capacity development and grant for the introduction of adaptive irrigation technologies, can be further capitalized upon by the beneficiaries as they have access to the TRTP facilitated financing mechanisms that will be explained to them in their training as a mechanism to give them cheaper loans and further reduce their climate vulnerability beyond what would otherwise be possible as a standalone AF project.
111. **Access to Water.** The cost-effectiveness of the integration with TRTP goes beyond efficient on-farm irrigation systems and facilitated loans, to getting value for money in contributing USD 1.7m of the USD 7m budget to improved access to water. With a 21 percent contribution, the AF will achieve a 30 percent beneficiary target share for climate vulnerable farmers with up to 10ha of land that will allow for access to reliable water supplies. This activity is made technically possible by leveraging IFAD experience in successfully delivering similar activities in previous projects. It is also made financially possible through the targeting by IFAD of larger farmers for the 10 percent cost-share and for a better return on investment through enhanced economic activity; such an activity would not have been economically feasible should only climate vulnerable smallholders have been the sole beneficiaries under a standalone AF project.
112. **Conservation Agriculture.** Investing in the development of a national higher-level educational programme will provide for sustainable and long-lasting return on investment. Through IFAD's long and successful working relationship with MARDE, the AF is able to finance the development of an educational programme that is focused on Conservation Agriculture and will go a long way to develop an informed and structured approach to help making lasting changes to the future development of a sustainable and climate resilient Moldovan agricultural sector.

Table 7 Cost-effectiveness measured against project alternative.

Component	Cost (USD)	No. of Beneficiaries	Losses Averted / Benefits Generated	Alternative to Project
1. Capacity development to integrate climate change adaptation into agricultural production systems	539,000	15,000 households	Farmers will be acquainted to new technologies and techniques enabling them to cope with climate change, and improve their productivity and product quality while reducing the amount of water needed. The acquired techniques will improve capacity to increase soil	Under the current scenario there is very little awareness about suitable adaptation measures for the different agro-climatic conditions of the country. Extension services have been terminated - there is no governmental support going forward to

Component	Cost (USD)	No. of Beneficiaries	Losses Averted / Benefits Generated	Alternative to Project
			<p>resilience to drought and erosion.</p> <p>The knowledge generated from the project will result in an increased awareness about climate change, the impact it is having on Moldova and what people can do about it. The information will also be broadcast on the agriculturally dedicated TV channel – AgroTV so as to guarantee a receptive audience and maximise impact.</p> <p>A critical mass of CA professionals will be trained to ensure assistance to smallholders wanting more reliable information and support on issues relating to adopting CA ensuring adaptation support capacity to farmers beyond the project life.</p>	<p>smallholders on what they should be doing with no knowledge transfer mechanisms on Conservation Agriculture systems and technologies.</p>
2. Climate-resilient Agricultural Investments	4,054,000	5,000 households (3250 women, 1,750 men, and 2,500 youth)	<p>Funds for outcome 2.1 will contribute to improved water access from new or existing water sources and the construction of tertiary canals and pumps for an area of 2,800 ha of which 30 percent of beneficiaries will be smallholders. Smallholders will need to have water-efficient irrigation technology to be eligible for the scheme. If not already in possession, they can acquire it through the TRTP-Adapt grant scheme.</p> <p>Outcome 2.3 will also support at least 400 vulnerable beneficiaries with grants to get access to water-efficient technologies that would otherwise be out of reach due to inability to access affordable loans cause by gender, inexperience or lack of collateral. Around 2,000 ha will benefit from drip irrigation that will help avoid losses of earnings due to water-stress affected crops not selling on the market.</p>	<p>Most of the irrigation canals are in a state of disrepair. The infrastructure that is available is beyond the economic reach of poor rural smallholder farmers to access.</p> <p>The majority of the smallholder farmers are dependent on rainfall as the quality of groundwater means this is not available for smallholder irrigation purposes, or prioritised for drinking water and industrial use.</p> <p>Without the project farmers will continue to be exposed to the increased frequency in climate change associated disasters. Those with access to rainwater harvesting ponds will not be maximising the little water they have due to inefficient means of irrigation. Crop quality will continue to be inadequate for the national supermarkets and predominantly go unsold</p>

Component	Cost (USD)	No. of Beneficiaries	Losses Averted / Benefits Generated	Alternative to Project
			The outcome will also benefit around 23,000ha of land by building the capacity of around 4,600 farmers on how to adapt their farming practices in order that they are better able to cope with drought and torrential rain. This will inter alia be through techniques such as mulching, crop load management, summer pruning, and improved drainage options to reduce erosion.	and left to rot.
3. Development of the national framework for Conservation Agriculture supported.	464,000	Nationwide	Component 3 will build the long-term capacity in developing a sustainable agricultural sector that is based on the principles of soil conservation through developing a national understating of CA, develop university and technical college curricula in CA as well as innovative research. CA promotes a combination of no-till, mulching, intermediate crops, and crop rotation that significantly increases the resilience of rainfed agriculture to drought, improves soil conditions, increases soil humidity and crop yields in comparison with traditional ploughing practices. It reduces overhead costs to the farmers improving productivity, as well as rehabilitating degraded agricultural land. In doing so it also significantly improves soil carbon stocks and reduces CO ² emissions.	75 percent of agricultural land in Moldova is at high risk of degradation with 85 percent of the population depending on dryland area for their livelihoods and around 12 percent of Moldova in the south is vulnerable to desertification. Without a change to Conservation Agriculture, Moldova will be on a continuous trajectory of increasingly degraded soils and ever reducing water availability.

D. Strategic Alignment

Describe how the project is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

113. **UNFCCC.** In alignment with the recommendations made in Moldova's Intended National Determined Contribution (INDC) the project will contribute to:

- Raising awareness about climate change and adaptation measures;
- Assisting in reducing climate change vulnerability by at least by 50% and facilitate climate change adaptation in two of the six priority sectors (agriculture and water resources).
- Supporting agricultural research and experimental production better suited to the new climate conditions.
- Assuring increased investments in efficiency of irrigation infrastructure, aqua-technologies and improvement of water resources management; [SEP]
- Promoting efficient use of water by reducing water losses, improving irrigation techniques, water recycling and storage; [SEP]
- Improving soil management by increasing water retention to maintain the soil moisture;
- Developing good practice guides for agriculture sector, especially for non-irrigated agriculture;
- Building new infrastructure for transforming water resources into socio-economic ones (eg. new accumulation lakes). [SEP]

114. **National Programme for Conservation Agriculture (NPCA) 2020 - 2025.** MARDE is working with the State Agrarian University to develop the new action plan aimed to promote the NPCA. This has not been published yet however key activities that the project will support are: i) promoting CA on television and radio; Organise conferences on CA; supporting the establishment of a unique research and development centre in Conservation Agriculture; supporting live demonstrations of CA; and supporting the development of bachelor and master-level courses in CA.
115. **National Development Strategy (NDS) 2020.** The NDS 2020 aims at ensuring the transition to a green economic development, which promotes sustainable development principles and contributes to poverty reduction. This includes ensuring better governance in sustainable development, through the integration and strengthening of environmental protection aspects in all socio-economic development areas of the country. This will be achieved through: (i) a rate of economic development that would allow an increasing financing of environmental protection measures, and (ii) a balanced regulation of the business environment, both in terms of economic impact and environmental impact. The TRTP-Adapt will be aligned to the NDS 2020 through facilitating agricultural development that is resilient to the negative impact of climate change and helps mitigate future challenges in increasing water scarcity. The project will promote improved ENRM and human wellbeing whilst improving agricultural productivity.
116. **National Strategy on Agriculture and Rural Development (NSARD) 2014-2020.** The NSARD works towards ensuring that the agri-food sector contributes to the sustainable achievement of the national economic and social development goals. It also aims to raise the competitiveness of the agri-food sector through comprehensive restructuring and modernization and to improve living and working conditions in rural areas whilst achieving synergies between agri-food activities and the natural environment. TRTP-Adapt will be aligned with the NSARD through the promotion of environmentally friendly and climate resilient water efficient technologies that will minimise water consumption while simultaneously improve produce quality and yields, whilst also reducing labour costs in time and money. The development of Conservation Agriculture curricula for universities and technical colleges will also help towards the long-term sustainable development of the agricultural sector.
117. **National Environmental Strategy (NES) 2014-2023.** The objective of the strategy is the creation of an efficient environmental management system, which would contribute to the increase in the environmental factors' quality and guarantee the right of the population for a clean, healthy and sustainable environment. The project is aligned in terms of promoting sustainable water consumption and land conservation through mainstreaming CA into the national curricula and supporting CA research.
118. **Programme on the Promotion of Green Economy (PPGE) 2018 – 2020.** The aim of the Programme is to promote the implementation of the green economy principles in the Republic of Moldova in harmony with economic and social welfare. The project is aligned to the Programme with respect to the objectives to increase the level of knowledge about sustainable development among the youth and the general public by 30 percent by 2020; and to contribute to improving the institutional capacity potential in the field of green economy and increase the promotion of green economy in the field by 30 percent.

119. **Gender Equality Strategy (GES) 2016-2020.** The GES aims to mainstream gender in a wide range of policy areas including health, education, social services, labour market, women, peace and security, climate change and disaster management, political participation, etc. The Ministry of Labour, Health, and Social Affairs has the mandate to coordinate implementation of this program across Government. The project is aligned with the National Gender Equality Strategy through its focus on women, the project will target 40 percent women and also defines young women as up to 40 years of age instead of 35 for men. This is designed to compensate for the disadvantages women face in the workforce and the fact more women work in low value-added agricultural production sub sectors and also face discriminatory practices that include significant wage disparities, segregation into lower-paying occupations and unequal sharing of work and family responsibilities and limited access to childcare.
120. **National Strategy on Biodiversity (NSB) 2015-2020.** The overall objective of this Strategy is to create conditions for improving the quality of the biodiversity components by strengthening the basis for the sustainable development of the country. The Strategy was designed to align with the provisions of the international treaties to which the Republic of Moldova is a Party. These are the Convention on Biological Diversity (CBD) Strategic Biodiversity Plan 2011-2020; the Aichi biodiversity objectives approved in Nagoya (Japan) at the CBD Conference of Parties (2010); and the European Union (EU) CBD Biodiversity targets 2020. Through the promotion of water conservation and soil conservation management, the project will help protect biodiversity by reducing soil erosion, reducing soil fertiliser nutrient leaching, and improving soil microbiomes.
121. **The National Programme for Conservation and Enhancement of the Soils' Fertility for 2011-2020.** Was adopted by the Moldovan government in 2011. Two key objectives of the Programme are to create an informational system for monitoring the soils quality and to apply fertility conservation techniques on an area of 1.7 thousand hectares up to 2020. The techniques considered include: no-tillage technologies, use of anti-erosion crops, and the compensation of the humus losses through wider use of the organic fertilizers. The project will be aligned through the promotion of Conservation Agriculture in component 3 and the development of CA curricula in universities and technical colleges as well as organic agricultural practices in outcome 2.2.
122. **Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1999).** The objective of this Protocol is to promote the protection of human health and well-being, both individual and collective, within a framework of sustainable development, through improving water management, including the protection of water ecosystems, and through preventing, controlling and reducing water-related disease. The project is aligned to the Protocol through the promotion of sustainable water management, and the protection of water systems through increased water efficiency.
123. **Water Supply and Sanitation Strategy (WSSS) 2012-2027.** The aim of the WSSS is to provide access to safe water and adequate sanitation for all localities and people in the Republic of Moldova, contributing to an improved health, dignity and quality of life, and enabling the economic development of the country. The project is aligned with the Strategy objectives of providing access to information, education, and awareness raising about the need to save water and protect water resources; and contribute to achieving the 2015 Millennium Development Goals (MDG) targets for a safe water supply for 65 % of the population by 2020.
124. **National Programme on Sound Management of Chemicals (NPSMC) 2009-2020.** The main purpose of the NPSMC is to implement the objectives of Strategic Approach for International Chemicals Management (SAICM) and promote the creation of adequate conditions for quality life of population and respect of citizens' right to a healthy environment as well as a sustainable form of development. The project is aligned to the NPSMC objectives of education, information and public awareness on the sound management of chemicals. TRTP-Adapt is fully aligned with TRRP and as part of the TRRP farmer field school (FFS) training programme, IFAD promotes the sound management of chemicals used in agriculture.
125. **National Waste Management Strategy (NWMS) 2013-2027.** The strategy aims to promote a new way of household and production waste collection, recovery of re-usable materials, environment protection and realization of a programme of uniform street sanitation which would contribute to the decrease in the amount of the waste stored in the respective areas by establishing an adequate system that would treat each type of waste separately for the protection of the environment. While the project does not engage in household waste management and recycling, the project does however

strive to promote a sustainable culture for waste minimisation through water recycling and spreading the concept of CA that promotes waste minimisation and sustainable development.

E. National Technical Standards and Environmental Social Policy.

Describe how the project meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.

126. The project will comply with Moldova's national technical standards (as outlined in its laws and regulations) as well as the Environmental and Social Policy of the Adaptation Fund. The main concern facing the TRTP-Adapt project is ensuring that the activities being implemented in component 2 are fully aligned to both the national legal and policy frameworks as well as the Adaptation Fund's Environmental and Social Policy and specifically with respect to water extraction, usage and transportation as these are the only areas where the project may have some associated risks. The following process forms part of the TRTP-Adapt Environmental and Social Management Plan (ESMP) and details how the project will be in full compliance with the national Water Law. The ESMP that will be developed to address the identified ESP risks will be integrated into the project's implementation manual (PIM) to ensure it is applied consistently throughout project implementation.

Water Permits

127. Following detailed discussions with MARDE and the water service provider 'Apele Moldovei', all water extraction infrastructure, such as water pumps, off-farm tertiary canals or on-farm irrigation schemes (component 2) need to comply with the provisions set out in the water and environmental protection and construction laws. IFAD's CPIU team is an integral part of MARDE and has developed well-established procedures since 2007 for water-related projects in Moldova that are government approved and ensure compliance with relevant national laws. As part of the TRTP design a detailed Project Implementation Manual (PIM) has also been developed and reviewed by the GoM as well as IFAD's project review and approval process.

128. **Background.** As explained by Apele Moldovei, when a farmer in Moldova wants to install any water related infrastructure for water extraction, for example a mobile pump to access water from a river, she or he needs to apply for a water permit. As of August 2018, it is the former Ministry of Environment (now MARDE) that issues the permits and are valid for 12 years, however a number of other institutions also provide qualified opinions. These are Apele Moldovei, the Agency for Geology (if accessing underground water), and the National Centre for Public Health. The process is fairly straightforward and takes no more than 30 days; the information that is considered when making the decision to issue permits is the following:

- Review the pre-feasibility study presented by the applicant;
- The location of where the infrastructure is installed;
- The source of water to be used;
- The number of households and farms already accessing a particular source of water; and
- The maximum volume of water to be used (all water consumption is metered and monitored regularly by Apele Moldovei).

129. **Water permit procedures** in Moldova mean that activities for component 2 will follow similar permit approval processes that are proven to be in full compliance with the relevant laws. This is despite outcome 2.2 and 2.3 being substantially different. The former is mainly targeting small farmers' interest groups, WUA's, formal village level agribusinesses and village councils and focuses on the tertiary network level linked either to independent small schemes with existing sources (pumping stations on rivers and natural reservoirs), or to larger functional secondary pipelines and supply systems, but also the building of rain water harvesting ponds (around 15,000 m³). The latter targets smallholders and focuses on introducing water efficient on-farm irrigation systems.

130. **Application procedure.** In the first instance the applicant (depending on whether it is outcome 2.2 or 2.3.) sends their application for review by the CPIU, who conducts an onsite verification. If the CPIU

gives the initial approval, then the applicant (for both outcomes 2.2 and 2.3) is permitted to conduct an initial prefeasibility study that will be submitted to MARDE for the issuance of a water permit. Under the TRTP and TRTP-Adapt projects the CPIU will assist in advising and providing approved designers to prepare the pre-feasibility studies – which will vary in detail depending on whether it is for outcome 2.2 or for 2.3 (smallholder on-farm irrigation is simpler). The study will present the activity and will include an economic assessment such as type of crops, number of beneficiaries, expected revenue; and present any required permissions such as from owners of the land where water is being extracted or transported over, for example individuals or gas and telephone companies. Once the water permit is secured, the applicant will be able to submit the project design for verification by the State Verification Enterprise. In the case for smallholder installing relatively simple irrigation equipment this will be fairly straightforward; in the event of larger tertiary last-mile irrigation infrastructure or rainwater harvesting ponds, this will be more technical and the Verification Enterprise will ensure compliance with the construction laws. Once the technical drawings are verified by the national authorities with relevant permits obtained and screened by the CPIU, the application will be reviewed by the Selection Committee for approval of the grant and tendering of construction (construction tendering is only relevant for activities under output 2.2). The CPIU typically supervises any construction every two days until completion.

Implementation Arrangement

131. The implementation arrangement for both outcome 2.2 and 2.3 ensure the project is in compliance with national laws and regulations and is derived from the established procedures and management arrangements that have been fine-tuned and proven effective with the CPIU retaining a key role in the investment selection process, quality control assurance and monitoring of results, while services including information campaign, feasibility studies and supervision of civil works and specialised consultancies will be outsourced to qualified service providers.
132. Two main bodies involved in reviewing and approving the applications are the:
 - Selection Committee (SC); and
 - Consolidated Programme Implementation Unit-IFAD (CPIU).
133. **Selection Committee (SC).** All applications to both the TRTP CRI activity (outcome 2.2) that the AF will co-finance USD 1.7 million as well as the AF water-efficient on-farm irrigation systems (outcome 2.3) will be overseen by the Selection Committee. The SC is a responsible body for the approval of competitive grants awarded under the CRI and the AF and is established by decree of MARDE. The SC is chaired by the representative of MARDE and comprised of the following members:
 - CPIU Director;
 - CPIU Adaptation Fund Climate Specialist
 - CPIU Irrigation Engineer;
 - CPIU Financial Manager;
 - CPIU Procurement Officer;
 - Representative from Ministry of Economy and Infrastructure (MEI);
 - Representative from Ministry of Finance (MoF);
 - Representative from “*Apele Moldovei*” (State Water Administration Agency).
134. The SC meetings will be held at least once per each project year to review and approve proposals for the next year’s grants award. For outcome 2.2 the number of grants for each year will depend on the size of each investment proposal and budget allocation for any particular year. This would also allow the CPIU to carry out the bidding procedures in the winter season (not favourable for civil works in Moldovan rural areas) and to implement civil works during the more favourable seasons. For outcome 2.2 the number of grants will be dependent on the level of demand and success in the previous year’s mobilisation / outreach programme and the number of farmers that have successfully received water permits through the established process.
135. The SC makes its decisions on a basis of the review of the evaluation reports and recommendations prepared by the CPIU that will include the recommendations from the MARDE department of Environment and Apele Moldovei and specified in the conditions set in the relevant water permits. The SC ensures that the selection procedures are in line with national legal and technical specifications and among others, in compliance with the water and environmental protection laws. The CPIU shall provide the evaluation report and recommendations to the SC members at least 5 days before the

agreed SC meeting date. Decisions in SC sessions are made on a basis of simple majority of vote. To avoid delays in project implementation decisions can be made if at least 2/3 of SC members are participating on meeting.

136. **The CPIU** is an executive body and responsible for implementation of outcomes 2.2 and 2.3. The role of the CPIU is to review applications for competitive grants, provide recommendations for approval to the SC for the applications which are meeting the eligibility criteria and subsequently to instigate and oversee the engineering design and construction.

137. The CPIU has the following main tasks:

- Awareness-raising about the availability of the competitive grants award scheme for infrastructure rehabilitation in the project area (media campaign will be coordinated with those needed by other components of the TRTP, annual awareness-raising campaign by contracted consultant) for both outcomes 2.2 and 2.3.
- Review and evaluate grant applications in accordance with the guidelines;
- Carry out the ESI screening and design ESMP for each grant for outcome 2.2.
- Assist interested groups of farmers in the preparation of the applications and provide information on relevant technologies and innovations;
- Undertake preliminary reviews of investment proposals and pre-qualify the eligible proposals, including site visit and discussion with interested groups;
- Procure consultancy services for feasibility studies of pre-qualified investment proposals;
- Conduct final qualification and ranking of proposals for SC decision making;
- Review and comment on technical design documents for selected proposals provided by the interested groups;
- Conduct procurement of services, goods and works;
- Monitor and carry out supervision of civil works implementation of investment projects by contractors;
- Assist in the training of client groups in operation and maintenance issues of rehabilitated infrastructure (outcome 2.2). Training and maintenance for outcome 2.3 will be supported by an external Service Provider overseen by the CPIU.
- Periodically carry out M&E of the impact of outcome 2.2 infrastructure investments.

Compliance with the Law

138. **Water Law (23 December 2011 No. 272)** This Law sets up a legal basis for efficient management, protection and conservation of surface water and groundwater; prevents the of deterioration of the state of water; establishes water rights; and ensures sufficient water supply of qualitative surface water and groundwater for sustainable, balanced and fair water management. This Law regulates: (a) prevention of flood, erosion, drought and desertification; and (b) water abstraction, water supply and effluent wastewater discharge. The TRTP-Adapt project will ensure alignment with this law as one of the main applicable laws particularly in the extraction, transportation and use of water for irrigation purposes as well as providing smallholders with the capacity to fulfil legal requirements in preventing flooding, erosion, drought and desertification.

139. **Law on permits for construction works (9 July, 2010 No. 163)**. This law will be applicable for the construction of the off-farm tertiary irrigation infrastructure that TRTP will be constructing with AF co-financing. This law determines the regulation procedure for permission, approval and verification of project works, construction or demolition of structures. The project will comply with this law through the procedure outlined for the water permit and the State Verification Enterprise. In order to obtain the water permit, the applicant needs to carry out detailed architectural drawings that will be reviewed for compliance with the parameters set out in the permit. In order for the SC to review the application the applicant will need to have obtained the permission to construct the infrastructure based on detailed technical drawings.

140. **Law on Equality of Opportunities for Men and Women (24 March 2006, No. 5-XVI)**. The scope of this Law pertains to ensuring the exercise by women and men of their equal rights in the political, economic, social, cultural, and other spheres of life, rights guaranteed by the Constitution of the Republic of Moldova, with a view to preventing and eliminating all forms of discrimination based on the criterion of sex. The project will be based on giving men and women equal opportunities and also

will mainstream measures to address the disadvantages that women face in the work place by virtue of their gender and the patriarchal social structure.

141. **Law on ecological agricultural production. (09 June 2005 - No. 115-XVI)** This Law regulates ecological agricultural production without utilization of chemical and synthetic means. Ecological agricultural production shall be based on the principles of: sustainable use of agro-ecosystems; use of eco-friendly processes; selection of plant varieties and stockbreeding methods complying with soil productivity; use of modern technologies; and increase of soil fertility. The project will ensure legal compliance when training and providing support services to farmers on organic production. The project is based on introducing eco-friendly processes, modern technologies and aims to increase soil fertility.
142. **Labour Code (28 March 2003, No. 154-XV).** The Labour Code covers the basic principles of regulating labour relations and other relations related directly to them; non restriction of labour rights and freedoms; the prohibition of forced labour; the prohibition of discrimination in the field of labour; articulated the Employees main rights and obligations; the normative contractual and labour relations; nullifies clauses from labour contracts that worsen the situation of employees; and establishes the priorities of treaties, conventions, agreements and other international documents. The project will be in full compliance with the Moldovan Labour Code as well as international labour standards both as a responsible employer of the core CPIU staff but also in the contracting of the Service Provider, consultants and anyone else otherwise employed for the implementation of the project.
143. **Law on Peasant Farm (November 2000 No.1353-XIV).** This Law establishes legal, organizational and socio-economic grounds for the institution, functioning and re-organization of peasant farms applicable inter-alia to smallholders. Peasant farm are considered individual enterprise based upon private ownership of agricultural land and individual work of household members for primary processing and trade of agricultural commodities. Peasant farms are authorized to inter-alia: carry out irrigation, drainage and land reclamation; to take part in cooperatives; and to take part in associations and other non-governmental entities. Peasant farm shall have the duty to among others obtain a licence for carrying out activities subject to licensing; and to prevent soil fertility reduction. Many smallholders are registered at all but the project will be supporting smallholders both registered and not registered (but legally allowed to practice agriculture) particularly in assisting in irrigation and drainage. The Project will further be fully aligned with national legal processes in obtaining the appropriate water permits.
144. **Law on Natural Resources (June 03, 1997 No.1102-XIII)** This Law regulates the use, management and protection of natural resources in the interest of ecological safety and economic development. It determines the rights of ownership of natural resources; provides for the basic principles and organizational structure for the management of natural resources, including State cadastres, provisions for standards and licences for the exploitation of natural resources, economic and financial measures; fees/charges for the use of natural resources; administrative competencies; list of renewable and non-renewable resources; and list of national and local natural resources. The project will fully comply with the all legal requirements and particularly with those surrounding the extraction and utilisation of water as well as the sustainable management of agricultural land, prevent erosion, and improve the nutrient and water balances of agricultural land.
145. **Law on Environmental Protection (June 17, 1993 No.1515-XII).** This Law provides the basic legal framework for environmental protection, covering the principal environmental media (soil, inland waters, underground areas, atmosphere, natural heritage) as well as biological diversity, waste, toxic substances and plant protection. The project will ensure compliance with the Environmental Protection Law as its main objective is to improve environmental management, improve soil fertility, reduce risks of erosion, land degradation and other negative effects of drought and torrential rain particularly in relation to expected future climatic changes. It will ensure the sustainable and efficient use of water for irrigation purposes and comply with all relevant legal and procedural processes.
146. **Land Code (Dec 25, 1991, No.828-XII)** This Code embraces an extremely comprehensive range of issues relating to land use and management. These include: the rights and obligations of landowners; agricultural, residential and industrial land; lands with natural protections; woodlands; land under water basins, reserve land stock; land cadastre and land utilization systems; environmental preservation and protection of land; and land operations causing a negative impact on agricultural, forest and other areas. The project will ensure compliance with the land code particularly in the environmental preservation and protection of land in the framework of sustainable agricultural development, preventing of land degradation, promotion of Conservation Agriculture, promotion of

sustainable and modern water efficient technologies. The project will strive to ensure that the project will not pose any negative impacts on agriculture, forests and any other areas.

ESMP compliance

Concern	Law Legislation	Enforcing Agencies	Enforced Regulation / Item
Water Permit	Water Law (No. 272)	MARDE, Apele Moldovei	Approval or water extraction
Construction Permit	Law on permits for construction works (No. 163)	State Verification Enterprise	Approval of construction permit
Unsustainable Water Use	Water Law 272 Law on Peasant Farm 1353	MARDE, Apele Moldovei	Established and MARDE endorsed project approval procedures as detailed above.
Pesticides and Fertilisers	Law on Environmental Protection	MARDE	Approval of permissible pesticides.
Wildlife Conservation and National Parks	Land Code 828	MARDE	Declaration of Ecologically critical areas Declaration of Protected areas.
Project activities contribute to risk of erosion, drought and desertification.	Water Law 272	MARDE	MARDE has established procedures to approve IFAD project activities.

147. The steps taken by the proposed project to comply with the above legislation are the full integration with government authorities through the SC and water permit approval processes. The CPIU will review make recommendations and the SC will approve the ESMP that will be developed for each activity to mitigate the risks identified in the ESI of the 15 ESPs and ensure all procedures are legally compliant. Monitoring will be conducted by national authorities through the water permit legislation, the CPIU and contractors.

F. Duplication

Describe if there is duplication of project with other funding sources, if any.

148. The extent of water scarcity and climate vulnerability in Moldova has meant that there have been a number of projects that have been implemented in the past that tackle the same issues as the TRTP-Adapt the table below gives an overview of the past and present projects and what the synergies might be and potential overlap. Upon request by the Adaptation Fund, during the review of the original TART-Adapt concept note, the TRTP-Adapt design team met with UNDP to understand if there were any synergies with the 'Enabling transboundary cooperation and integrated water resources management in the Dniester River Basin' project. UNDP explained that this was a project mainly focused on transboundary water issues on a regulatory level and that there would be no overlap or duplication with the proposed TRTP-Adapt project.

149. The TRTP-Adapt also met with UNDP to discuss how to overcome any potential duplication with UNDP's new proposal 'Enhancing Climate Resilience and Adaptive Capacities of Farming Communities by Augmenting Management with small scale water reservoirs' project that it was planning on submitting to the Adaptation Fund. There is potential for overlap as both projects will be working on helping smallholder farmers adapt to climate change with improved access to water in the rain impoverished areas of southern Moldova. The TRTP-Adapt however has as yet not determined a geographical location for the implementation of its activities as these will be the result of the mobilisation campaign that will be focused on the climate vulnerability and SADI poverty maps generated as part of this design and presented in figures 17 and 18. It is worth pointing out at this stage that the design mission has learned from the gender-balanced smallholder consultations that the majority of smallholder farmers are actually dependent on rainfall as the only means to irrigate their fields. This means that the number of farmers in need are many and more than the two projects combined could satisfactorily assist given the material costs involved for the required technology to adapt to climate change. There is however a small risk that the two projects might overlap, or that the TRTP-Adapt could overlap with any other donor project. IFAD is also concerned about duplication and to address this, both the TRTP and TRTP-Adapt projects have incorporated a requirement that they will advertise any proposed activities with other donors as part of the internal grant approval process to ensure that there is no duplication of efforts in the identified project areas and is a condition for grant approval.

Table 8 List of relevant projects.

Other Projects / Partners	Summary	Geographic overlap with proposed project area of intervention	Synergies with the proposed project.
UNDP / Adaptation Fund (USD 4m) "Enhancing Climate Resilience and Adaptive Capacities of Farming Communities by Augmenting Management with small scale water reservoirs" (2020-2024)	To increase resilience and adaptive capacities of smallholder farmers to climate variability and extreme events through improved management of scarce water resources by promoting the use of technologies and actions aimed at developing climate smart, profitable, productive, and socially sustainable smallholder farms.	Countrywide	The project is still in the concept design stage, however there are potential synergies as both projects target smallholders to improve water management. UNDP aims in part to build water reservoirs while TRTP-Adapt will focus on climate smart technological solutions for water efficiency in agricultural production but also on securing access to water. Duplication will be avoided through inter-agency coordination as a condition for grant approval.
UNDP / GEF (USD 21.5m) "Enabling transboundary cooperation and integrated water resources management in the Dniester River Basin" (2017-2020)	Integrated water resources management in the Dniester river basin to strengthen sustainable development, through the update of the TDA, development and endorsement of the SAP and initiation of its implementation.	Dniester River Basin ^[1] _{SEP}	The design mission met with UNDP to discuss potential synergies as requested by the AF. UNDP was very specific in stating that there were no synergies or duplication because the UNDP / GEF project is focused on international water cooperation.
FAO (USD 400,000) "Increasing small scale farmers' resilience to drought by adopting best irrigation practices and modern technologies"	Build capacity of farmers and Water User Associations to properly operate and maintain on-farm irrigation systems; strengthen local extension officers'	Central and Southern agro-climatic zones	TRTP-Adapt will build on the findings of the FAO project for the introduction of water efficient systems. This project has demonstrated the potential for these modern CC resilient technologies within the

Other Projects / Partners	Summary	Geographic overlap with proposed project area of intervention	Synergies with the proposed project.
(2015-2018)	capacities to provide farmers with quality advisory services on irrigation practices and efficient water use.		Moldovan context, to minimise water consumption while simultaneously increasing agricultural production quantity and quality.
IFAD/GEF (USD 4.2m) "Climate Resilience Through Conservation Agriculture - CRCA" (2015-2020)	Enhancing the adaptive capacity of farmers to climate change through resilient agricultural approaches and improving agriculture productivity and soil protection through sustainable agriculture and land restoration.	North, Central and Southern Agro-climatic zones	TRTP-Adapt will work in synergy with the current IFAD/GEF investment on CA. It will anticipate and provide solutions to bottlenecks that have already been identified at decision making levels
The Czech Agency of Development (USD 1.3m). "Support of Fruit and Vegetable Production with Added Market Value." (2015-2018)	To contribute to the year-round presence of Moldovan agricultural products on local and respectively also on foreign markets.	All of Moldova	The project will be aligned along the principles of improving agricultural production.
The Czech Agency of Development (USD 379,000) "Support of Institutional Control within Organic Farming" (2016 – 2021)	Supporting organic producers and internal and external market access.	No regional overlap	The project will have synergies through the common approach of supporting smallholder farmers improve agricultural production as well as promoting organic agricultural practices as well as conservation agriculture.
The Czech Agency of Development (USD 415,000) Supporting the implementation of the regional strategy with the use of GIS data (2018-2020)	Capacity building in the use of GIS data.	No geographical overlap	No direct synergies.
World Bank (USD27m) "Climate Adaptation Project" (2017-2023)	To enhance the adoption of climate-smart practices in agriculture, forestry and pasture management in targeted landscapes and strengthen national disaster management systems.	Countrywide.	The World Bank project enhances the adoption of climate-smart practices in selected rural landscapes by supporting: (i) the scale-up of farmers' climate-smart technologies and agricultural practices and provision of related advisory services; and (ii) expanded up-take of irrigation services. This project has the potential for duplication with the TRTP-

Other Projects / Partners	Summary	Geographic overlap with proposed project area of intervention	Synergies with the proposed project.
			Adapt. To address this IFAD will coordinate with the World Bank to ensure no duplication of activities as a condition of grant approval.
UNEP/UNITAR/GEF (USD8.2m) “Global Project on the Implementation of PRTRs as a tool for POPs reporting, dissemination and awareness raising for Belarus, Cambodia, Ecuador, Kazakhstan, Moldova and Peru” (2014 – 2018)	To improve access and accuracy of environmental data on POPs and other priority chemicals in 6 countries, and to enhance awareness and public participation on environmental matters, through implementation of fully operational national PRTRs.	Countrywide	While recently closed, TRTP and TRTP-Adapt will have commonalities in terms of the sustainable management of POPs from the agriculture.

G. Knowledge Management

If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

150. Effective knowledge management – including the collection, generation and dissemination of information – is an important component of climate change adaptation. Learning from adaptation activities and being able to transform knowledge into products that are digestible by various audiences is essential to effective climate change adaptation. Within the context of the proposed project, knowledge management will comprise an outcome under component 1 will be supported by the Adaptation Fund with the co-funding the salary of a dedicated Knowledge Management (KM) Officer that will be dedicated to both the larger TRTP as well as the TRTP-Adapt. The KM Officer will be responsible for recruiting production consultants and closely overseeing the production of video material on the impact of climate change and water scarcity; on the benefits of efficient water technologies and how they can save money and improve the quality and quantity of crops, and therefore also sales; and on conservation agriculture. The KM officer will actively engage with beneficiaries to record farmer experiences but also digest and present the scientific research generated as a result of the project in a format that is easily understood by the general public.
151. Knowledge will be generated and information collected as part of outcome 1.5 and will be a continuous process. The KM Officer will be responsible for the commissioning and overseeing of academic research (through university researchers and professionals from agricultural research institutes) on the impact that water-efficient irrigation systems have on the livelihoods of smallholders by reducing water consumption and improving productivity, crop quality, yield and ultimately farmer income; and studies on the impact that the adaptive agricultural techniques in soil conservation and climate change adaptation have on combating land degradation and improving farm-level output. The aim is for this research to be published, but also for the KM Officer to present it in a form that is easily understood by the general public. The knowledge generated as a result of this project will also include creating video clips of success stories that smallholders are able to relate to explaining what they did and how it helped them overcome the challenges they had due to climate change. All the knowledge will ultimately be broadly distributed by way of radio programmes, video clips for YouTube and short TV programmes that not only talk about the project but also try to educate around 10,000 people in simple terms, on climate change what people can do that can help.

152. As part of the KM programme the project will also carry out a baseline assessment together with the IFAD TRTP to be cost-effective, this will be carried out together with that of the TRTP in PY1, a year before the TRTP-Adapt will be implemented (in PY2 of the TRTP – PY1 of TRTP-Adapt). Due to the small number of beneficiaries that will be recipients of on-farm irrigation technologies the project will also collect water vulnerability data of those beneficiaries being supported. The surveys will help the understand the extent of water vulnerability in terms of the type of irrigation they use, if any; the cost of water vis-à-vis their annual income; food insecurity; perception of climate change before and after the project; and if they already use climate adaptive agricultural techniques. At project closure the impact assessment will use the same indicators to measure impact and also assess what they have learned as a result of the project, and if they feel that they have better knowledge and tools at their disposal to adapt to climate events.

H. Consultative Process

Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

153. A wide range of stakeholders have been consulted during the development of this project proposal.⁴¹ The proposed project has worked closely with the Executing Entity the Ministry of Agriculture, Rural Development and Environment (MARDE) and was consulted throughout the design process. During the design mission the design team held detailed and lengthy consultation sessions with MARDE as well as the water authority to ensure that the specifics of the detailed water permit procedures were correctly understood and properly integrated into the design. This builds on the years of experience that IFAD has developed in implementing water infrastructure projects in Moldova, however it has enabled the project document to explain the procedures in the level of detail required for the ESMP. Further details on the consultative process compliance with the ESP are available in annex 3, section III.
154. The project proposal was developed through a gender and youth sensitive participatory approach. The field survey focus groups assisted the development of interventions and the activities were designed based on local community concerns. During the field surveys every effort was made to meet with women groups and associations, however these are not present in Moldova. The stakeholder consultations however have been very gender and youth focused with meetings being arranged with smallholders that were timed to be sensitive to their respective needs as well farmer's needs more generally. This was arranged by the CPIU consulting with village and farmer association leaders with specific instructions to be gender sensitive. The design team's schedule (including a gender specialist) was arranged around communities' needs at times of day they suggested. It was also repeatedly requested whether the communities had a preference of gender segregated meetings, the answer was a recurrent negative, as women were not afraid to speak their minds in the presence of their male counterparts. The consultations were focused on developing an understanding of local challenges, existing adaptation practices to climate change impacts and to gain local perspectives on possible future interventions that will improve local adaptive capacity.
155. **The main concerns** that emerged from the consultation process have been integrated into the project design. These included: lack of access to water for irrigation; reports of inability to connect to sources of water due to absence of tertiary irrigation canals; complaints of insufficient rainfall; inability to sell produce to the national supermarkets; lack of access to affordable credit due to collateral requirements and high rates of interest; and a lack of advice on market trends and crop diversification. Gender specific concerns have included complaints about more household responsibilities, reduced access to land as land is not registered in their name and women farmers have highlighted the challenge of their long working hours due to their farming and domestic responsibilities. Youth, who had in several cases, returned after working abroad and invested their savings in agricultural enterprises, highlighted their difficulties in accessing credit due to high collateral requirements and rates of interest as they were perceived to be 'high risk'. Some young farmers maintained that they

⁴¹ See annex 5 for the mission schedule and annex 6 for the list of participants.

could only access credit and support their farming enterprise if they continued to work abroad for some months.

156. The concerns have been integrated into the design of the project with a focus on increasing access to water; promoting water-efficient irrigation technology that will make water more affordable but also improve crop yield and quality; and helping farmers bypass inaccessible credit conditions through supporting them with USD 2,500 grants to get access to water-efficient technologies. In recognition of the fact that women and young persons can be actively managing farms without being registered as owners of the peasant farm, women and young persons managing farms will be eligible if they are administrators or even members of a peasant farm. In addition, applicants will not be required to submit financial statements of the previous years. Farmers who are not registered as peasant farmers can apply if they provide evidence of having initiated the registration process at the point of application. The option of opening an escrow bank account will be available for farmers who do not have the resources to invest in the equipment up-front and be reimbursed later. The bank's fee for the escrow account will be borne by the project. Through integration with TRTP women and young smallholders with no collateral and little savings will also have access to credit through the matching grants to help upscale the AF grant investments and apply the acquired knowledge through training, male smallholder farmers will also have the possibility to access cheaper loans through IFAD.

I. Justification for Funding

Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

157. This project functions as additional climate adaptation financing to upscale the lessons learned from the FAO pilot through the introduction of water-efficient irrigation technologies, improved access to water but also capacity building for farmers with simple techniques that they can apply to reduce soil degradation and improve its resilience to climate extremes. During training and awareness raising activities, farmers will also learn about finance mechanisms that are directly targeting the vulnerable youth and women beneficiaries but also adult men allowing them to upscale their initial investment either once they have been convinced of the results, or directly in a combination of AF and TRTP grant money as the selection criteria has been met. The table below outlines the baseline and the alternative adaptation scenario the Adaptation Fund will help materialise.

Table 9 measuring cost-effectiveness through business as usual vs AF additionality

Business as Usual	Adaptation Fund Additionality
Component 1: Capacity development to integrate CC adaptation into agricultural production systems	
<p>Awareness Deficit: Moldova is already a water-insufficient country and the Climate Change trend is expected to further decrease overall precipitation levels while also increasing rainfall intensity hereby increasing periods of drought, and increased soil erosion. Disasters are increasing in frequency with events in 2007, 2008, 2010 and 2012 having a combined economic impact due to drought and flooding of USD 1.5 billion, compared to USD 61 million over the 1984-2006 period.</p> <p>Smallholder farmers don't only suffer during periods of disaster as they typically rely on rainfall for irrigation and precipitation levels are insufficient - the trend is decreasing and crops are suffering as a</p>	<ul style="list-style-type: none"> - The project will train 4,600 farmers on simple affordable solutions that they can adopt to adapt to increasingly harsh climatic conditions. With an average of 5 ha per smallholder, the TRTP will help climate-proof around 23,000 ha of land. - The training programme will be tailored by an expert to the needs in Moldova and will be flexible to adapt to the needs of the beneficiaries, but as a minimum will include: <ul style="list-style-type: none"> • Climate change awareness capacity building; • The importance of using mulch; • Irrigating during the cooler hours of the day; • The benefits of additional water storage; • The importance of drip irrigation;

Business as Usual	Adaptation Fund Additionality
<p>result. Their crops are regularly subject to water stressors that reduce their quality and quantity making them unsuitable for the national value chains such as supermarkets and consequently frequently are just left to rot.</p> <p>Climate vulnerable smallholders are typically poor and unaware that there are simple solutions they can adopt that will help reduce the impact drought and flooding have on their crops. The lack of awareness is worsened by the fact that there are no longer government-funded extension services to advise farmers on technical solutions that will improve livelihoods and in the long-term improve the climate resilience of the drylands. This is particularly the case as the government is developing the new NPCA as of 2020 - 2025 for the promotion of Conservation Agriculture.</p>	<ul style="list-style-type: none"> • Crop load management and summer pruning to reduce water stress and improve crop quality. • Avoiding the application of foliar nutrients during heat stress. • The importance of composting and organic agriculture. • Improved drainage options during heavy rains such as laying gravel to increase soil water absorption and reduce erosion. • Planting of cover crops or orchard sod row middles to absorb moisture, prevent leaching and release nutrients through the growing season. • Learn to monitor soil moisture levels to avoid excessive irrigation. <ul style="list-style-type: none"> - The project will provide training to a minimum of 400 smallholders (2,000ha) in: <ul style="list-style-type: none"> • Irrigation systems and equipment operation and maintenance; • Water quality assessment and irrigation regimes; • Simple entry accounting and fiscal reporting; • Expenditures and revenues of irrigated sectors; • Provide advisory services in technology, economics and marketing. • Avoid irrigating during windy conditions; • Ensure water used in irrigation is not more than the soil is able to absorb. • Drain any excess water left in the pipes - The TRTP-Adapt will design and implement a CA ToT programme for the training of 40 professionals among experts and graduates. This will help fill the advisory services gap to smallholders left from the closure of the government extension programme and provide support to the GoM new NPCA 2020 - 2025. - The project will co-finance the salary of a knowledge management officer to implement the knowledge management programme. This will generate quantitative research on the benefits of AF investments, as well as qualitative evidence through people's stories and convert them into knowledge products. These knowledge products will be in the form of easily digestible information for the general public (around 10,000 people) to raise awareness on climate change and the importance of sustainable environmental stewardship. The project will result in short TV and radio programmes based on the information generated as part of TRTP-Adapt but also video clips for the social media on YouTube and Facebook as well as in the printed press through leaflets and posters.
Component 2: Climate-resilient Agricultural Investments	
<p>Off-farm access to water. Geography in Moldova is such that the main rivers - the primary source of irrigation water other than precipitation, are located at lower altitudes than the agricultural land that needs it. The pumping stations networks that were constructed during the Soviet-era have since been abandoned</p>	<ul style="list-style-type: none"> - TRTP-Adapt will benefit from being fully integrated into the TRTP project that will construct tertiary level canals to connect clusters of farmers to sources of water. The AF will finance USD 1.7m out of the USD 7m budget and will ensure that around 400 beneficiaries (30% of IFAD target of beneficiaries) are receiving reliable

Business as Usual	Adaptation Fund Additionality
<p>and vandalised for spare parts leaving them beyond repair.</p> <p>The TRTP-Adapt design mission has shown that the majority of smallholder farmers do not have access to water for irrigation and have to rely on the increasingly insufficient rainfall. Some pumping stations have been rebuilt under the Millennium Challenge Account (MCA) programme (USAID) however smallholders are not all able to access them as they cannot pay for the required last-mile tertiary canal construction costs.</p> <p>On-farm efficient water use. The TRTP-Adapt design mission has shown that even in the case of the poorest smallholders that have access to pumping stations, the cost of for example irrigating potato crops, amounts to 40% of their annual income due to recurring extended periods of summer drought. Consequently, they are unable to irrigate and complain of drought during the focus group meetings, despite being near a river with a pumping station. Water availability in Moldova is generally insufficient with crops largely dependent on insufficient rainfall leading to crop water stress that is leading to crops being unsold and left to rot.</p> <p>Gender and youth disadvantages. Women and youth farmers in particular do not have access to affordable finance from banks that would enable them to invest in climate-smart and water efficient irrigations systems.</p>	<p>sources of water (more than the percentage of contribution of funds - 21%). The TRTP-Adapt will ensure that benefitting smallholders will need to use efficient on-farm irrigation technology, either previously purchased or through the TRTP-Adapt grant programme, this will be monitored in the ESMP (see ESP 12 and section III of annex 3).</p> <ul style="list-style-type: none"> - The investments will be typically at the tertiary canal level linked either to independent small schemes with existing sources (pumping stations on rivers and natural reservoirs), or to larger functional secondary pipelines and supply systems such as the recently completed rehabilitation of the Centralized Irrigation Systems under the MCA. Investments in micro and small irrigation will include pumping stations or water harvesting ponds lined with polypropylene protective geotextile with a storage capacity up to 15,000 m³, tertiary canal and pipeline distribution network providing the necessary conditions for supplementary or full irrigation of agricultural land in farm areas up to 200 ha per cluster. (The associated environmental risks have been identified in the ESP screening under section II of annex 3 and will be mitigated in the EMSP conducted by the project for each activity). - The Adaptation Fund will support the introduction of climate smart drip and micro-irrigation through USD 2,500 grants to a minimum of 400 smallholders. Sustainability will be ensured through the 30% cash contribution by smallholders and access is ensured to the poorest farmers through innovative escrow accounts that ensure transparency and traceability. The technology will reduce water consumption by up to 40%, hereby effectively reducing the cost of water for the poorest farmers to an affordable 3.5 Lei per m³. The technology has also been tested in the FAO pilot that the TRTP-Adapt upscales and has proven to simultaneously increase production, reduce water consumption, reduce labour costs, increase yields and improve the quality of agricultural produce with reduced water consumption. Farmers were also able to get their investment repaid within a year. - The additionality of being integrated with the IFAD TRTP project, means that women and youth will have enhanced access to financial mechanisms that will enable them to bypass discriminatory systems and further upscale their businesses using the financially viable and environmentally sustainable technology and knowledge learned through the TRTP-Adapt.
<p>Component 3: Component 3: Development of the national framework for Conservation Agriculture supported.</p>	
<p>Land degradation. About three quarters of Moldova is under a high risk of degradation processes with an estimated 64 percent that can be categorised as dryland, and that is in turn inhabited by around 85 percent of the population. A further 12 percent of Moldova is classified as semi-arid and is</p>	<ul style="list-style-type: none"> - Under outcome 1.2 the Adaptation Fund will support the training of 40 gender-balanced professionals in the field of CA. These will be existing professionals both freelance as well as working for existing NGOs that function as open market service providers but also targeting university graduates specialised in CA and

Business as Usual	Adaptation Fund Additionality
<p>predominantly inhabited with poor rural people, most vulnerable to desertification. There are also already first-hand reports of desertification happening in the regions of Causeni and Cantemir. Lengthy dry spells, combined with high temperatures, especially in late summer, are proving to be great challenges for the environment and all development sectors in climate vulnerable regions, this is only exacerbated by worrying trends in climate change.</p> <p>Traditional agricultural techniques and mismanagement have led to an increased deterioration of the condition of the soil that is being exacerbated by climate change. While the government is starting a drive to mainstream CA into the national agricultural framework, very little is known about the extent of CA adoption among farmers which is a fundamental starting point for designing a national strategy on CA.</p>	<p>sustainable agriculture. The professionals will develop skills in CA specific advisory and service provision that is focused on smallholder farmers. The training will have a gender focus providing awareness as to the challenges women face in the agricultural sector and how to better address their needs.</p> <ul style="list-style-type: none"> - The TRTP-Adapt will fill the knowledge gap relating to the national overview of CA adoption among farmers. This will be done through a national survey, the resulting White Paper of which will be presented and discussed in a convention on CA to get develop consensus on what CA is for Moldova. The convention and White Paper will contribute to formulating national policy and legislation however the main objective is to develop a national curriculum on CA for higher-level university degrees and technical college diplomas. To this end the AF will support the translation and publication of textbooks and research papers into local language which currently is not available. Additionally, one female and one male student will be supported with scholarships to study CA in an international university. - The TRTP-Adapt will also support the development of innovative research into CA that will feed into the real economy through improved practices for farmers. The research grants will have a focus on smallholders and women in particular.

J. Sustainability

Describe how the sustainability of the project outcomes has been taken into account when designing the project.

158. Long-term sustainability will be sought primarily by i) emphasising the active participation of communities in the implementation and management of project interventions; ii) strengthening the community-level technical capacity to ensure stakeholders have adequate knowledge and skills to maintain the benefits of the project interventions; iii) training communities extensively on climate-resilient agricultural techniques, water-efficient irrigation technology and basic business management skills; and iv) mainstreaming conservation agriculture into the educational system.
159. Project interventions have been designed to incorporate both capacity building and physical interventions. All physical interventions have included considerations of sustainability beyond the end of the project cycle. The small-scale on-farm irrigation infrastructure (outcome 2.3) activity has been designed to support sustainable and credible income generating gains through technical and maintenance training (outcomes 1.1 and 1.2) that will help farmers grow and reinvest in sustainable technologies. Sustainability has also been promoted through ownership by way of the 30 percent cost-share but also through maximising the synergies with the larger TRTP project. Climate vulnerable smallholders will be encouraged to apply both their knowledge gains as well as demonstrated farm productivity improvements as a result of the TRTP-Adapt, to upscale their businesses through facilitated loans and matching grants aimed directly at the vulnerable categories of women, youth but also adult male climate-vulnerable smallholders.
160. The dissemination of climate-resilient agricultural practices will be managed through farmer field schools, a ToT programme and the setting up of demo plots that will operate continuously for the duration of the project. This will ensure that there will be scope for extensive training opportunities for the local communities and will support the continuous transfer of knowledge between trainers and farmers. It will also foster collaboration between local farmers attending the field schools, further

supporting the transfer of knowledge and skills throughout local communities. To support the long-term sustainability of this component, an established and experienced national NGO Service Provider (SP) will be contracted to conduct training and skills development. Partnering with a qualified and experienced NGO who have extensive experience working with the target communities will help ensure that the livelihoods are locally appropriate, thereby supporting their long-term sustainability.

161. Long-term sustainability in Conservation Agriculture will be promoted in component 3 through the training of a new generation of CA practitioners but also in the training of CA technical advisors that will fill the gap left by the ending of the MARDE extension service programme for the new CA agricultural sector that is being promoted by MARDE and increasingly adopted by farmers. Sustainability will be further promoted by the supporting of an established agricultural research institute to introduce innovations in the nascent CA sector and develop partnerships with the State Agrarian University and agrarian technical colleges where students are able to get hands-on research experience. These lasting partnerships will help ensure that gender-balanced and smallholder-focused innovation will be introduced into the CA sector and feed down to the smallholder level helping to introduce lasting technical improvements and environmental benefits.

K. Environmental and Social Impact and Risks

Provide an overview of the environmental and social impacts and risks identified as being relevant to the project.

162. The environmental and social screening presented in the table below provides a brief overview of the risk assessments and is further detailed in the ESMP in annex 3. It shows that there are low to negligible risks related to the TRTP-Adapt project. All water usage and extraction activities have been designed to be in full compliance with national laws, the requirements of which are fully integrated into the government approved and overseen project screening processes as detailed in section 'II-E Technical Standards' as well as the ESMP in annex 3 section III. There are some minor risks, but mitigation measures have been integrated into the project, which has therefore been categorised as a category B project.
163. The project design complies with national legislation and policies on water, climate change adaptation, land tenure, environmental management and gender. It also addresses the governments priorities as detailed in the 4th National Communication to the UNFCCC, the National Action Plan to Combat desertification as well as a number of national strategies on climate change, agricultural and rural development, national development.
164. The targeting strategy of the project has been based on the consolidation of the precipitation data from the Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS)⁴² that enables the project to identify which areas are most vulnerable to drought and torrential rain, as well as using the Small Area Deprivation Index (SADI) data that shows the development level of a local community, covering all rural communities in Moldova and presented in figures 17 and 18. These two maps combined with the target of focusing on smallholders with up to 10ha of land and a 40 percent target for women and 50 percent youth, form the climate vulnerability targeting strategy that will fully integrate environmental, climate and social resilience with a special focus on the most marginalised households. The climate and social vulnerability targeting strategy will not only be applicable to the TRTP-Adapt but has also been mainstreamed throughout the larger USD 51m TRTP/IFAD project.
165. The project aims to address the most important adaptation measures that have been proposed by the GoM in the national strategies. The investments to be undertaken within the project will promote climate resilience and take into consideration the vulnerability of the target areas in terms of climate-risks such as drought, increased water shortage, land degradation and poverty. The proposed investments and capacity development plan aim to help farmers shift to sustainable production systems and technologies that will help adapt to the concrete environmental and climatic risks, such as increased drought, increased flooding, reduced water availability, increased land degradation and overall further reduced livelihoods because of climate change.

⁴² <http://chg.geog.ucsb.edu/data/chirps/>

Table 10 Overview of the ESP risk assessment

ESP	Potential Impacts and Risks	Mitigation Efforts	Screening and ESMP
ESP 1	<p>Compliance with the law positive impact: The project complies with all national relevant laws, regulations and technical standards. In the absence of national standards, the project will apply internationally recognized standards.</p>		Not needed
ESP 2	<p>Access and equity positive impact: The project design supports equal access to training, equipment, infrastructure and services, taking especially into account marginalised and vulnerable groups, namely women and youth.</p>	<ul style="list-style-type: none"> - Project planning and designing is done in consultation and agreement with vulnerable groups that may benefit from irrigation water. - Project ensures adequate training in outcomes 1.2 and 1.3 and institutional development of all beneficiaries and to make an effective and efficient use of irrigation water under outcome 2.3. - The project has reviewed the mechanism whereby farmers used to be asked to pay grant money upfront for subsequent reimbursement. Now as explained in more detail in section II-A poorer farmers will not be excluded if they are too poor to pay in advance through an escrow account system set up supported by the Adaptation Fund. 	Not needed
ESP 3	<p>Marginalised and vulnerable groups positive impact: The project specifically targets marginalised and vulnerable groups with an integrated gender and youth approach, who will benefit from climate-resilient investments throughout the project.</p>	<ul style="list-style-type: none"> - The project is focused on providing employment opportunities to the youth and women. The project will have a 50 percent youth target, while women 40 percent. The definition of women youth will also be raised vis-à-vis men to reflect the increased challenges women face by virtue of their gender and social responsibilities. - By being fully integrated with the IFAD TRTP the youth and women 	Not needed

ESP	Potential Impacts and Risks	Mitigation Efforts	Screening and ESMP
		<p>beneficiaries will also have facilitated access to the IFAD TRTP matching grant scheme that allows this vulnerable groups access to cheaper money specifically because they have greater challenges in securing sufficient collateral and affordable loan interest rates.</p>	
ESP 4	<p>Human rights positive impact: The project is designed to respect and adhere to the requirements of all relevant conventions on human rights. IFAD is committed to support borrowers in achieving good international practices by supporting the realization of United Nations principles expressed in the Universal Declaration of Human Rights and the toolkits for mainstreaming employment and decent work.</p>	<ul style="list-style-type: none"> - The project is designed to respect and adhere to the requirements of all relevant conventions on human rights. 	Not needed
ESP 5	<p>Gender equality and women's empowerment positive impact: The project will have specific gender targets and budget allocations, service providers with women staff to ensure outreach to women and integrate gender aspects in all reports. The project will have an approach to encourage the inclusion of women and specific targets have been identified for them. The identification of assets, skills training and enterprise development would be designed to address opportunities of relevance for women.</p>	<ul style="list-style-type: none"> - At least 40 percent of beneficiaries will be women. - Young women up to 40 years of age (and men up to 35) will qualify for TRTP-Adapt support. - The social inclusion strategy of TRTP-Adapt aims to empower vulnerable women, youth and men smallholder farmers by expanding their economic opportunities, access to climate resilient technologies and technical knowledge in agriculture to better adapt to the challenges of climate change, and through the IFAD project, also to access youth and gender targeted credit. - Implementers will be sensitised to the strategic interests and needs of smallholder farmers, women and youth; direct targeting through quotas to ensure participation in 	Not needed

ESP	Potential Impacts and Risks	Mitigation Efforts	Screening and ESMP
		project-related activities for women, youth and smallholders; appropriate mobilization and operational measures to address specific constraints faced by women, youth and poorer smallholder farmers; geographical targeting through selection criteria which prioritize youth, women and small-holder farmers and entrepreneurs from climate vulnerable and poorer areas of Moldova.	
ESP 6	<p>Core labour rights positive impact:</p> <ul style="list-style-type: none"> - Relevant national labour laws guided by the ILO labour standards will be followed throughout project implementation. Employment creation enabling marginalized and vulnerable groups including unemployed youth and women to raise their income. 	<p>The project will integrate the recommendations made by the ILO through</p> <ul style="list-style-type: none"> - Ensuring workers rights are respected at all times and upheld to international standards. <p>In promoting social protection the project has designed the five-pillar graduation programme.</p>	Not needed
ESP 7	Indigenous peoples: Not applicable		
ESP 8	Involuntary resettlement: Not applicable		
ESP 9	<p>Protection of natural habitats</p> <p>The project is highly unlikely to pose a risk to critical natural habitats, however as the project activity areas has not yet been defined it is not possible to make a definitive assessment.</p>	As part of the ESMP, the project together with the Department of Environment within MARDE will identify the national critical habitat areas and monitor that the project implementation will not encroach or affect them in any way. This will be mapped and reported in the PPR.	Through the ESMP the project will identify if any protected natural habitat areas will be included in the project zones. In the unlikely event that this may be the case, the project will describe the location of the critical habitat in relation to the project and if absolutely necessary explain why it cannot be avoided, as well as its characteristics and critical value.
ESP 10	<p>Conservation of biodiversity positive impact:</p> <ul style="list-style-type: none"> - At project design the project is not able to determine the project areas and conduct a full risk assessment. 	As part of the ESMP, the project will identify the national critical biodiversity areas and monitor that the project implementation will not encroach or affect them in any way. This will be mapped and reported in the PPR.	Through the ESMP the project will identify if any protected natural habitat areas will be included in the project zones. In the unlikely event that this may be the case, the project will describe the location of the critical habitat in relation to the

ESP	Potential Impacts and Risks	Mitigation Efforts	Screening and ESMP
			project and if absolutely necessary explain why it cannot be avoided, as well as its characteristics and critical value.
ESP 11	<p>Climate change positive impact:</p> <ul style="list-style-type: none"> - The project is entirely designed with the purpose to be focused on climate change adaptation in terms of providing technical and capacity building solutions to the rural climate-vulnerable poor to adapt to climate change. This will be in terms of improving access to water; water-efficient irrigation technology that reduces the amount of water needed and effectively makes it more affordable. - Project investments are furthermore compliant with the governmental adaptation priorities for the agriculture sector. 		Not needed
ESP 12	<p>Pollution prevention and resource efficiency positive impact:</p> <ul style="list-style-type: none"> - Increase in water supply to meet agricultural production needs. - Support the implementation of efficient irrigation technologies that reduce production costs and improve crop yield and quality - Application of national and international fertilizer use standards. <p>Possible risk for outcome 2.2</p> <ul style="list-style-type: none"> - There is a risk that project activities will add extraction pressures on a limited resource. - There is a risk that water used as a result of the outcome 2.2 tertiary canals (through the TRTP programme) from rivers or rain water reservoirs is not used efficiently. 	<ul style="list-style-type: none"> - As explained in section II – E, this risk has been mitigated through full compliance with the national water law and procedures relating to the issuing of water permits. The issuing of water permits is done by the national water and environment authorities and they also verify that the proposed measures are sustainable. - The project will also ensure that the access points the farmers will use to access water supplied through the off-farm tertiary irrigation canals, will be exclusively for drip or micro irrigation. 	<ul style="list-style-type: none"> - Farmers will submit feasibility studies detailing inter alia the source of water and amount of consumption required. - The water service provider Apele Moldovei, will verify the number of users and water availability of any source of water and make recommendations on the sustainability of the proposed application. - The Environment Department of MARDE will issue the water permit which is a precondition for the farmer to be considered as a grant recipient. - As part of the feasibility study the smallholders will be required to state the type and quantity of fertilisers that they will be using and will be approved by the national authorities. - The Adaptation Fund has integrated the condition that the intended purpose

ESP	Potential Impacts and Risks	Mitigation Efforts	Screening and ESMP
			of any co-financing of the tertiary off-farm irrigation canals by the Adaptation Fund will solely be for water-efficient irrigation use. Technical specifications have been inserted in the Project Implementation Manual and IFAD project document to ensure that distribution pipes will only have connectors for drip- and micro-irrigation schemes. This will also be monitored as part of the ESMP.
ESP 13	<p>Public health positive impact:</p> <p>The project is expected to have an overall beneficial impact on the public health with improved access to water, climate-proofed yields and increase quality of produce that will also provide improved food security and nutritional benefits.</p>	No risk to public health resulted from the screening for determinants of public health in the EMSP in annex 4. It covered: income and social status; education; physical environment; social support networks; health services; land use; unsustainable farming; and water.	
ESP 14	<p>Physical and cultural heritage</p> <ul style="list-style-type: none"> - At project design the project is not able to determine the project areas and conduct a full risk assessment. 	<ul style="list-style-type: none"> - The project will ensure whether there are any national cultural heritage sites in the project areas and propose measures to avoid any alteration, damage, or removal of physical cultural resources, cultural sites, and sites with unique natural values. 	<ul style="list-style-type: none"> - Through the ESMP the project will identify if any national or cultural heritage will be included in the project zones. In the unlikely event that this may be the case, the project will describe the location of the of the heritage in relation to the project and if absolutely necessary explain why it cannot be avoided and what measures are being taken to minimize negative impact.
ESP 15	<p>Lands and soil conservation positive impact:</p> <ul style="list-style-type: none"> - The project is designed to have positive impact on lands through various techniques in soil conservation. 	<ul style="list-style-type: none"> - The training will help improve soil water storage, control erosion, improve soil structure, and boost nutrient management and will include understanding the impact increased drought stress can have on their particular crops, provide simple solutions to reduce water stress during droughts; using mulch to prevent soil evapotranspiration; and learn about the benefits of 	No need

ESP	Potential Impacts and Risks	Mitigation Efforts	Screening and ESMP
		<p>drip irrigation etc.</p> <ul style="list-style-type: none"> - Farmers will learn that they can adopt to minimise damage to soils and crops from increasingly frequent torrential rain including drainage options, laying of gravel to increase soil water uptake and reduce erosion. Farmers will also learn about the benefits of organic agriculture and composting to improve soil structure and boost nutrient management etc. - The project will help develop higher-level education curricula aimed at bachelor and master degree programmes and also train professors on CA. The project will also support a research institute to carry out gender and smallholder-focused research into CA with strong links in supporting university students by providing them with hands-on research experience. 	

Table 11 Summary Adaptation Fund Environmental and Social Checklist

PART III IMPLEMENTATION ARRANGEMENTS

A. Implementation Arrangements

Describe the arrangements for project implementation.

166. **The implementation** of the project will build on IFAD's existing project coordination and management structure that has implemented 7 projects worth USD 109.2 million since 1999 and is currently implementing two projects for a value of USD 84.99 million. The Adaptation Fund project aims to build climate resilience into the IFAD's USD 50.51 million Talent Retention for Rural Transformation Project (TRTP) and is fully integrated into the TRTP project management structure. MARDE will be the lead executing agency through the Consolidated Project Implementation Unit (CPIU) established in MARDE.
167. The TRTP-Adapt is fully integrated into the TRTP and will be subject to TRTP implementation arrangements. The overall responsibility for the management and implementation of TRTP will be exercised by the existing IFAD Programme Steering Committee (IPSC), established by a GoM decree to manage all IFAD financed projects in the country. The IPSC will be responsible for providing overall policy guidance and oversight for all IFAD-supported projects and programmes in Moldova. The IPSC will have the same responsibility and function with respect to the TRTP. The IPSC membership may be amended depending on project requirements, with a view to reflect the increased emphasis on climate adaptation and resilience, subject to prior approval of IFAD. The CPIU programme director and a representative from the CLD and MoF will participate in the IPSC meetings. Logistical support and secretarial services for the IPSC will be provided by the CPIU.
168. **Day-to-day** management and implementation of the projects will be exercised by the existing CPIU. However, as the CPIU is already charged with implementing two on-going IFAD projects, the CPIU capacity will be strengthened to implement the TRTP-Adapt with a specialist to oversee its implementation. In addition, specialist expertise will be contracted out to consulting firms or NGOs with the requisite skills for communication, identification of beneficiaries and administration of grants for the AF activities. Apele Moldovei the State Water Administration Agency responsible for the planning and implementation of capital investments in the water supply and wastewater sectors, will review all applications for water related infrastructure. The project will also partner with the Research Institute of Field Crops "Selectia for supporting research grants focused on Conservation Agriculture. The CPIU will work closely with the State Agrarian University of Moldova for the development of a Conservation Agriculture curriculum, and the translating of Conservation Agriculture text books and research papers into Moldovan language. The project could also potentially cooperate with the National Agency for Rural Development (ACSA) or other Service Providers like it, in the implementation of the Adaptation Funded activities for the developing the demo plots; the designing and implementation of the Training of Trainers (ToT) programme; the training of extension workers and beneficiaries of on-farm water management activities; and provision of extension services.
169. **The principal functions** of the CPIU will be to undertake the annual plans and budgets, take the lead in implementation, coordinate with partner institutions and supervise the service providers and infrastructure contractors. The CPIU will monitor and document project progress and ensure the timely availability of all progress reports. Specifically, the CPIU will assume responsibility for generating the AWPBs for submission to the IPSC for review and approval, and subsequently to IFAD for no objection. Likewise, the CPIU will take the lead in procurement of civil works and goods and services. The CPIU infrastructure specialist will oversee the implementation of CRI activities that the AF is co-financing (outcome 2.2) together with the Adaptation Fund specialist will also oversee all AF related activities. The responsibility for ensuring that the targeting and selection criterion (including gender targeting) is adhered to will be assumed by all component leads and the CPIU Director.
170. **Project Identification and Implementation.** The TRTP project is national in scope, which means that the geographical targeting does not limit project interventions to a specific geographic area but prioritizes interventions in the more climate vulnerable and deprived areas throughout the country

based on SADI (Small Area Deprivation Index) and data on climate vulnerability map presented in figure 17 on page 14. While the project activities have been defined in detail (this project does not have Unidentified Sub-Projects), the identification of project locations will depend on a number of factors that will be part of the project implementation.

171. The project will initially finalise the targeting strategy in the start-up workshop and will focus on the most climate-vulnerable Rayons (Districts) and Primarias (Villages / Local Public Administrations). The targeting strategy will be implemented by the annual outreach programmes, these will determine clusters of demand that will form the project sites as detailed below.
172. **Outcome 1.1:** The site locations for the demo plots will be determined by the Service Provider in partnership with the CPIU and will be dependent on factors such as the climate vulnerable areas as per the map in figure 17 on page 14 and local demand that will become clear from the outreach programme. The sites for this outcome will also be dependent on where the appropriate locations will be for the demo plot locations and how close these will be to the clusters of beneficiaries to be trained.
173. **Outcome 2.1:** The selection of the farms that will participate with on-farm irrigation schemes will depend on a combination of factors. These will initially result from the geographical location determined by the climate-vulnerable areas as defined by the climate-vulnerability map; the outreach programme will then determine how much interest there is in participating (one of the identified risks is low participation). Other factors influencing the site locations will be the permit approval process and outcome 2.2. The government will ultimately decide which applications will be successful depending on the screening criteria detailed in section II-E. The national scope of the project will enable a high degree of flexibility that will be needed should demand be low or government approval processes more difficult than expected. This outcome will also in part be linked with the development of sources of water that will be developed under outcome 2.2. Under this outcome TRTP will develop access to sustainable sources of water that will vary from available access points to rivers and available land for the construction of rainwater harvesting water reservoirs.
174. **Outcome 2.2:** This outcome will be implemented by TRTP. The location will be national in scope but focused on the areas identified as being climate vulnerable in the same climate vulnerability map used for TRTP-Adapt. Other factors will include availability of clusters of larger farms (TRTP-Adapt beneficiaries will comprise 30% of the schemes) that will make the investments financially viable.
175. **All ESP screening** as per the ESMP and summarised in table 18 on page 97 in annex 3, will take place on an application-by-application basis. The project locations will be defined every year depending on the outreach programmes and other factors as detailed above. The annual PPR and accompanying reports will provide maps of the project activities and overlapping areas relevant to ESPs 9,10 and 14.

B. Financial and Project Risk Management

Describe the measures for financial and project risk management.

Financial Risks

176. Financial risks will be assessed as an on-going process throughout the implementation of the project and will be managed by the IFAD Financial Management Unit (FMU). The FMU structure of the CPIU consists of a Finance Manager and an Accountant. The Finance Manager is currently also involved with procurement and legal aspects. The AWPB process is already well established and follows on-budget national procedure. Budget preparation will be detailed by component/categories using proper Chart of Accounts to map/bridge expenses for the purpose of dual reporting both to Government and IFAD. AWPB will be maintained in the budget module of the CPIU accounting software (1-C) as well as entered quarterly in the IFMIS-Budget Module of the integrated national system.
177. **The project accounting system** will follow national standards, accrual basis, and transactions will be recorded in the 1-C standalone accounting software at the CPIU. As national reporting requirement

differ from IFAD's, a specific set of Financial Statements can be easily prepared as per current practice based on records from 1-C, on a cash basis of accounting and in accordance to the requirements set in the IFAD Handbook on Reporting/Auditing. On-going internal control procedure will also be applied to TRTP and TRTP-Adapt, which ensure proper segregation of duties. The project can maintain the same audit arrangements as current on-going programmes. At the same time, the CPIU may take into consideration the opportunity to strengthen this area with dedicated resources. The project will be externally audited by independent firms acceptable to IFAD as is adopted for the on-going programmes.

178. **The procurement** for the new projects will be managed by the CPIU which has a procurement specialist in place. The efficiency of the procurement process needs to be improved through selection of appropriate procurement methods keeping in mind size and purpose of procurement. In order to expedite the procurement process the tender committee members will define the qualification requirements for the tenders at the start rather than only at the stage of the evaluation of submitted bids/proposals to avoid any disagreements among tender committee members during the evaluation. At the same time, the procurement specialist will be responsible for making the minutes of meetings in the bids/proposals opening.
179. **Fraud prevention.** In accordance with provisions of the IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations, IFAD applies a zero-tolerance policy with regard to any fraudulent, corrupt, collusive or coercive actions in the projects it manages. This entails not only pursuing all allegations of fraudulent practices and applying appropriate sanctions but also promoting preventive control measures such as assessments of national and project-specific FM, auditing and procurement systems during the project design phase. Where it is determined that fraudulent, corrupt, collusive or coercive practices have occurred in projects financed through its loans and grants, IFAD applies a range of sanctions, including disciplinary measures for IFAD staff; and pursues the recovery of any losses in accordance with the provisions of the applicable IFAD rules and regulations and legal instruments. The Policy on Preventing Fraud and Corruption has been integrated into IFAD's legal framework (Project Procurement Guidelines⁴³, General Conditions for Agricultural Development Financing⁴⁴, IFAD's Code of Conduct⁴⁵) and applies to all recipients of IFAD financing.

Project Risks

The main potential risks to programme success and mitigation strategies are summarized in the table below.

Table 12 Main potential risks to programme success and mitigation strategies

Risk	Initial risk assessment (H = high, M = moderate, L = low)	Proposed mitigation measure	Final risk assessment
Low interest and capacity of smallholder to adopt new climate smart approaches and technologies.	M	The programme will pay attention to technical and environmental capacity building and training as a key factor in the upgrading process. It will carry out demonstrations and raise general environmental and climate change awareness and train farmers on the economic and environmental benefits for the adoption of systems and new technologies. The project will also be demand-driven so as to focus	L

⁴³ <https://www.ifad.org/web/guest/document-detail/asset/39438991>

⁴⁴ <https://www.ifad.org/web/guest/document-detail/asset/39500875>

⁴⁵ <https://www.ifad.org/web/guest/document-detail/asset/40186603>

Risk	Initial risk assessment (H = high, M = moderate, L = low)	Proposed mitigation measure	Final risk assessment
		on the needs of the farmers to generate interest. This will mean that the project activities in outcome 2.3 will need to be reviewed and possibly updated within the detailed review framework so as to ensure farmer interest.	
Water is a scarce resource the use of which is heavily regulated. There is a risk that the institutional process of requesting and issuing permits is long and laborious leading to delays in project implementation.	M	IFAD has developed over the course of several projects an application approval framework in partnership with MARDE. Through the Selection Committee set up by MARDE decree, the application review and approval process is mainstreamed and integrated into the project structure. It hereby fast-tracks the approval process mitigating any delays due to slow and is proven to review applications and issue permits within 30 days.	L
Climatic shock: the main effect of climate change on weather patterns is the increased occurrence of extreme weather events: droughts and flooding in particular. These climatic shocks can have a direct impact on crop production	M	The programme will introduce climate smart infrastructure and will ensure that climate adaptation measures are implemented. It will in particular ensure that farmers have the technical capacity and knowledge to apply techniques that have proven to help farmers adapt to climate change hereby reducing risks to livelihoods and increased land degradation. This will improve resilience to increased drought and torrential rain.	M
Insufficient capacities to appropriately manage the day-to-day implementation of the project	L	The CPIU has the proven administrative and financial management capacity to implement projects and has the necessary autonomy and assumes the fiduciary management functions of the project. IFAD will participate as an observer in all stages of the recruitment process. The staff of the CPIU will be linked to the project by renewable annual contracts based on a performance evaluation.	L

C. Environmental and Social Risk Management.

Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.

180. IFAD-funded projects and programmes are designed in a participatory manner, taking into account the concerns of all stakeholders. IFAD requires that projects are carried out in compliance with its policies, standards and safeguards. Moreover, IFAD's Strategic Framework calls for ensuring that projects and programmes promote the sustainable use of natural resources, build resilience to climate change and are based upon ownership by rural women and men themselves in order to achieve sustainability. The project design was assessed through the social, environmental and climate assessment procedures (SECAP) of IFAD, which are fully aligned with the AF Environmental and Social as well a Gender Policies.
181. The expected impact of the project on the environment will be positive given its orientation towards the promotion of improved access to water; water use efficiency through the adoption of water saving irrigation systems; and the promotion of climate-resilient agronomic systems and technologies such as irrigation systems and equipment operation and maintenance; water quality assessment and irrigation regimes; climate change awareness capacity building; training on the importance and necessity of sustainably utilising the limited water resources in Moldova; and composting and organic agriculture; understanding the stress impact of drought on specific crops and how to adapt; to check for leaks (if using drip irrigation); irrigate during the cooler hours of the day; avoid irrigating during windy conditions; ensure water used in irrigation is not more than the soil is able to absorb; tree thinning to benefit fruit growth in times of drought; summer pruning can reduce water stress; correct fertiliser application as foliar nutrients can damage leaves.
182. To cope with periods of too much moisture, farmers will be taught techniques to minimise negative impacts. These will include appropriate drainage options; the importance of land preparation such as gravel on heavier soil to improve drainage; allow for drainage before using heavy machinery to minimise soil compaction. Planting of cover crops or orchard sod row middles to absorb moisture throughout the growing season and may help trees prepare for winter and prevent leaching losses by tying up nutrients in organic form over winter, and releasing them in the spring; and monitor soil moisture to avoid excessive irrigation.
183. The project will minimize environmental and social risks by integrating a safeguarding system in:
- **Institutional processes:** Staff and partners will be guided by the IFAD Project Management Team to identify, assess, manage and/or mitigate environmental and social risks. Processes are in place for the Environmental and Social Risks to be assessed and respective ESMPs designed and applied for the mitigation of risks related the 15 ESPs.
 - **Implementation of 'hard' interventions/sub-projects:** Proposed water-related infrastructure investments under component 2 will fully integrate national water and environmental laws through the full integration of the national structures that are responsible for their management. The project has detailed processes explaining all steps involved in securing water permits that are designed to ensure the sustainability of all the sources of water that are going to be used. This is further strengthened with the condition that any Adaptation Fund money that will be spent on water-related infrastructure will be conditional on the utilisation of water-efficient irrigation technologies.
 - **Execution of 'soft' project activities:** Proposed 'soft' project activities have been screened for environmental and social risks during project preparation and their design and implementation by an experienced national Service Provider will help ensure that the environmental and social risks are adapted to and context specific to the environmental and social conditions in Moldova.
184. Annex 3 proposes a methodology for the development of Environmental and Social Impact (ESI) screening and ESMP of the project. The ESMP will include mitigation and monitoring actions and the

institutional responsibilities for implementing them clearly. The ESMP includes a grievance mechanism, based on the IFAD Grievance Mechanism that has the objective to ensure that appropriate mechanisms are in place to allow individuals and communities to contact IFAD directly and file a complaint if they believe they are or might be adversely affected by an IFAD-funded project/programme not complying with IFAD's Social and Environmental Policies and mandatory aspects of its Social, Environmental and Climate Assessment Procedures (SECAP). Affected individuals should contact IFAD if the member state body implementing the project (the Lead Agency) has failed to respond to their concerns. However, concerns may also be brought to the attention of IFAD in cases where the persons raising the issue feel that they might be subject to retaliation if they were to approach the Lead Agency or other government agency directly. Complaints must concern environmental, social and climate issues and should not be accusations of fraudulent or corrupt activities in relation to project implementation – these are dealt with by IFAD's Office of Audit and Oversight.

185. Eligibility criteria to file a complaint for alleged non-compliance with IFAD's Social and Environmental Policies and mandatory aspects of its SECAP IFAD will consider only complaints meeting the following criteria:

- The complainants claim that IFAD has failed to apply its social and environmental policies and/or the mandatory provisions set out in SECAP.
- The complainants claim that they have been or will be adversely affected by IFAD's failure to apply these policies.
- Complaints must be put forward by at least two people who are both nationals of the country concerned and/or living in the project area.
- Complaints from foreign locations or anonymous complaints will not be taken into account.
- Complaints must concern projects/programmes currently under design or implementation. Complaints concerning closed projects, or those that are more than 95 per cent disbursed, will not be considered.

186. Grievances are aimed to be addressed at the field level by the project team which will be the first level of redressal mechanism. If the grievance is not resolved at the field level, it will be escalated to the CPIU and then to IFAD who will be responsible for addressing grievances related to violation of any of the provisions of Environmental and Social Policy of the Adaptation Fund. All grievances received and action taken on them will be put up before the CPIU and Steering Committee meetings and will also be included in the progress reports to the NIE for reporting and monitoring purposes.

187. In all cases, if the complainants disagree with IFAD's response, they may submit a request to SECAPcomplaints@ifad.org and request that an impartial review be carried out by the Office of the Vice-President. The Office of the Vice-President will decide on the steps to be taken to examine such complaints, including, if necessary, contracting external experts to review the matter. The complainants will be informed of the results of the review. IFAD will include in its Annual Report a list of received complaints and a summary of actions taken to address them.

D. Monitoring and Evaluation

Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan, in compliance with the ESP and the Gender Policy of the Adaptation Fund.

188. **Project Monitoring and Evaluation (M&E)** will be under the oversight of the CPIU, and led by the M&E officer who will work closely with the Adaptation Fund expert and implementing partners. The M&E system should: (i) produce, organize and disseminate the information needed for the strategic management of the project, (ii) document the results and lessons learned for internal use and for public dissemination on the achievements and (iii) respond to the information needs of Adaptation Fund, IFAD and the Government on the activities, immediate outcomes and impact of the Project. A monitoring and evaluation manual that will describe a simple and effective system for collecting, processing, analysing and disseminating data will be prepared in the first year of the Project.

189. A computerized database will be developed that will enable the generation of dashboards used in IFAD projects. The system will be regularly fed from data collected in the field by the implementing partners and the various studies carried out as part of the projects' implementation. Day to day monitoring of implementation progress will be the responsibility of the project team, based on the project's Annual Work Plan and its indicators. During the first months of the project, the project team will complete and fine-tune baseline data for each indicator, and will define and fine-tune performance. Specific targets for the first year of implementation, progress indicators, and their means of verification will be developed at the start-up workshop.
190. **Mobilisation Workshops.** TRTP/Adaptation Fund workshops will be conducted every year in the identified climate vulnerable areas with the full project team, relevant government counterparts and IFAD. The workshops will be crucial to the signing up of beneficiaries to the project and to plan the annual work plan. A fundamental objective of the workshops will be to present the project implementation and execution modalities, and promote beneficiary ownership of the project's goals and objectives.
191. **Baseline.** The TRTP-Adapt baseline will be merged with TRTP and implemented in PY1 of TRTP a year ahead of TRTP-Adapt. The added cost-benefit of partnership with IFAD will allow the Adaptation Fund to help mainstream climate change vulnerability assessments into the combined IFAD/AF baseline. Adaptation Fund indicators have already been specified in the PIM and will include climate change related indicators on the extent of water vulnerability such as percent of income spent on irrigation water, extent of water availability (rainfall or irrigation) and extent of farm land irrigation.
192. **Quarterly Progress Reports** will also be prepared by project implementing partners in the field, and submitted to the CPIU to ensure continuous monitoring of project activities and identify challenges to adopt necessary corrective measures in due time.
193. **Technical reports** – such as a best practices and lessons learned report - will also be completed, as determined during the project inception report.
194. **Annual Project Report (APR).** The project team will prepare an APR to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work. The format of the APR will include the following issues: (i) an analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome; (ii) the constraints experienced in the progress towards results and the reasons for these; (iii) the three (at most) major constraints to achievement of results; (iv) AWP and other expenditure reports; (v) lessons learned; (vi) clear recommendations for future orientation in addressing key problems in lack of progress. The project will also submit a PPR each year to chart progress. The PPR includes among others, information related to financial data, procurement, risk assessment, rating, project indicators, lessons learned. In addition, it includes the results tracker that needs to be filled. This will be done i) at inception where baseline-related information will be submitted, as well as planned targets at project/programme completion; ii) At mid-term; and iii) project/programme completion when the final PPR will serve as a project completion report; but also include the final evaluation report and final audited financial statements.
195. **Supervision** will be by IFAD (under its direct supervision framework and guidelines), with a supervision mission mobilized at least once per year. Additional implementation support from IFAD on specific identified issues will be mobilized if considered necessary by GoM and IFAD or recommended by the supervision mission. The composition of the supervision missions would be based on an annual supervision plan. The supervision plan would highlight, in addition to the routine supervision tasks (fiduciary, compliance and programme implementation), the main thematic or performance areas that require strengthening and would imply deployment of additional inputs for capacity building, in-depth analytical studies or review of existing policies.
196. **Mid-term Review (MTR).** The MTR will be carried out in year 3 of the TRTP. It will assess operational aspects such as programme management and implementation of activities as well as the extent to which the objectives are being fulfilled and corrective actions needed for the programme to achieve impact. Depending on the achievements the programme and the resources available, the possibility of scaling up the activities to other regions will also be considered in consultation with the government.
197. **A Final Evaluation** will be conducted three months before project closure which will include the programme completion survey (below).

198. **Programme completion survey** (impact assessment): Will include the same set of questionnaires included at baseline to allow for comparison against baseline results. In addition, a panel of households will be interviewed to provide a thorough analysis of programme impact. Moreover, analysis will be done by type of beneficiary, region, age and gender. As part of the evaluation, stories, lessons learned and best practices will be collected for upscaling and dissemination.

Table 13 Breakdown of M&E fee utilisation.

IE Fees Breakdown of M&E Supervision	Responsibility	Timeframe	Adaptation Fund Budget (USD)
Start-up Workshop	IFAD, CPIU	TRTP PY1	0 (Covered by IFAD TRTP)
Supervision missions	IFAD, CPIU	Twice a year	0 (covered by the IE fee)
Mid-term	IFAD, CPIU	At mid-point of project cycle	20,000
Annual Work Plans and Budget	CPIU	Annual	0 (as completed by CPIU)
Semi-Annual Progress Report	CPIU	Semi-annual	0 (as completed by CPIU)
Annual Project Report	CPIU	Annual	0 (as completed by CPIU)
Final Evaluation	IFAD, External consultants	End of project	20,000

E. Results Framework

Include a results framework for the project proposal, including milestones, targets and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework, and in compliance with the Gender Policy of the Adaptation Fund.

Table 14 Results Framework

Project Objective(s)	Project Objective Indicators	Baseline	Target	Means of Verification	Assumptions
Overall objective: strengthen the agro-ecological and social resilience to climate change in the climate vulnerable areas of Moldova, by enhancing water availability, water use efficiency, and promoting adaptive agriculture production systems and technologies for improved livelihoods and food security of rural households	Ha of smallholder agricultural land made climate resilient		25,000 ha of smallholder agricultural land that has benefitted from improved access to water, climate-smart irrigation systems and improved adaptive agricultural techniques.	<ul style="list-style-type: none"> Project M & E reports Progress reports Mid-term and final project evaluations 	<ul style="list-style-type: none"> Good participation and involvement of local communities. The interest of young people remains high throughout project implementation.
	No. of smallholder households benefitting from climate resilient improvements.		5,000 households (11,665 people, 40% - 4666 women, 50% 5,383 youth) will benefit from climate resilient improvements.		
	No. of people with improved awareness about the impacts of climate change and basic measure that can be taken to adapt.		15,000 households (35,000 people, 40% - 14,000 women, 50% - 17,500 youths) will receive improved climate change awareness.	<ul style="list-style-type: none"> Project M & E reports Progress reports Mid-term and final project evaluations Broadcasts, video clips, leaflets, posters. 	
Component 1 Capacity development to integrate CC adaptation into agricultural production systems					
Outcome 1.1 Climate resilient training programme established.					

Project Objective(s)	Project Objective Indicators	Baseline	Target	Means of Verification	Assumptions
Output 1.1.1 A Training of Trainers (ToT) programme designed and implemented	Training programme designed		Training programme designed and implemented	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations • Manuals • Training programme • Attendance lists 	Sufficient technical experts are available in Moldova.
Output 1.1.2 Demo plots identified and set up.	No. of demo plots set up		10 demo plots locations have been successfully identified, screened and implemented.		
Output 1.1.3 Beneficiaries trained in groups of around 20 on climate resilient techniques and approaches to adapt to weather extremes and water efficient irrigation.	No. of beneficiaries trained		At least 400 beneficiaries (40% - 160 women 50% - 200 youth) trained on on-farm irrigation techniques	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations • Manuals • Training programme • Attendance lists 	Good participation and involvement of local communities
			Around 4,600 farmers (40% - 1840 women 50% - 2,300 youth) trained on climate resilient techniques.		
Outcome 1.2 CA professional service provider capacity built with a focus on smallholders					
Output 1.2.1 Professionals trained in gender awareness, CA, and CA technical and service provision to smallholder farmers.	No. of professionals trained		Around 40 professionals including recent university graduates and experienced professionals trained as service providers. (40% - 16 women)	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations • Manuals • Training programme • Attendance lists 	Good participation and involvement of local communities
Outcome 1.3 Knowledge Management					
Output 1.3.1 Knowledge	Knowledge products produced and		Around 10,000 people (40% - 4,000 women,	<ul style="list-style-type: none"> • Project M & E 	

Project Objective(s)	Project Objective Indicators	Baseline	Target	Means of Verification	Assumptions
management and climate change awareness raising system established and implemented.	disseminated		50% 5,000 youth) will receive improved climate change awareness through video clips broadcast on the AgroTV channel as well as social media (Facebook, Instagram and YouTube). Other outputs include radio programmes and the printed media including posters and leaflets.	<ul style="list-style-type: none"> reports • Progress reports • Mid-term and final project evaluations • Baseline study • Impact assessment • Research papers • Video clips • TV broadcasts • Posters and leaflets 	
	No. of knowledge-generating studies / research produced.		Baseline, studies on effectiveness of outcome 2.3 and impact assessment produced		
Component 2: Climate-resilient Agricultural Investments					
Outcome 2.1 Community mobilisation undertaken with a focus on women and youth in the most climate-vulnerable areas					
Output 2.1.1 Annual mobilisation campaign delivered and beneficiaries supported in making grant applications	No. of smallholders receiving information about the project		At least 5,000 households (11,665 people, 40% - 4666 women, 50% 5,383 youth) will benefit from climate resilient improvements	<ul style="list-style-type: none"> • Project M & E reports • Progress reports Mid-term and final project evaluations	Good participation and involvement of local communities
Output 2.1.2 Beneficiary applications screened by CPIU for compliance to criteria.	No. of applications received that have successfully been granted water permits.		At least 400 smallholders (40% - 160 women 50% - 200 youth) successfully applied for water-efficient irrigation		

Project Objective(s)	Project Objective Indicators	Baseline	Target	Means of Verification	Assumptions
	No. of demo plot applications received.		Around 4,600 smallholders (40% - 1,840 women 50% - 2,300 youth) successfully applied for climate adaptive training.		
Outcome 2.2 Climate resilient off-farm access to water secured from tertiary canals from rivers and water harvesting ponds.					
Output 2.2.1 Improved smallholder access to water from rivers and rainwater reservoirs.	Ha. with improved access to water		2,000 ha. of smallholder land has improved water access.	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations 	Good participation and involvement of local communities
	No. of beneficiaries benefitting from improved access to water		Around 400 smallholders (40% - 160 women, 50% 200 youth) benefit from water access.		
Outcome 2.3 Demand-driven and beneficiary co-financed on-farm water conservation management and climate adaptive techniques supported					
Output 2.3.1 Households to received climate smart irrigation and support for banking fees for pro-poor escrow account.	No. of smallholders to receive on-farm water-efficient irrigation technology		At least 400 households (40% -160 women, 50% - 200 youth) will benefit from technology that reduces irrigation water consumption, reduces production costs and increases yields and product quality.	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations 	Good participation and involvement of local communities
	No. of farmers benefitting from escrow account		Up to 400 farmers (40% – 160 women, 50% - 200 youth) benefitted from escrow account.		
Output 2.3.2	No. of climate		Around 4,600 farmers		

Project Objective(s)	Project Objective Indicators	Baseline	Target	Means of Verification	Assumptions
Climate adaptive techniques implemented	vulnerable smallholders supported to implement climate adaptive training.		(40% – 1,840 women, 50% 2,300 youth) will receive demand-driven equipment to help farms apply training in adapting to increased drought and flooding.		
Component 3: Development of the national framework for Conservation Agriculture supported.					
Outcome 3.1: CA mainstreamed into the national higher-level educational system					
Output 3.1.1 National survey and CA White Paper produced.	A national CA survey conducted and White Paper produced.		A survey is conducted and a White Paper produced making recommendations for the future of CA in Moldova.	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations • White paper • Survey report. 	
Output 3.1.2 National convention on CA.	At least one convention on CA is held		At least one convention is held and consensus reached on a national strategy for CA in Moldova.	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations • Attendance list 	Sufficient technical experts are available in Moldova.
Output 3.1.3 Conservation Agriculture mainstreamed into the national higher-level educational system.	A curriculum on CA is designed and textbooks and journals translated		A higher-level educational curriculum is designed on CA including translating textbooks and research papers.	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations • National curriculum • Student master certificate and proof of attendance. 	A national consensus on CA can be reached.
	Scholarships supported		One male and one female scholarships supported.		
Outcome 3.2 Research into CA supported with a focus on smallholders and women.					

Project Objective(s)	Project Objective Indicators	Baseline	Target	Means of Verification	Assumptions
Output 3.2.1 CA research grants, demo sites, equipment, soil laboratory supported.	A research institute is supported in CA		Demo plots, equipment, soil laboratory provided.	<ul style="list-style-type: none"> • Project M & E reports • Progress reports • Mid-term and final project evaluations • Research papers. 	
			Gender and smallholder-focused research is produced.		

F. Alignment with Adaptation Fund

Demonstrate how the project aligns with the Results Framework of the Adaptation Fund

Table 15 Project alignment with Adaptation Fund results framework.

Project Outcomes	Project Outcome Indicators	Adaptation Fund Outcomes	Fund Outcome Indicators	Grant Amount (USD)
Outcome 1.1 Climate resilient training programme established.	No. of beneficiaries trained	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	804,738
Outcome 1.2 CA professional service provider capacity built with a focus on smallholders	No. of CA professionals trained	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.1. Responsiveness of development sector services to evolving needs from changing and variable climate	
Outcome 1.3 Knowledge management	No. of knowledge products produced and distributed	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	
Outcome 2.1 Community mobilisation undertaken with a focus on women and youth in the most climate-	No. of smallholders targeted in the mobilisation campaign.	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate	4,054,000

Project Outcomes	Project Outcome Indicators	Adaptation Fund Outcomes	Fund Outcome Indicators	Grant Amount (USD)
vulnerable areas			responses	
Outcome 2.2 Climate resilient off-farm access to water secured from tertiary canals from rivers and water harvesting ponds.	Percentage of farmers with increased access to water Ha. of land benefitting with improved access to water	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.2. Physical infrastructure improved to withstand climate change and variability-induced stress	
Outcome 2.3 Demand-driven and beneficiary co-financed on-farm water conservation management and climate adaptive techniques supported	Percentage of farmers with increased productivity from climate-proofed farms.	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure (increased) access to livelihood assets	
	Ha. of land benefitting with improved climate resilient solutions.		6.2. Percentage of targeted population with sustained climate-resilient livelihoods	
Outcome 3.1 CA mainstreamed into the educational and research systems.	White Paper and CA situation analysis report produced.	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.1. Responsiveness of development sector services to evolving needs from changing and variable climate	464,000
	CA convention held and curricula developed			
Outcome 3.2 Research into CA supported with a focus on smallholders and women.	No. of smallholder and gender focused CA research papers published.	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.1. Responsiveness of development sector services to evolving needs from changing and variable climate	

Project Objective(s)	Project Output Indicators	Adaptation Fund Outputs	AF Output Indicators	Grant Amount (USD)
Component 1: Capacity development to integrate climate change adaptation into agricultural production systems				
Output 1.1.1 A Training of Trainers (ToT)	No. of trainers trained	Output 3: Targeted population groups participating in	3.1.1 No. and type of risk reduction actions or	44,000

Project Objective(s)	Project Output Indicators	Adaptation Fund Outputs	AF Output Indicators	Grant Amount (USD)
programme designed and implemented		adaptation and risk reduction awareness activities	strategies introduced at local level	
Output 1.1.2 Demo plots identified and set up.	No. of demo plots established			75,000
Output 1.1.3 Beneficiaries trained in groups of around 20 on climate resilient techniques and approaches to adapt to weather extremes and water efficient irrigation.	No. of youth and gender disaggregated beneficiaries trained			544,738
Output 1.2.1 Professionals trained in gender awareness, CA, and CA technical and service provision to smallholder farmers.	No. of CA professionals trained	Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of development sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	65,000
Output 1.3.1 Knowledge management and climate change awareness raising system established and implemented.	No. of knowledge products produced and distributed	Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.2 No. of news outlets in the local press and media that have covered the topic	76,000
Component 2: Climate-resilient Agricultural investments				
Output 2.1.1 Annual mobilisation campaign delivered and beneficiaries supported in making grant applications	No. of gender and youth disaggregated farmers receiving information about the project	Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1 No. and type of risk reduction actions or strategies introduced at local level	70,000
Output 2.1.2 Beneficiary applications screened by CPIU for compliance to criteria.	No. of applications screened			
Output 2.2.1 Improved smallholder access to water from rivers and rainwater	Ha. with improved access to water	Output 4: Vulnerable physical, natural, and social assets strengthened in response to	4.1.2. No. of physical assets strengthened or constructed to withstand conditions	1,706,000

Project Objective(s)	Project Output Indicators	Adaptation Fund Outputs	AF Output Indicators	Grant Amount (USD)
reservoirs.		climate change impacts, including variability	resulting from climate variability and change (by asset types)	
Output 2.3.1 Households to receive climate smart irrigation and support for banking fees for pro-poor escrow account.	No. of smallholders to receive on-farm water-efficient irrigation technology	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies 6.1.2. Type of income sources for households generated under climate change scenario	1,065,000
Output 2.3.2 Households supported with farm tools, to apply climate adaptive farming techniques.	No. of climate vulnerable smallholders supported to implement climate adaptive training.			1,213,000
Component 3: Development of a national framework for Conservation Agriculture supported.				
Output 3.1.1 National survey and CA White Paper produced.	A national CA survey conducted White paper produced.	Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of development sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	51,000
Output 3.1.2 National convention on CA.	At least one convention on CA is held			40,000
Output 3.1.3 Conservation Agriculture mainstreamed into the national higher-level educational system.	A curriculum on CA is designed.			73,000
Output 3.2.1 CA research grants, demo sites, equipment, soil laboratory supported.	A research institute is supported in CA	Output 4: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of development sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	300,000

G. Project Budget

Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

199. The table below presents the detailed budget of the project per activity.

Table 16 Detailed project budget per activity

Item/activity	Total AF (USD)	Total IFAD TRTP Co-funding	Grand Total
Component 1: Capacity development to integrate climate change adaptation into agricultural production systems			
Outcome 1.1 Climate resilient training programme established.			
Output 1.1.1 Training expert recruited to design CA ToT programme and to train trainers.	44,000		44,000
Output 1.1.2 As part of the Service Provider ToRs 10 demo plots will be identified and set up with USD 7,500 grants based on specific criteria.	75,000		75,000
Output 1.1.3 FFS set up and 5,000 beneficiaries trained in groups of around 20 on climate resilient techniques and approaches to adapt to weather extremes of which at least 400 on water efficient irrigation.	544,738		544,738
Outcome 1.2 CA professional service provider capacity built with a focus on smallholders			
Training expert recruited and 40 Professionals trained including new graduates and existing professionals in gender awareness, CA, and CA technical and service provision to smallholder farmers.	65,000		65,000
Outcome 1.3 Knowledge management			
Output 1.3.1 Knowledge management and climate change awareness raising system established and implemented (TV and radio programmes designed and broadcast; YouTube clips; regular collecting of stories; support for research produced and published on effectiveness of adaptive activities under outcome 2.2; and baseline).	76,000		76,000
Cost for Component 1	804,738		804,738
Component 2 Climate-resilient agricultural investments			
Outcome 2.1. Community mobilisation undertaken with a focus on women and youth in the most climate-vulnerable areas			
Nationwide annual 4-year annual mobilisation campaign to be carried out together with TRTP to raise awareness about the benefits of the project through workshops and seminars organised in the identified vulnerable agro-ecological regions and beneficiaries supported in making their applications.	70,000	152,000	222,000
Outcome 2.2 Climate resilient off-farm access to water secured from tertiary canals from rivers and water harvesting ponds.			
Improved smallholder access to water from rivers and rainwater reservoirs (construction of canals linked to pumping stations on rivers and natural reservoirs or to larger functional secondary pipelines and supply systems and investment in micro- and small-irrigation pumping stations or water harvesting ponds and tertiary canal and pipeline distribution network).	1,706,000	5,294,000	7,000,000
Outcome 2.3 Demand-driven and beneficiary co-financed on-farm water conservation management and climate adaptive techniques supported			

Item/activity		Total AF (USD)	Total IFAD TRTP Co-funding	Grand Total
Output 2.3.1	At least 400 households to receive climate smart, water-efficient irrigation grants	1,000,000		1,000,000
	Support for pro-poor escrow account banking fees.	65,000		65,000
Output 2.3.2 Around 4600 supported with farm tools to apply climate adaptive farming techniques (shredders for crop residues; machines for distribution of organic fertilizers; compost making machines; row cultivators; weed burners; and hand tools; drainage making support; laying of gravel to increase soil water uptake and reduce erosion).		1,213,000		1,213,000
Cost for Component 2		4,054,000	5,446,000	9,500,000
Component 3: Development of the national framework for Conservation Agriculture supported.				
Outcome 3.1 CA mainstreamed into the educational system.				
Output 3.1.1	National overview of CA adoption to inform policy and the development of a national CA curriculum (recruiting of team of experts and enumerators conducting nationwide survey, producing report of findings and White Paper on recommendations for CA in Moldova)	51,000		51,000
Output 3.1.2	(Possibly two) national convention(s) on CA	40,000		40,000
Output 3.1.3	Conservation Agriculture mainstreamed into the national higher-level educational system (translating and printing of textbooks and journals on CA)	33,000		33,000
	Two one-year gender-balanced scholarships to study a Masters in Conservation Agriculture	40,000		40,000
Subtotal		164,000		164,000
Outcome 3.2 Research into CA supported with a focus on smallholders and women				
Output 3.2.1	Research institute supported with CA machinery for demo plots. These will be subject to proposals and technical review by the CPIU but could include 6-row no-till drill and CA seeder.	100,000		100,000
	The research institute will be supported in the demo plots for 5 years, the running costs of which co-financed by the institute that will also be open to University students to use for research purposes.	50,000		50,000
	The research institute will be supported with research grants over the course of the 5 years that will also give university students practical exposure to CA.	120,000		120,000
	Soil testing capacity is supported for 5 years (equipment and chemicals)	30,000		30,000
Subtotal		300,000		300,000
Cost for Component 3		464,000		464,000
Project Total		5,322,738	5,446,000	10,768,738
Project Execution Costs				
Project manager			192,685	192,685
Finance manager			135,485	135,485
Accountant			78,280	78,280
Procurement specialist			78,280	78,280

Item/activity	Total AF (USD)	Total IFAD TRTP Co-funding	Grand Total
M&E specialist		78,280	78,280
Audit x 5 years		75,000	75,000
Driver		49,680	49,680
Climate Change / Adaptation Fund Specialist (5 years)	125,000		125,000
Knowledge Management Officer (2.5 years co-financed)	49,677	49,677	99,354
MTR and Final Evaluation.	40,000	65,000	105,000
Utilities		50,000	50,000
Car		68,000	68,000
Communication		5,000	5,000
Stationery		50,000	50,000
Allowances for travel to project sites		100,000	100,000
Office maintenance		50,000	50,000
Website and software upgrading and updating		25,000	25,000
Total Project Execution Costs	214,677	1,150,367	1,365,044
Total Project Costs	5,537,415	6,596,367	12,133,782
Project Cycle Management Implementing Entity Fee			
Financial Management (General financial oversight, support audits and quality control, manage, monitor and track AF funding including allocating and monitoring expenditure based on agreed work plans; financial management compliance with AF requirements; financial reporting compliance with AF standards; procurement support and compliance with Government procurement rules).	170,000		
Programme Support (Technical support in project implementation; methodologies, identification of experts; troubleshooting and support implementation missions as necessary; portfolio management, reporting and policy programming and implementation support services).	140,000		
Technical support (Supervision missions and implementation support, risk management, programming; guidance in establishing performance measurement processes; technical support on methodologies, TOR validation, identification of experts, results validation, and quality assurance; troubleshooting, and support evaluation missions as necessary; support on technical issues in programme implementation).	160,680		
Total Project Cycle Management Implementing Entity Fee	470,680		
Amount of Financing Requested	6,008,095		

H. Disbursement Schedule

Include a disbursement schedule with time-bound milestones.

Table 17 Project disbursement in USD

	Year					Total USD
	2021	2022	2023	2024	2025	
Total Project Costs	787,085	1,349,020	1,157,020	1,157,020	1,087,270	5,537,415
IE fee	94,136	94,136	94,136	94,136	94,136	470,680
Total	881,221	1,443,156	1,251,156	1,251,156	1,181,406	6,008,095

PART IV ENDORSEMENT

A. Record of endorsement on behalf of the government⁴⁶

Mr Nicolae Ciubuc, Minister of the Agriculture, Regional Development and Environment Ministry	Date: 26 November 2018
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B. Implementing Entity Certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
<i>Margarita Astrálaga, Director, Environment Climate Gender and Social Inclusion Division, IFAD</i> Implementing Entity Coordinator	
Date: (Month, Day, Year)	Tel. and email: +39 06 54592151 m.astralaga@ifad.org
Project Contact Person: Nicolas Tremblay, Lead Regional Environment and Climate Specialist – Near East, North Africa, Europe and Central Asia, IFAD	
Tel. And Email: +39 06 5459 2704; n.tremblay@ifad.org	

⁴⁶ Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Annex 1 Endorsement Letter

MINISTERUL
AGRICULTURII,
DEZVOLTĂRII REGIONALE
ȘI MEDIULUI
AL REPUBLICII MOLDOVA



MINISTRY
OF AGRICULTURE,
REGIONAL DEVELOPMENT
AND ENVIRONMENT OF
THE REPUBLIC OF
MOLDOVA

MD-2005, Chisinau, 9 Constantin Tanase Str
Tel. 20 45 81; Fax 22 07 48, E-mail: madrm@madrm.gov.md, WEB: www.madrm.gov.md

20.11.2018 Nr. 01/01-5408

La nr _____ din _____

Subject: Endorsement letter for the project proposal "Talent Retention for Rural Transformation"

In my capacity as Designated Authority for the Adaptation Fund in the Republic of Moldova, I confirm that the above project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Republic of Moldova.

Accordingly, I am pleased to endorse the project proposal "Talent Retention for Rural Transformation" with support from the Adaptation Fund. If approved, the project/programme will be implemented by IFAD and executed by the Ministry of Agriculture, Regional Development and Environment.

Sincerely,

Nicolae CIUBUC,

Minister

Veronica LOPOTENCO,

Designated Authority

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org

Annex 2 FAO Pilot Case Study

FAO Project

To increase the resilience of small-scale farmers to climate change by helping them access modern irrigation systems and technologies.

Budget: 400,000

Objective: To build the capacity of farmers and Water User Associations to properly operate and maintain on-farm irrigation systems; strengthen local extension officer's capacities to provide farmers with quality advisory services on irrigation practices and efficient water use.

Target area: The central and southern parts of the country the regions are more exposed to drought. In the absence of modern technologies, small-scale farmers spent large amounts of water and time irrigating crops, which led to increased costs and lower productivity.

Activities: between 2014 and 2018 representatives from three water user associations that manage centralised water systems in the project areas benefitted from training delivered by local and international experts:

- More than 370 regional and local extension officers were trained in irrigation practices and technologies through one national training of trainers workshop and 34 regional workshops.
- 10 competitively selected demonstration farms were established with the purpose of raising farmer awareness and promoting best water management practices. Farmers received irrigation systems including drip irrigation systems, sprinkler irrigation systems, ebb and flow irrigation systems, geomembrane atomisation electric pumps, along with training on operation and maintenance requirements. They also received advisory services on growing technologies, marketing and access to finance.
- Extension officers conducted an information campaign in 100 rural communities, 1700 farmers targeted with information sessions, distribution of leaflets and posters.
- More than 370 agricultural producers attended the Farmer Field Schools to learn about irrigation system operation and maintenance and requirements and the impact of irrigation crops.

Case studies

- **Case study 1: Flower production:** closed water system with galvanized steel tables, trays, a pump, 2 filters and a reservoir. Water was recycled into a reservoir until it is used up instead of flushed down the drain. Plants became more vigorous with minimal water consumption.
- **Case study 2: Walnut and plum tree production:** modern irrigation equipment with two filters – a sand and a disk filter for purification prior to entering the irrigation system. This has resulted in a plentiful harvest with more and bigger walnuts and improved quality when compared to earlier years.
- **Case study 3: Table grapes production:** Drip irrigation allowed to obtain higher yields and superior quality to commonly established vineyards. In one year harvested 2 hectares, 15 tonnes per hectare a yield that is impossible to get from rain fed vineyards where you would normally get 10 tonnes per hectare.

Results

- Farmers received irrigation equipment that best suited their needs and saw immediate improvements in crop yield and quality. Cuts in production costs were observed due to increased water, energy and labour efficiency, hereby increasing production at a competitive cost and also ensuring improved water distribution uniformity.
- Water consumption was minimised, labour costs were down, production was up, sales were up for more and better-quality fruit and vegetables. Farms were able to hire more people for harvest.

Annex 3 Environmental Social Management Plan

Contents

- I. Summary Description of the Project
- II. Screening and Categorisation
- III. Environmental and Social Impact Assessment.
- IV. Environmental and Social Management Plan
- V. Monitoring and Evaluation Arrangements

I. Summary Description of the Project.

200. Moldova is a lower middle-income country with a GDP per capita of USD 2,290 in 2018. It ranks 112 out of 189 in the global Human Development Index (HDI). Moldova is one of the poorest countries in the European neighbourhood region, but has also been one of the fastest growing. However, the country has made progress in reducing poverty. The absolute national poverty rate fell from its peak of 73% in 1999 to 9.6% in 2015, and the extreme poverty rate declined from 59.7% to 0.2% in the same period. However large gaps remain between urban and rural areas. In 2018 growth reached 4.8% benefitting from strong domestic demand. The share of agricultural in the Gross Domestic Product was estimated to be 12 percent in 2017, with 17.88 percent being contributed by industry and 55.36 percent by the service sector. Together with agriculture, the processing industry represents more than 17 percent of the Gross Domestic Product and approximately 45 percent of total exports.
201. **Poverty** is particularly found among landless people, small and medium-scale farmers, entrepreneurs, and people engaged in agro-processing in rural areas and small towns. In general, rural people are more vulnerable to poverty due to high (farm) income volatility and a strong dependence on remittances (World Bank & World Food Programme, 2015). The poor tend to live in larger households with higher dependency rates. In addition, their educational level is relatively low: many have not completed secondary education (Davalos & Meyer, 2015). The heads of almost 70 percent of all poor households are employed, yet their wages are too low to enable their households to leave the poverty zone. Poverty and food energy deficiency are particularly high among those who strongly depend on agriculture. In 2013, farmers and agricultural workers together account for 40 percent of Moldova's poor (World Bank, 2015b; World Bank & World Food Programme, 2015). In the current period of economic transition, the agricultural sector fulfils an important role of social support due to the fact that a large mass of migrants may return to agriculture because of the lack of better employment opportunities. In addition, agriculture further provides jobs and livelihoods for rural residents, thus mitigating considerably the adverse consequences of the aging population. In Moldova, the agriculture sector still accounts for 30 percent of employment, with an additional 24 percent engaged in low-intensity agricultural work. Also the agriculture fulfils an important social function by reducing the danger of increasing poverty and social exclusion in rural areas of Moldova.
202. **Agriculture** is a central pillar of the Moldovan national economy and the main source of livelihood in rural areas. It contributes close to 14 percent of the country's GDP (down from 20 percent in 2004), a figure that increases to 17 percent if the food processing industry is taken into account. Important crops are winter and spring grains, including wheat, barley and maize, as well as potatoes and other vegetables and horticultural crops and fruit. Approximately 75 percent of the population live in rural areas and depend on agriculture and related activities for their livelihoods. About 60 percent of the country's agricultural output is produced by individual farmers and household plots of 10 hectares or less.⁴⁷ Agricultural output has been subject to high volatility and slow growth, driven by external weather-related factors and since 2000 agriculture has been showing much slower and unstable growth patterns than the rest of the economy. Climatic conditions have been the dominant factor with droughts becoming quite common in recent years. Crop production is particularly vulnerable to climate distress with the years of severe droughts in Moldova (2003, 2007, 2009 and 2012) have had a disastrous effect on general crop production. Agricultural ecosystems cover 75 percent of the country, but there are indications that 34 percent of agricultural lands are eroded to some degree. Intensive agricultural practices, such as overuse of pesticides, fertilizers, heavy machinery, and

⁴⁷ FAO. Moldova and FAO partnering to achieve sustainable food systems. <http://www.fao.org/3/a-az519e.pdf>

excessive irrigation have led to degradation, erosion, compaction of black soils and desertification is even starting in several parts of the country.

203. **Climate change.** Moldova ranks as the most climate vulnerable country in Europe.⁴⁸ Temperature and rainfall have increased in Moldova over the last century, and severe floods and droughts have been occurring with increasing regularity. During 1984-2006 period, Moldova's average annual economic losses due to natural disasters were about USD 61 million. This trend had changed significantly recently with the 2007 and 2012 droughts having caused losses estimated at about USD 1 billion⁴⁹ and USD 290 million respectively. Moldova has also been significantly impacted by floods that in 2008 cost the country around USD120 million and in 2010 around USD 42 million in damages.⁵⁰
204. **Project Approach.** To address the aforementioned challenges the Talent Retention for Rural Transformation Project - Adaptation Component (TRTP-Adapt) will be focused on those areas that have been identified as being most climate vulnerable. This will be achieved by overlapping the historical precipitation analyses from the Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS)⁵¹ and the Small Area Deprivation Index (SADI), a composite indicator of 8 indicators⁵² that shows the development level of a local community, covering all rural communities in Moldova. The project will target around 5,000 poor and climate vulnerable households over the five-year duration benefitting around 16,000 people given an average household size of 3.2 in rural areas. The project will target 40 percent women and 50 percent youth but also adult male smallholder farmers. The youth definition will be male up to 35 and female up to 40. This decision was made to balance out the gender-discriminatory practices that include significant wage disparities, segregation into lower-paying occupations, unequal sharing of work and family responsibilities and limited access to childcare. Women also work more in low value-added agricultural production sub sectors, operate on a smaller scale, and more likely to work as family workers. Women as well as youth entrepreneurs face barriers getting access to bank loans and to state-funded business and entrepreneurship development programmes.
205. The TRTP-Adapt project will assist smallholder farmers through training in the use of techniques that inter alia help improve soil water storage, control erosion, improve soil structure, and boost nutrient management. Based on the FAO lessons learned the project will train and provide demand driven advisory services in irrigation systems, regimes and water quality; simple entry accounting and fiscal reporting; and in expenditures and revenues of improved irrigation systems as well as provide grants for the purchase of water-efficient irrigation systems. The AF resources will also be used to address an important need identified by MARDE to help in the development of a national curricula for Conservation Agriculture and its introduction in some of the main universities in the country. The AF will also develop national capacity in CA by training Conservation Agriculture specialists and by undertaking a nationwide inventory of the extent and types of CA techniques that are being practised in the country. These are expected to help improve understanding regarding adoption rates of different CA technologies and techniques and in further refining and developing GoM policy in this regard.
206. The project will be formed around the following components:
207. **Component 1: Capacity development to integrate CC adaptation into agriculture production systems.** This component will build the capacity of individual farmers to adopt climate-resilient agronomic systems and technologies to improve water efficiency while simultaneously improve productivity and reduce production costs. Farmers will also be trained on climate adaptive techniques that include understanding the impact increased drought stress can have on their particular crops and provide simple solutions that they can adopt to minimise damage for example summer pruning and tree thinning to reduce water stress during droughts; techniques on how to best apply fertilisers to avoid leaf damage; using mulch to prevent soil evapotranspiration; and learn about the benefits of drip irrigation etc. The project will also provide solutions farmers can adopt to minimise damage from increasingly frequent torrential rain including drainage options, laying of gravel to increase soil water uptake and reduce erosion. The outcomes of component 1 will be: i) increased capacity of beneficiaries on climate change adaptive techniques; ii) technical capacity of agricultural practitioners

⁴⁸ According to the ND- GAIN1 vulnerability assessment methodology: <https://germanwatch.org/en/cr>

⁴⁹ World Bank (2016) Moldova Climate Adaptation Investment Planning Technical Assistance.

⁵⁰ Republic of Moldova 2020 Climate Change Strategy.

⁵¹ <http://chg.geog.ucsb.edu/data/chirps/>

⁵² See Annex 4 for detailed information on the indicators

developed to integrate knowledge on climate resilient systems and technologies into practice; iv) building of CA professional service provider capacity with a focus on smallholders; and v) Knowledge management.

208. Component 2: On- and off-farm climate resilient technologies for water supply, irrigation and improved land management techniques. This component will support a proactive, gender and climate vulnerable focused outreach targeting campaign; investments in climate-proof water infrastructure by co-financing the TRTP tertiary last-mile canal construction, provide farmers with grants to support them in purchasing the climate-smart irrigation technologies they need to increase water efficiency and farm productivity. The outcomes of this component will be i) climate resilient off-farm access to water from tertiary canals secured from rivers and water harvesting ponds; and ii) demand-driven and beneficiary co-financed on-farm water conservation management and adaptive techniques implemented.
209. Component 3: Developing a national framework for Conservation Agriculture, this component will help develop the new MARDE National Programme for Conservation Agriculture (NPCA). It will do this by carrying out a national survey of CA adoption in Moldova, mainstreaming CA into the national educational system as well as supporting an agricultural research institute and CA professionals to put a greater focus on CA. The outcomes of this component will be i) Developing a national overview and charting a future course for CA in Moldova; ii) Mainstreaming CA into the national educational system; and iii) Supporting research into CA with a focus on smallholders and women.
210. The project design was assessed through the Social, Environmental and Climate Assessment Procedures (SECAP) of IFAD, which are fully aligned with the AF Environmental and Social Policy (ESP). The project is designed to maximize impact in a cost-effective manner. The proposed irrigation activities have been previously tested in a FAO pilot in Moldova, and IFAD has also previously successfully constructed tertiary irrigation canals in Moldova and have proven their effectiveness in helping farmers adapt to climate change, improve agricultural productivity while reduce production costs, as well as use limited natural resources sustainably.
211. TRTP-Adapt is aligned to national legislation and policies on agriculture, water management, climate change adaptation, desertification, gender equality and woman's rights, land management, natural resource management among others. The project is aligned with the National Development Strategy 2020; the National Strategy on Agriculture and Rural Development (2014-2020); and the National Environment Strategy 2014-2023 among others.
212. Project implementation will rely on existing government processes and structures that will be a fundamental part of the TRTP-Adapt ESMP. TRTP-Adapt will be fully integrated into the TRTP led by the Ministry of Agriculture, Rural Development and Environment. A Consolidated Programme Implementation Unit (CPIU) is already established and will be responsible for overseeing project implementation with financial and project risks being assessed on an on-going basis throughout implementation.

II. Screening and Categorisation.

213. The Environmental and Social Screening presented here below identified some minor risks, but mitigation measures have been integrated into the project, which has therefore been categorised as a category B project. This section provides an analysis of the environmental and social impacts and risks identified as being relevant to the project and proposes a management plan that will screen ESPs, mitigate risks, and report to the Adaptation Fund. These primarily relate to the small-scale tertiary irrigation infrastructure under outcome 2.2 that the TRTP-Adapt will co-finance with the TRTP, as well as the risks posed by water extraction activities under outcome 2.3, for the use of new water sources for on-farm irrigation. The following table provides a brief overview of the potential risks the project poses in relation to the 15 Environmental and Social Principles, this is followed by a detailed environmental and social risk assessment.

Figure 22 Overview of Environmental and Social Risk Assessment

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
ESP 1 Compliance with the Law	X	No risk
ESP 2 Access and Equity	X	No risk
ESP 3 Marginalized and Vulnerable Groups	X	No risk
ESP 4 Human Rights	X	No risk
ESP 5 Gender Equity and Women's Empowerment	X	No risk
ESP 6 Core Labour Rights	X	No risk
ESP 7 Indigenous Peoples	X	Not applicable
ESP 8 Involuntary Resettlement	X	Not applicable
ESP 9 Protection of Natural Habitats		Low risk – all protected natural habitats in the project areas will be mapped, avoided and reported on in the PPR as part of the ESMP.
ESP 10 Conservation of Biological Diversity		Low Risk Through the ESMP the project will identify and report on in the PPR as part of the ESMP, if any protected critical biological diversity exists in the project areas and propose mitigation measures.
ESP 11 Climate Change	X	No risk
ESP 12 Pollution Prevention and Resource Efficiency		Possible risk for outcome 2.2 - There is a risk that water used as a result of the outcome 2.2 tertiary canals (through the TRTP programme) from rivers or rain water reservoirs is not used efficiently. Possible Risk for outcome 2.3 - There is a risk that the project activities will promote the use of a limited resource exacerbating stress on that resource. Actions required: Refer to Section II – E and ESMP in annex 3
ESP 13 Public Health	X	No Risk
ESP 14 Physical and Cultural Heritage		Low risk - all cultural heritage sites in the project areas will be mapped, avoided and reported on in the PPR as part of the ESMP. The project will ensure whether there are any national cultural heritage sites in the project areas and propose measures to avoid any alteration, damage, or removal of physical cultural resources, cultural sites, and sites with unique natural values.
ESP 15 Lands and Soil Conservation	X	No risk

Principle 1: Compliance with the Law.

214. No further assessment of potential impacts and risks is required for compliance with the law, since the project complies with all relevant national legislation and policies on agriculture, water management, climate change adaptation, employment, women’s rights, among others. As mentioned in section ‘II-E’:

- The project responds to: i) the sustainable, green economic and sustainable development principles aimed at poverty reduction of the National Development Strategy 2020; ii) support the National Strategy on Agriculture and Rural development 2014-2020 to help the agri-food sector contribute to the sustainable achievement of the national economic and social development through modernisation to improve living and working conditions in rural areas by creating synergies between agri-food activities and the natural environment.
- The project has mainstreamed an environmental and social management plan into the review and approval process with direct GoM oversight, that ensures it is compliant with legal requirements. Specifically, the project is compliant with: i) Water Law 272 that sets the legal basis for efficient management, protection and conservation of water; ensures sufficient water supply of qualitative surface water; regulates prevention of flooding, erosion, drought and desertification, and water abstraction, water supply and effluent wastewater discharge. ii) National Strategy on Adaptation to Climate Change (2020) aims to ensure that the social and economic development of the Republic of Moldova becomes resilient to the future impacts of climate change.
- Gender Equality Strategy 2016-2020 has also been mainstreamed throughout the project both in exceeding gender targets vis-à-vis their official representation in the rural agricultural labour force. This compensates for the inherent disadvantages women face in the workforce and the fact more women work in low value-added agricultural production sub-sectors and also face discriminatory practices that include significant wage disparities, segregation into lower-paying occupations and unequal sharing of work and family responsibilities.

215. IFAD has since 2007 built a close operating relationship with the GoM to ensure that relevant authorities are not only being consulted, but are also directly involved in the project approval process and ensuring that the national laws and policies are being correctly applied. Where this involves the application of technical standards (outcomes 2.2 and 2.3), the process has been detailed in section ‘II-E’ of the project document as well as in section ‘II-A’. Specifically:

- MARDE as the combined Ministries for Agriculture, Rural Development and Environment will be the main institutional focal point for the project. It will chair the Selection Committee that oversees the project. It will be responsible for ensuring inter-alia water management issues, including the application of the national technical standards and regulations regarding the rehabilitation and maintenance of the tertiary irrigation as well as applications for on-farm irrigation (outcome 2.2 and outcome 2.3) are being applied.
- As a legal requirement and as part of the application process and as detailed in section ‘II-E’, the water agency Apele Moldovei will play a central role in reviewing and providing qualified opinions for all water infrastructure applications. It will assess the proposed water sustainability for the source of water and usage being requested vis-à-vis the number of users, type of usage and total volumes being requested. As a precondition for the grant application being reviewed by the SC, the beneficiary will have to have their prefeasibility study reviewed and approved on the basis of which the necessary water permits will be issued before the Selection Committee gives final approval. The permits are issued by the Department of Environment within MARDE.

216. Applicable laws and responsible enforcing agencies are summarised below.

Concern	Law Legislation	Enforcing Agencies	Enforced Regulation / Item
Water Permit	Water Law (No. 272)	MARDE, Apele Moldovei	Approval or water extraction

Construction Permit	Law on permits for construction works (No. 163)	State Verification Enterprise	Verification of proposal and approval of construction permit
Unsustainable Water Use	Water Law 272 Law on Peasant Farm 1353	MARDE, Apele Moldovei	Established and MARDE endorsed project approval procedures as detailed above.
Pesticides and Fertilisers	Law on Environmental Protection	MARDE	Approval of permissible pesticides.
Wildlife Conservation and National Parks	Land Code 828	MARDE	Declaration of Ecologically critical areas Declaration of Protected areas.

Principle 2: Access and Equity.

217. No further assessment of potential impacts and risks is required for compliance with access and equity since the project will not reduce or prevent communities in the targeted areas from accessing basic services. The project will take a number of transparent steps that will help ensure that the benefits of the project are being distributed fairly with no discrimination nor favouritism. Primarily, project targeting has been agreed with the government and comprises targeting criteria based on gender and age quotas, but also on geographical targeting based on a climate vulnerability assessment made by the project in terms of publically available precipitation records as well as publically available poverty and 'deprivation' records compiled by the government comprising 8 indicators described in annex 4. These areas will be the project's primary geographical areas that the project will focus on. The project will advertise broadly through the mass media (radio, social media, town hall meetings, workshops etc.) for the implementation of an outreach/mobilisation strategy that will target these geographic areas on a first come, first serve basis. Beneficiaries will be explained as they have been throughout the participatory and gender-balanced consultations during the design, that this is a project with a strong focus on women and youth, but that also adult men will also be eligible to provided that they are from the targeted geographical areas and that they own and cultivate no more than 10 ha of arable land.
218. The Service Provider will also be selected as will the beneficiaries, based on clear selection criteria designed to get the SP with the most relevant experience and for the latter to ensure the project is reaching the desired target communities. The academic CA scholarships in outcome 3.2 will be chosen in a transparent and meritocratic fashion overseen by the CPIU. In partnership with the Agrarian University and on the basis of a competitive exam and evaluation process, one male and one female candidate will be supported to study a CA master course in a European or other university with competitive admission and living costs. The design of the selection process and exams will be reviewed by a review panel comprising at least four members.⁵³
219. Equity of access has been further ensured through the revision of IFAD's grant payment mechanisms in Moldova that were designed against the possibility of fraud. The TRTP-Adapt target group are the rural poor and many of who are unable to pay the full grant plus 30 percent co-finance upfront and reimbursed by the project based on proven contractual agreements with equipment suppliers. Instead the project with AF support in coving the USD 150 in bank fees, will assist those farmers that wish to benefit from the USD 2,500 grant but are unable to pay the money upfront to set up an escrow account managed by a bank, wherein the CPIU and the beneficiary will pay the respective amounts. The bank will then carry out all the required contractual verifications with the supplier and transfer the funds.

⁵³ Programme Director, Climate Specialist, Procurement Specialist and a representative of the State Agrarian University.

Principle 3: Marginalised and vulnerable groups.

220. **Targeting.** A targeting specialist was part of the TRTP and TRTP-Adapt design team, who did a poverty, targeting and gender assessment in the targeted governorates. The specialist collected information and undertook consultations with a number of marginalized and vulnerable members of the local communities – women, elderly people, young unemployed, to understand their socio-economic constraints, and identify the most suitable specific adaptation activities that can benefit these groups. The baseline will further detail and refine the marginalised and vulnerable groups, and tailor capacity development activities in different languages (for the internally displaced) to help minimize the imposition of disproportionate adverse climate change impacts on marginalised and vulnerable groups.
221. The TRTP-Adapt target group are those communities that are disproportionately vulnerable to climate change. This will be determined both on the basis of rainfall patterns but also in capturing those that are most vulnerable in society with fewer economic opportunities.⁵⁴ Targeting will have a focus on youth and women with 50 percent and 40 percent quotas respectively as the TRTP and TRTP-Adapt projects are primarily designed to generate youth employment opportunities in rural areas to stem the flow of outmigration. Women targeting will furthermore be strengthened to reflect the gender-related challenges they face in the labour force with gender discrimination, lower-paid jobs and expectations of family responsibilities with a definition of youth that is up to 40 for women and 35 for men.
222. **Youth.** The TRTP project focuses on youth as a vulnerable group because: (i) emigration from Moldova is the eleventh highest in the world, two thirds of the people who left the country are from rural areas and most of those are young people⁵⁵; (ii) young entrepreneurs are often limited by access to short-term finance due to their limited credit history, limited business skills, and lack of any form of “hard” collateral; and (iii) in Moldova, about 30 percent of young people are either unemployed or not enrolled in any formal training.
223. **Women** are considered a disadvantaged and vulnerable category in Moldova as around 36 per cent of landholders in Moldova are women, but these holdings account for only 19 per cent of agricultural lands. Women in Moldova manage smaller plots of land than men and on average have less livestock than men do. The average size of men’s plot is 1.21 ha compared to 0.86 ha managed by women; the proportion of landholders with no education in agriculture is slightly higher for women at 82.2 per cent compared to men’s 79.5 per cent⁵⁶; nationwide, women account for only 27.5 per cent of entrepreneurs; in rural areas this drops to 14.9 per cent. The gender pay gap in Moldova is also noticeable, with women receiving pay at about 26 per cent lower level than men for the same work performed. In addition, women undertake a high load of unpaid work due to discriminatory social norms. Women in Moldova average 4.9 hours per day per person, when the average of women in the OECD countries allocating 2.8 hours a day for household work.
224. **Design.** A targeting and gender specialist was part of the design team, who did a poverty, targeting and gender assessment in the targeted governorates. The specialist collected information and undertook consultations with marginalized and vulnerable members of the local communities to understand their socio-economic constraints, and identify the most suitable specific adaptation activities that can benefit these groups. The project activities have been designed to address these needs and will not therefore have any expected negative impacts on the identified vulnerable groups.
225. **Monitoring.** The TRTP-Adapt M&E system will be fully integrated with that of the TRTP that will have a dedicated M&E officer. The system will collect gender and age disaggregated area and monitor investments in high poverty and climate vulnerability Raions (regions) and Primarias (villages). The maps of the Small Area Deprivation Index for Primarias and the climate vulnerability map will function as an important tool for targeting and tracking targeting. Project management will be supported through including responsibility for implementing targeting methodologies and achieving targets in the Terms of Reference of managers and specialists in the CPIU. The targeting strategy will be discussed in the start-up workshop and supervision missions will include a poverty and social inclusion expert.

Principle 4: Human Rights

226. No further assessment of potential impacts and risks is required for compliance with human rights since the project is designed to respect and adhere to the requirements of all relevant conventions on

⁵⁴ Refer to figures 17 and 18 for more information.

⁵⁵ <http://www.md.undp.org/content/moldova/en/home/blog/2018/making-the-most-of-emigration.html>

⁵⁶ National Bureau of Statistics of the Republic of Moldova 2014

human rights in compliance with the ESP. Among the Guiding Values and Principles for IFAD's Social Environmental Climate Assessment Procedures (SECAP), is the principle to "support borrowers in achieving good international practices by supporting the realization of United Nations principles expressed in the Universal Declaration of Human Rights and the toolkits for mainstreaming employment and decent work".

227. Moldova has ratified thirteen human rights Conventions including against torture; civil and political rights; convention on the elimination of discrimination against women; racial discrimination; rights of the child; and persons with disabilities. Moldova also does not have any pending human rights issues with the Human Rights Council Special Procedures. Any observed human rights violations will be reported through the project grievances procedures.

Principle 5: Gender Equity and Women's Empowerment.

228. **Analysis.** Moldova has made international and national commitments to promote gender equality and the empowerment of women, in particular by ratifying the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and various ILO Conventions. Since the adoption in 2006 of Law No. 5 on Equality of Opportunities for Men and Women, a series of national strategies and action plans have promoted gender equality. In 2016, a law on temporary special measures introduced a 40% quota for each gender in cabinets and electoral lists, and provisions for paternity leave together with a ban on sexist advertising. However, implementation of gender equality measures lags. Women still face discrimination and inequality in social, economic and political life and their representation in Moldovan politics and decision-making remains below international benchmarks.
229. Women in Moldova face specific education and labour market barriers. Persistent patriarchal attitudes limit their educational choices and employment options. Women also face discriminatory practices. These include significant wage disparities, segregation into lower-paying occupations, unequal sharing of work and family responsibilities and limited access to childcare. Women entrepreneurs face barriers getting access to bank loans and to state-funded business and entrepreneurship development programmes.
230. **Design.** The IFAD's poverty targeting and gender sensitive design and implementation guidelines were applied for the design of the project. A targeting and gender specialist was part of the design team, who did a poverty, targeting and gender assessment in the targeted areas and women and youth are given a central role in the project. In order to overcome any potential risks related to this principle, the project has developed a very proactive strategy for the participation of women in project activities. Gender has been integrated into project design by a gender and targeting specialist, who did a poverty, targeting and gender assessment. Specific gender objectives, activities, dis-aggregated targets and budget allocations have been defined, and the selection criteria for the service provider includes women staff to ensure outreach to women and integrate gender aspects.
231. **Inclusion.** Young women up to 40 years of age (and men up to 35) will qualify for TRTP-adapt (and TRTP) support. The definition of youth in Moldova includes young persons from the age of 16 to 35.⁵⁷ Women, for the purposes for the IFAD projects in Moldova qualify as youth up to the age of 40. This is to create a more level field for women who often have to opt out of economic activities due to their responsibilities for childcare. The social inclusion strategy of TRTP-Adapt aims to empower vulnerable women, youth and men smallholder farmers by expanding their economic opportunities, access to climate resilient technologies and technical knowledge in agriculture to better adapt to the challenges of climate change, but through the IFAD project also to access credit. It is expected that a minimum of 40 per cent of AF project beneficiaries will be women, and 50 per cent will be youth. The project will have the following targeting measures in place: sensitization of implementers to the strategic interests and needs of smallholder farmers, women and youth; direct targeting through quotas to ensure participation in project-related activities for women, youth and smallholders; appropriate mobilisation and operational measures to address specific constraints faced by women, youth and poorer smallholder farmers; geographical targeting through selection criteria which prioritize youth, women and small-holder farmers and entrepreneurs from climate vulnerable and poorer areas of Moldova.

⁵⁷ The Law on Youth No. 215 of 29 July 2016 is the national legal act that defines youth age in the Republic of Moldova. Chapter I, General Disposals, Article 2 defines a young person – a person aged between 14 and 35 years old.

232. As the TRTP project is national in scope, the geographical targeting does not limit project interventions to a specific geographic area but prioritizes interventions in the more climate vulnerable and deprived areas throughout the country based on the SADI (Small Area Deprivation Index) and the Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS).⁵⁸ The project's M&E system will be based on the maps, the collection of gender and age disaggregated area data and the monitoring of investments in high poverty and climate vulnerability Raions (regions) and Primarias (village areas). Furthermore, project management will include responsibilities for implementing targeting methodologies and achieving gender targets. The targeting strategy will further be discussed in the start-up workshop and supervision missions and will include a poverty and social inclusion expert.

Principle 6: Core Labour Rights.

233. The project will not negatively affect Core Labour Rights.

234. Moldova has been a member of ILO since 1992 and has ratified 30 Conventions of which 8 of 8 fundamental conventions. The ILO is currently working with Moldova on its reporting obligations on ratified Conventions over 5 years and reply to CEACR comments as well as the 'General Survey reporting on certain instruments related to the strategic objective of employment' and on the 'Social Protection Floors Recommendation, 2012 (No. 202)'.

235. The 2019 Report of the Committee of Experts to the 180th International Labour Conference, on the Application of Convention and Recommendations reported on the Application of International Labour Standards in Moldova made recommendations that relate primarily to allowing for ILO inspections. The Committee further notes with regret that only two reports have been received of the 13 requested (11 reports are still due on fundamental, governance and technical Conventions). The Committee hopes that the Government will soon submit all its reports in accordance with its constitutional obligation and that they will respond to the Committee's comments. The ILO has in 2016 however provided technical assistance in the consultations to increase of the minimum wage, improve collective bargaining skills and enhance the ability for service delivery and improved protection of migrant workers.

236. Activities throughout the project are targeted at reducing inequality and raising gender awareness for gender equality to overcome traditional stereotypes regarding the role of women in society. Positive discrimination in favour of women will be used to provide fair and equal opportunity to women who seek employment as labour and gain from wages earned. The project will furthermore create climate resilient employment enabling marginalised and vulnerable groups including unemployed youth and women to raise their income. The relevant international and national labour laws guided by EU and ILO labour and standards will be followed throughout project implementation. The project will respect, promote, and realize the principles mentioned in the ILO Declaration of Fundamental Principles and Rights at Work, and ensure that they are respected and realized in good faith by the Executing Entity and other contractors.

237. IFAD has a longstanding partnership agreement with ILO dating back to 1979. The Project will furthermore not engage child labour in any of its activities. The prohibition of child labour will be part of the agreement with the beneficiaries and will be a non-negotiable provision of the agreement. Furthermore, IFAD has as part of IFAD's Rural Youth Action Plan 2019-2021 (RYAP), an ongoing partnership with the International Partnership for Cooperation on Child Labour in Agriculture (IPCCLA). IFAD has been involved in collaboration with United Nations and non-United Nations entities to advocate against child labour in agriculture, and contributed to the preparation of a policy brief entitled "Breaking the rural poverty cycle: Getting girls and boys out of work and into school". IFAD is also an equal opportunities employer and as such it works to ensure that all its projects are free of discrimination in respect of employment and occupation. The project design ensures quotas for women and youth participation and transparent processes for recruitment as well as raising awareness raising about women and youth participation in decision making processes.

Principle 7: Indigenous People

238. As there are no indigenous groups in Moldova, the project will not involve any particular indigenous group. This aspect does not seem to be of relevance in terms of further assessment for ESP compliance.

⁵⁸ <http://chg.geog.ucsb.edu/data/chirps/>

Principle 8: Involuntary Resettlement

239. As no involuntary resettlement is foreseen in any circumstance during project implementation, this aspect does not seem to be of relevance in terms of further assessment for ESP compliance.

Principle 9: Protection of Natural Habitats

240. The project is not expected to have any negative impact on critical natural habitats.

241. The project areas will be defined as a result of the mobilisation activity that will be carried out based on the climate vulnerability and SADI maps⁵⁹. It is at point of design not possible to specify exactly where the project will take place, however every effort will be made to avoid the natural habitat areas that are considered critical. To this effect and as part of the ESMP, the project together with the Department of Environment within MARDE will identify and report on the national critical habitat areas. The project will monitor that the project implementation will not encroach or affect them in any way and propose risk mitigation measures should there be an identified risk.

Principle 10: Conservation of Biological Diversity

242. The project is not expected to have any negative impact on critical biological diversity.

243. The project objectives and activities are designed to support water conservation and promote soil conservation practices as means of adapting to the weather extremes that are increasingly being felt as a result of climate change. The project will support a national review of the current state of Conservation Agriculture so as to be able to inform future policy development. Also, as result of activities aimed at improving soil conservation practices in outcome 2.2, the project is expected to see improvements in soil water retention, structure and microbiomes. These activities will be further studied as part of the knowledge management activities and knowledge products produced for the general public to raise awareness as their positive impacts and general importance. The mainstreaming of Conservation Agriculture into the national higher educational system will further promote the long-term conservation of soils as will the research grants that the project will make available to a research institution. All these activities are designed to support government policy on CA and invest in long-term solutions to protect soils and their biological diversity.

244. At the design stage the specific project activity areas are yet to be defined. It is therefore not possible to identify i) the presence in or near the project area for important biological diversity; ii) any potential of a significant or unjustified reduction or loss of biological diversity. The potential negative impact is assessed as being extremely low as the project will not be introducing known invasive species. However with regards to point i) and ii) the project will integrate screening and mitigation measures into the ESMP in annex 3. It will identify and report on the presence in or surrounding the project area of critical biological diversity. The project will monitor that project implementation will not encroach or affect them in any way and propose risk mitigation measures should there be an identified risk.

Principle 11: Climate Change.

245. The project will not have any negative impact on climate change.

246. Moldova's INDC explains the country has experienced an increased number of extreme weather events, such as droughts and floods. An analysis of national climate data revealed that the frequency of droughts in a 10-year time span is 1-2 droughts in the Northern part of the country; 2-3 droughts in the Central part and 5-6 droughts in the South. Their frequency is increasing, especially over the last decades. During the 1990-2014 timespan, 10 years were marked by droughts, which reduced significantly the crop yields. In 1990, 1992 and 2003, droughts continued during the entire vegetation period (April-September). The disastrous droughts of 2007 and 2012 affected over 70 per cent of the territory of the country, being the most severe droughts in the entire instrumental record period.

247. No further assessment of potential impacts and risks is required for compliance with climate change, since this is inherently an adaptation project with activities designed that are based on the adaptive priorities set out in the INDC. These are listed below.

- Raising awareness about climate change and adaptation measures;
- Assisting in reducing climate change vulnerability by at least by 50% and facilitate climate change adaptation in two of the six priority sectors (agriculture and water resources).

⁵⁹ Refer to figures 17 and 18 for more information.

- Supporting agricultural research and experimental production better suited to the new climate conditions.
- Assuring increased investments in efficiency of irrigation infrastructure, aqua-technologies and improvement of water resources management;
- Promoting efficient use of water by reducing water losses, improving irrigation techniques, water recycling and storage;
- Improving soil management by increasing water retention to maintain the soil moisture;
- Developing good practice guides for agriculture sector, especially for non-irrigated agriculture;
- Building new infrastructure for transforming water resources into socio-economic ones (eg. new accumulation lakes).

248. The project does not promote any drivers of climate change (energy, transport, heavy industry, building materials, large-scale agriculture, large-scale forest products, and waste management), it will therefore not contribute to climate change as it is based on the premise of assisting smallholders to adapt in a climate neutral fashion, in fact one of the long-term benefits of the project is a net reduction in CO₂ emissions. The project will introduce water saving technologies and soil management techniques, awareness raising, capacity building, improving access to water and mainstreaming Conservation Agriculture into the technical college and university level curricula. The environmental benefits of CA are well documented as the combination of no-till, mulching, intermediate crops, and crop rotation significantly increases the resilience of rainfed agriculture to drought, improves soil conditions through lowering of soil temperatures, increasing soil humidity and crop yields in comparison with traditional ploughing practices. Through these benefits CA also contributes a number of other environmental co-benefits from the local to global levels. Notably, reduced/no till, agriculture residues as mulching and crop rotation will significantly improve soil carbon stocks and reduce CO₂ emissions into the atmosphere. As a result, no further climate change risk assessment is required.

Principle 12: Pollution Prevention and Resource Efficiency.

249. It is not expected that the project will pose any significant risks to resource efficiency (water) or pollution risks and no further assessments will be required beyond the procedures already integrated into the project. The two main outcomes 2.2 and 2.3 will largely focus around improved access to water and the latter on promoting water efficient irrigation technologies among other no-regret measures in soil management and adaptive techniques to help reduce crop stress related to drought or torrential rain. One possible aspect that has been addressed in the design of the project is that of water usage in a country that is water insufficient and increasingly prone to serious droughts. Moldova takes water management seriously and has stringent procedures in place that aim to ensure sustainable water consumption. The project has integrated the GoM's water permit system into the grant approval process and the projects Selection Committee that ultimately oversees all grant applications has been mandated by MARDE decree. There are procedures in place that require applicants to prepare feasibility studies that will allow for the relevant authorities to review all the criteria and verify the sustainability of the source of water. This detailed process has been in place in IFAD projects since 2007 and has proven to be viable and not delay the implementation of the project.

250. Beyond the regulatory processes and oversight in place to ensure water usage sustainability, the project is also introducing water saving irrigation technologies such as drip- and micro-irrigation. Drip-irrigation is 40 percent more water efficient than conventional irrigation while also improving crop quality and yields meaning that the crops will be more likely to be sold and will not be left to rot as is currently the case in rural villages, which is an improvement in resource efficiency. The use of fertilisers can be of concern however in the feasibility studies required for the water permit, the farmer will need to explain in detail what fertilisers and how much fertilisers they are planning on using as part of the economic feasibility study. This process will allow the government to oversee and advise on the correct chemicals and quantities. IFAD has a long experience in advising on correct fertiliser usage, and farmers will be trained on this as part of the capacity building and the extension support services. Drip irrigation ultimately increases efficiency of water use and allows for a reduction in fertiliser use vis-à-vis the normal agricultural practices that the farmer is already engaged in, which means that there are also reductions in pollution and gains in efficiency made.

251. **Potential risks.** The project will be promoting the use of water in a water insufficient country. There is a risk that the promotion of water use may result in unsustainable practices. This risk has been mitigated through multiple safeguards. Primarily the project will only use water that has been harvested from precipitation or from the two main rivers that cross through the country. Ground water

will not be used because it is primarily unsuitable for agriculture in most of the country, and secondly where it is suited (mainly in the south) it is not permitted to use it for irrigation by law. The second safeguard measure has been detailed in section II – E of the proposal and involves detailed compliance with the country's water permit issuing process. The project will be in full compliance with the strict regulations in place that regulate the use of surface and underground water. The government will review all permit requests prior to issuing water permits and assess whether the proposed use is sustainable vis-à-vis the already registered number of users of a particular body of water - whether this be a reservoir, water pond, river etc. The procedures in place also ensure that the government bodies namely Apele Molodei, is able to monitor water consumption as all water use is metered.

252. The construction of the last-mile tertiary canals may pose some risks. These are also addressed in annex 4, however for the Adaption Fund co-financing beneficiary measures have been put in place to mitigate against the risk of promoting access to water for then there be a risk that the water is used in a non-efficient manner. The TRTP-Adapt has included provisions in the TRTP project document as well as the Project Implementation Manual (PIM) that any smallholders (up to 10 ha) benefitting from this activity will be subject to AF selection criteria and the requirement that this water be used only in conjunction with water efficient irrigation technology - access points to the irrigation network will furthermore also only be made specific to drip and micro-irrigation connectors. The smallholder farmer may already have their own water efficient irrigation system or they will be able to apply for the AF USD 2,500 grant with 30 percent co-finance. The ESMP that will be developed with each proposed application, will include provisions to monitor and report in the progress reports, that AF requirements in water conservation are being adhered to and that technical specifications required by the government for the extraction of water, the construction of tertiary canals are being followed so as to mitigate against pollution risks and resource wasting. Finally, through the promotion of Conservation Agriculture curricula the project will be promoting long-term gains in an agricultural practice that is recognised as being the least polluting and most resource efficient, so much so that the design mission observed larger farms adopting it on a large scale (400ha) to cut costs.

Principle 13: Public health

253. The project will not have negative impacts on public health.

254. The WHO60 explains that many factors combine together to affect the health of individuals and communities. Whether people are healthy or not, is determined by their circumstances and environment. To a large extent, factors such as where people live, the state of their environment, genetics, income and education levels, and our relationships with friends and family all have considerable impacts on health, whereas the more commonly considered factors such as access and use of health care services often have less of an impact. The main overarching determinants of health are:

- The social and economic environment,
- The physical environment, and
- The person's individual characteristics and behaviours.

255. The project is not expected to have a negative impact on public health. The focus of the project is to enhance the access to and improve the efficient use of water as well as teach climate vulnerable farmers on-farm climate adaptive techniques to minimise the adverse impacts of drought and torrential rain. All proposed interventions will also be thoroughly reviewed as per the governing laws and procedures in Moldova that will ensure the sustainable use of water resources. The project is expected to have an overall beneficial impact on the public health with improved access to water, climate-proofed yields and increase quality of produce that will also provide improved food security and nutritional benefits. The project will furthermore improve all the determinants of health presented in the screening table below and as listed by the WHO and is expected to have an overall beneficial impact on the public health with improved access to water, climate-proofed yields and increase quality of produce that will also provide improved food security and nutritional benefits.

⁶⁰ <https://www.who.int/hia/evidence/doh/en/>

Figure 23 Health Risk Assessment

Determinants of health	Health Risks	Mitigation Measures	Impact on Health
Income and social status	Lower income and social status are linked to worse health.	The project will promote drip irrigation that has proven to minimise water consumption, reduce labour costs, increase production yield, and increase sales through better-quality fruit and vegetables. Farms were able to hire more people for harvest and improve their livelihoods.	Positive.
Education	Low education levels are linked with poor health, more stress and lower self-confidence.	The TRTP-Adapt project will assist smallholder farmers through training in the use of techniques that inter alia help improve soil water storage, control erosion, improve soil structure, and boost nutrient management. The farmers will also be trained in simple entry accounting and fiscal reporting; and in expenditures and revenues of improved irrigation systems.	Positive.
Physical environment	Employment and working conditions – people out of employment are less healthy.	The project will reduce unemployment and increase livelihood possibilities through the provision of grants to the most vulnerable. The grants will be made more accessible through the escrow account that is aimed that the most vulnerable and marginalised, who cannot afford to pay the grant upfront and then be reimbursed.	Positive.
Health services	Access and use of services that prevent and treat disease influences health	Through improved livelihoods and employment, the beneficiaries will have improved access to healthcare that will be beneficial for their health.	Positive.
Land use	Changes in land use, soil quality, choice of crop have impact on health	Improved soil quality as a result of the demo plots as well as the introduction of more climate resilient crop varieties and CA will improve health.	Positive.
Unsustainable farming	Unsustainable farming including chemical and energy use, biodiversity, organic production methods, and diversity of foods produced	The project will promote conservation agriculture which is a sustainable form of farming. The combination of no-till, mulching, intermediate crops, and crop rotation significantly increases the resilience of rainfed agriculture to drought, improves soil conditions through lowering of soil temperatures, increasing soil humidity and crop yields in comparison with traditional ploughing practices.	Positive.
Water	Irrigation use and its impact on river/water-table levels and production outputs can have negative impacts on health.	The project will promote water efficient irrigation that will reduce the impact on limited water supplies. A management system is in place to ensure that the irrigation activities are sustainable. Improved access to sustainable water for irrigation will improve health.	Positive.

Source: <https://www.who.int/hia/evidence/doh/en/>

Principle 14: Physical and cultural heritage

256. Moldova ratified the Convention concerning the Protection of the World Cultural and Natural Heritage in 2002 and has one UNESCO heritage site namely the Struve Geodetic Arch that is part of a network of 265 observation points stretching represented by two-meter stone cubes, disposed on a relative trajectory between Hammerfest (Norway) and Necrasovca-Veche (Ukraine). This network was designed to evaluate terrestrial, shape, dimensional dimensions. The UNESCO site in Moldova is located in Rudi, Soroca in the north-East of the country bordering Ukraine.
257. Moldova has a Law on archaeological heritage preservation (no. 218 from 17 September 2010) that opens new perspectives for Moldovan society to improve the situation in the field, and to fight black archaeology and illegal trafficking of antiquities. The specific project areas will be defined upon implementation, the project will therefore as part of the EMSP ensure whether there are any national cultural heritage sites in the project areas particularly in relation Outcome 2.2 and propose measures to avoid any alteration, damage, or removal of physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level.

Principle 15: Lands and Soil Conservation

258. The project has been designed in a fashion that reduces any risk posed by it to the environment, it is also not expected to pose any risks to lands as well as promote soil conservation. Moldova is a water insufficient country with about three quarters under high risk of degradation processes. It is estimated that 64 percent of the Moldovan territory can be categorised as dryland with around 85 percent of the population living in the drylands, and around 12 percent of Moldova is classified by the UNCCD as being semi-arid and mainly inhabited by the rural poor. Land conservation and the sustainable use of limited water resources while enhancing rural employment and living standards are at the basis of the TRTP-Adapt.
259. The geographical targeting strategy will identify those poorer communities that are most susceptible to changing rainfall patterns and use AF grant money to promote improved access to, and efficient use of, water. The project has incorporated the national processes for regulated water use that are in place to ensure particular sources of water are not unsustainably managed through regulatory oversight. The project will contribute to the TRTP efforts to promote new forms of access to water by constructing tertiary canals (outcome 2.2) to improve access to river water as well as construct rainwater harvesting ponds capable of servicing 200 ha of land. The project will also promote water-efficient irrigation technology (outcome 2.2) for at least 400 climate vulnerable households, such as drip and micro irrigation through the USD 2,500 grant scheme. It will also make any smallholder access to tertiary canal water under outcome 2.2 conditional on the utilisation of water-efficient irrigation technology – either already owned or accessible through the grant scheme.
260. Furthermore, the project will train around 4,600 climate vulnerable households on soil and climate change adaptation management techniques. This will raise awareness about climate change as well as promote well-established low-cost, no regret adaptive techniques for up to 4600 households. The training will help improve soil water storage, control erosion, improve soil structure, and boost nutrient management and will include understanding the impact increased drought stress can have on their particular crops. It will provide simple solutions that they can adopt to minimise damage from drought for example summer pruning and tree thinning to reduce water stress; techniques on how to best apply fertilisers to avoid leaf damage; using mulch to prevent soil evapotranspiration; and learn about the benefits of drip irrigation etc. The activity will also provide solutions farmers can adopt to minimise damage to soils and crops from increasingly frequent torrential rain including drainage options, laying of gravel to increase soil water uptake and reduce erosion. Farmers will also learn about the benefits of organic agriculture and composting to improve soil structure and boost nutrient management etc.
261. The project will also carry out a nationwide survey on the adoption of CA by farmers as it appears that an increasing number of farmers are adopting CA but without any formal guidance on correct practices. The project will support the governments National Programme for Conservation Agriculture by using the information of the survey to launch a CA convention that aims to bring leaders in the field of CA across the spectrum from government actors, academia, technical colleges and the private sector to reach a national consensus on CA that will enable a more structured approach to CA in Moldova. The project will help develop higher-level education curricula aimed at bachelor and master degree programmes and also train professors on CA. The project will also support a research institute to carry out gender and smallholder-focused research into CA with strong links in supporting university students by providing them with hands-on research experience.

III. Environment and Social Management Plan

262. The project has been designed in full compliance with Moldovan water, environmental and construction laws and relevant safeguard procedures that have been fully mainstreamed into the selection procedures under section II-E of the project proposal and will form the core element of the ESMP and provide for ongoing screening as and when project areas and activities are being defined. Following the decree by MARDE, the Selection Committee comprises MARDE (agriculture, environment and rural development), the MoE, MoF, IFAD/CPIU and Apele Moldovei that will oversee and approve each proposed investment under component 2. In order for applicants to have reached this final selection phase they will have already had their proposals reviewed and permits approved for construction by the State Verification Enterprise as well as by the Environment Department at MARDE with Apele Moldovei qualified opinions and recommendations, but also been screened and verified by the CPIU review procedure. Applications will have been reviewed and approved on the basis of the technical construction drawings for compliance with construction laws, the source of water being used, the quantity of water being requested to use, the number of users already using the same body of water, the type of activity being proposed and the type and quantity of fertilisers being used. Water usage will be metered and monitored through the national structures in compliance with national laws.
263. The TRTP-Adapt screening identified the activities under outcome 2.2 being implemented by TRTP and co-financed by the Adaptation Fund as requiring further action beyond that which has already been integrated into the grant approval process as described above and detailed in section II-E. During application screening process (described in outcome 2.1 and section II – E) the CPIU will for all activities under outcome 2.2 therefore also screen for the Adaptation Fund ESPs and applicants will need to prepare an EMSP that mitigates any identified associated risks including ensuring that all smallholders benefitting from this activity co-funded by the Adaptation Fund, will be using micro- or drip-irrigation technologies. A report on the screening and ESMP will accompany the annual PPR will be prepared and presented in the format included at the end of this Annex. The CPIU will conduct the screening of each proposal and an ESMP will be prepared together with the applicant to ensure conformity to the guidelines. This screening process will be part of the scoring of the project interventions under outcome 2.2. The CPIU will work with the applicant through the consultation process described below to ensure the appropriate measures are applied to ensure compliance. Failure for the ESMP to satisfactorily address the risks as defined in the screening will result in the rejection of the application.
264. The project will furthermore also map all the areas of protected natural beauty and cultural heritage and will be reported in the PPR tracker and accompanying report. As part of the PPR tracker the project will also report on all the indicators (including gender and youth), identifying those indicators that are not meeting their targets and propose the corrective measures being taken by the PMU. Below is a summary EMSP management plan and reporting requirements.

Table 18 Summary of reporting and management plan

ESP	Management Plan and Reporting Requirements
ESP 9 Protection of natural habitats	<p>A) The project will identify:</p> <ul style="list-style-type: none"> i. The presence in or near the project area of natural habitats, and ii. The potential of the project to impact directly, indirectly, or cumulatively upon natural habitats.
	<p>B) If critical natural habitats exist and there is a potential of the project to impact the habitat, the project will:</p> <ul style="list-style-type: none"> i. Describe the location of the critical habitat in relation to the project and why it cannot be avoided, as well as its characteristics and critical value. ii. For each affected critical natural habitat, provide an analysis on the nature and the extent of the impact including direct, indirect, cumulative, or secondary impacts; the severity or significance of the impact; and a demonstration that the impact is consistent with management plans and affected area custodians. ^[1]_{ESMP}

	<p>C) Reporting.</p> <p>It is unlikely the project will have any negative impact on critical natural habitats. The project will therefore conduct the screening and report as soon as the project areas have been determined. In the unlikely event that the project is identified to have a negative impact on critical habitats, the project will develop an ESMP in relation to ESP 9 and monitor and report in the biannual progress reports; annual supervision reports to IFAD as well as the annual PPR to the Adaptation Fund; MTR and final evaluation and impact assessment.</p>
<p>ESP 10 Conservation of Biological Diversity</p>	<p>A) The project will identify:</p> <ul style="list-style-type: none"> i. The official national list of threatened flora and fauna species. ii. The presence in or near the project area of critical biodiversity iii. The potential of the project to impact directly, indirectly, or cumulatively upon critical biodiversity.
	<p>B) If critical biodiversity exists and there is a potential of the project to impact the habitat, the project will:</p> <ul style="list-style-type: none"> i. Describe the elements of known biological diversity importance in the project area, using any relevant sources of information, such as protection status, status on the IUCN Red List of Threatened Species and other inventories, recognition as a UNESCO Man and the Biosphere Programme reserve⁶¹, Ramsar site⁶². ii. Describe why the biological diversity cannot be avoided and what measures will be taken to minimize impacts.
	<p>C) Reporting.</p> <p>It is unlikely the project will have any negative impact on protected species. The project will therefore conduct the screening and reporting as soon as the project areas have been determined. In the unlikely event that the project is expected to have a negative impact on biodiversity conservation, the project will develop an ESMP in relation to ESP 10 and monitor and report in the biannual progress reports; annual supervision reports to IFAD as well as the annual PPR to the Adaptation Fund; MTR and final evaluation and impact assessment.</p>
<p>ESP 12 Pollution prevention and resource efficiency</p>	<p>A) Water permit.</p> <p>The project will work with the national authorities to screen and verify the proposed irrigation investments to ensure their sustainability and issue water permits. The water permit management plan has been detailed in section II – E of the proposal. It complies with the national standards surrounding water use as well as the AF ESP.</p>
	<p>B) Off-farm irrigation.</p> <p>The project will ensure the off-farm irrigation may only be accessed with efficient water irrigation technologies. This will be verified and reported on.</p>
	<p>C) Reporting.</p> <p>The project will submit biannual progress reports; annual supervision reports to IFAD as well as the annual PPR to the Adaptation Fund; MTR and final evaluation and impact assessment.</p>

⁶¹ United Nations Educational, Scientific and Cultural Organization, www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/man-and-biosphere-programme

⁶² Convention on Wetlands of International Importance, called the Ramsar Convention, www.ramsar.org

ESP 14 Physical and cultural heritage	<p>A) The project will identify:</p> <ul style="list-style-type: none"> i. The presence in or near the project area of areas of physical and cultural heritage ii. The potential of the project to impact directly, indirectly, or cumulatively upon areas of physical and cultural heritage.
	<p>B) If such physical and cultural heritage exist and there is a potential of the project to impact upon it, the project will:</p> <ul style="list-style-type: none"> i. Provide an inventory of the physical and cultural heritage present in the wider project area that enjoys recognition at community, national, or international levels. Describe the cultural heritage, the location and the results of a risk assessment analysing the potential for impacting the cultural heritage; and ii. Describe the measures to be taken to ensure that cultural heritage is not impacted, and if it is being accessed by communities, how this access will continue. ^[1]_{SEP}
	<p>C) Reporting.</p> <p>It is unlikely the project will have any negative impact on physical and cultural heritage. The project will therefore conduct the screening and reporting as soon as the project areas have been determined. In the unlikely event that the project is expected to have a negative impact on biodiversity conservation, the project will develop an ESMP in relation to ESP 14 and monitor and report in the biannual progress reports; annual supervision reports to IFAD as well as the annual PPR to the Adaptation Fund; MTR and final evaluation and impact assessment.</p>

Consultation and Public Disclosure

265. The project proposal was developed through a gender and youth sensitive participatory approach. The field survey focus groups assisted the development of interventions and the activities were designed based on local community concerns. During the field surveys every effort was made to meet with women groups and associations, however these are not present in Moldova. The stakeholder consultations however have been very gender and youth focused with meetings being arranged with smallholders that were timed to be sensitive to their respective needs as well farmer's needs more generally. This was arranged by the CPIU consulting with village and farmer association leaders with specific instructions to be gender sensitive. The design team's schedule (including a gender specialist) was arranged around communities' needs at times of day they suggested. It was also repeatedly requested whether the communities had a preference of gender segregated meetings, the answer was a recurrent negative, as women were not afraid to speak their minds in the presence of their male counterparts. The consultations were focused on developing an understanding of local challenges, existing adaptation practices to climate change impacts and to gain local perspectives on possible future interventions that will improve local adaptive capacity.
266. **The main concerns** that emerged from the consultation process have been integrated into the project design. These included: lack of access to water for irrigation; reports of inability to connect to sources of water due to absence of tertiary irrigation canals; complaints of insufficient rainfall; inability to sell produce to the national supermarkets; lack of access to affordable credit due to collateral requirements and high rates of interest; and a lack of advice on market trends and crop diversification. Gender specific concerns have included complaints about more household responsibilities, reduced access to land as land is not registered in their name and women farmers have highlighted the challenge of their long working hours due to their farming and domestic responsibilities. Youth, who had in several cases, returned after working abroad and invested their savings in agricultural enterprises, highlighted their difficulties in accessing credit due to high collateral requirements and rates of interest as they were perceived to be 'high risk'. Some young farmers maintained that they could only access credit and support their farming enterprise if they continued to work abroad for some months.

267. **ESMP** consultations of key stakeholders for outcomes 2.2 and 2.3 will be undertaken by the CPIU as part of the verification of the application and the finalisation of the Screening and Environment and Social Management Plan (ESMP) under the proposed project. The aim of consultations will be to: (i) disseminate information about the sub-project (irrigation scheme rehabilitation/modernization, land area benefiting from irrigation water supply, arrangements for an equitable water distribution system and ensuring at least 30 percent of farmers are smallholders, criteria and conditionality for an efficient water use and sustainable agronomic practices, etc.); (ii) verify the identification of potential impacts and their proposed mitigation plan (ESMP); (iii) verify the significance of the impacts and the mitigation measures; and (iv) allow the stakeholders to express their concerns and opinion about the project activities. The consultations will be conducted at two levels: at the village level and at the Primaria (Village / Local Public Administrative) level.
268. **Primaria Level Consultation:** A formal presentation of the Screening and management plan will be made at the village councils. The presence of the persons whose land is in the supplied area of the irrigation scheme and the group of land users will be present in these meetings. The presentation of the screening and ESMP required for the obtaining of water permits will be undertaken in the most appropriate way to the literacy level of the members present in the meetings.
269. **Public Disclosure:** for outcome 2.3 a copy of the screening and management plan will be submitted to the village councils where it can be accessed by any member of the village for future references. The projects will form part of the documentation that will be in public domain and will be available at the governorate management team offices for inspection with prior information.

Grievance Mechanism

270. The proposed project will utilize the existing IFAD's grievance mechanism to allow affected to raise concerns that the proposed project is not complying with its social and environmental policies or commitments. The consultative process with the community and beneficiaries aims to ensure prevention of grievances that might arise from the project activities. However, if at all, there are any grievances, the below redressal mechanism is proposed:
- Grievance redressal mechanism would be shared with the community during the project inception workshop and subsequent meetings with the beneficiaries
 - As part of the grievance redressal mechanism, the contact details of the project partners - Cluster Coordinator/ Project Manager would be made available to stakeholders including project beneficiaries and the community. Contact numbers would be displayed at common or predominant places along-with the project details. This is expected to promote social auditing of project implementation. The grievance mechanism will be available to the entire project intervention areas. However, the functionality of the mechanism rests with the beneficiaries considering that the project including the grievance mechanism is envisaged to be a bottom up approach.
271. Grievances are aimed to be addressed at the field level by the project team which will be the first level of redressal mechanism. If the grievance is not resolved at the field level, it will be escalated to the CPIU and then to IFAD who will be responsible for addressing grievances related to violation of any of the provisions of Environmental and Social Policy of the Adaptation Fund. All grievances received and action taken on them will be put up before the CPIU and Steering Committee meetings and will also be included in the progress reports for reporting and monitoring purposes.

IV. Monitoring and Reporting

272. As described in section III – D of the proposal, the project will have a comprehensive monitoring and reporting programme that will include quarterly reports, technical reports, annual project reports, the AF PPR tracking, annual IFAD supervision mission reports, a Mid-term Review and a final evaluation and impact assessment.
273. The ESMP will involve the following Internal and External Monitoring process:
- **Internal Monitoring Process:** The internal monitoring will be undertaken by the CPIU. Each of the environment and social parameters will be monitored along with the implementation of their mitigation measures. The will submit a Compliance and Impact Monitoring Report to the IE every six months and the consolidated report will also be annexed in the Annual Report.

- **External Monitoring Process:** An Environment Audit and Social Audit will be carried out in sample villages within each Primaria every year to verify the implementation of ESMP and to report on the conduct of ESMP and its impact in the village. The Audit Reports will be shared with the IE and a consolidated statement of these audits will be annexed to the Annual Report of the project.

Implementation Schedule

274. The implementation schedule of ESMP will be as follows:

Activities	Time					
	PY1	PY2 ⁶³	PY3	PY4	PY5	PY6
Development of technical guidelines for the project		Q1				
Capacity building of project team		Q1				
Environmental and Social Screening	Q1-4	Q1-4	Q1-4	Q1-4	Q1-4	
ESMP of tertiary irrigation canals and construction of rainwater harvesting ponds.	Q1-4	Q1-4	Q1-4	Q1-4	Q1-4	
Implementation of ESMP	Q1-4	Q1-4	Q1-4	Q1-4	Q1-4	
Monitoring and reporting of ESMP	Q1-4	Q1-4	Q1-4	Q1-4	Q1-4	Q1-4

Cost for Screening and ESMP

275. The preparation and implementation of ESMP will have costs that have been built in to the project budget. The cost implications and their source of funds will be as follows:

ESMP related activity	Source of funding to cover costs
Capacity building of project team	Built-in the Project Execution Cost
Preparation of screening and ESMP	Built-in the Project Execution Cost
Screening and ESMP	Built in the Project Execution Cost
Mitigation measures	Built in the Project Execution Cost
Monitoring and reporting	Built in the Project execution cost

Institutional Arrangements and Capacity Building

276. The institutional arrangements include the distribution of roles and responsibilities in the preparation of Screening and in the implementation of ESMP. The key players and their responsibilities will be as follows:

Organisation / Designation	Responsibility
(IFAD/CPIU) Adaptation Fund Climate Specialist - under the supervision of the	Preparation of Screening and ESMP through the process of community consultation and through field visits to the

⁶³ TRTP-Adapt will become effective in PY2 of the TRTP project.

Organisation / Designation	Responsibility
CPIU Director.	<p>target irrigation scheme and the land area supplied by the it.</p> <p>Coordinate with experts in geo-hydrology, civil engineering, agriculture engineering, climate change adaptation, natural resources management, for the screening of impacts on soil and water, biodiversity and natural resources.</p> <p>Presentation of Screening and ESMPs, oversee implementation of ESMP that will be undertaken by field staff members and service providers.</p>
CPIU Field Staff (with support from Adaptation Fund Climate Specialist)	<p>Assist the Adaptation Fund Climate Specialist in the preparation of the Screening and ESMP at the irrigation scheme level.</p> <p>Presentation of Screening and ESMP in the meetings of the village councils. Implementation of the ESMP at the village level.</p>
CPIU Application Evaluation Committee (CPIU Director, Adaptation Fund Climate Specialist, Engineer)	<p>Review Screening and ESMPs. It can also undertake sample checks and give expert opinion on the quality of Screening and the mitigation measures identified in ESMPs.</p> <p>Monitor and review the process of Screening and ESMP.</p> <p>Review the prepared Screening to ensure it fulfils acceptable standards and quality.</p> <p>Make recommendations to Selection Committee</p>
Selection Committee (including MARDE, MoF, MoE, CPIU, Apele Moldovei)	Final approval of grant including ESMP.

PPR Accompanying report

Project Description

- 1.1 Description of the proposed operation
- 1.2 Maps and diagrams of the project site
- 1.3 Area that will be affected and impacted
- 1.4 Settlements that will be affected
- 1.5 Population that will be affected (attach list of households)

Baseline Condition

- 2.1 Description of existing environmental and social condition.
- 2.2 Attach maps and other data that has been collected.

Environment Impacts and Risks

The Screening will be in terms of: (a) Direct Environmental Risks; (b) Direct Environmental Impacts; (c) Indirect Environmental Risks; and (d) Indirect Environmental Risks on the compliance with the following ESPs:

- i. Compliance with the Law;
- ii. Protection of Natural Habitats;
- iii. Core labour rights;
- iv. Conservation of Biological Diversity;
- v. Climate Change;
- vi. Pollution Prevention and Resource Efficiency;
- vii. Public Health;
- viii. Physical and Cultural Heritage;
- ix. Land and Soil Conservation.

Social Impacts and Risks

The Screening will be in terms of: (a) Direct Environmental Risks; (b) Direct Environmental Impacts; (c) Indirect Environmental Risks; and (d) Indirect Environmental Risks on the compliance with the following ESPs:

- i. Compliance with the Law;
- ii. Access and Equity;
- iii. Marginalised and Vulnerable Groups;
- iv. Human Rights;
- v. Gender Equity and Women's Empowerment;
- vi. Core Labour Rights;^[1]
- vii. Public Health;^[1]
- viii. Physical and Cultural Heritage.

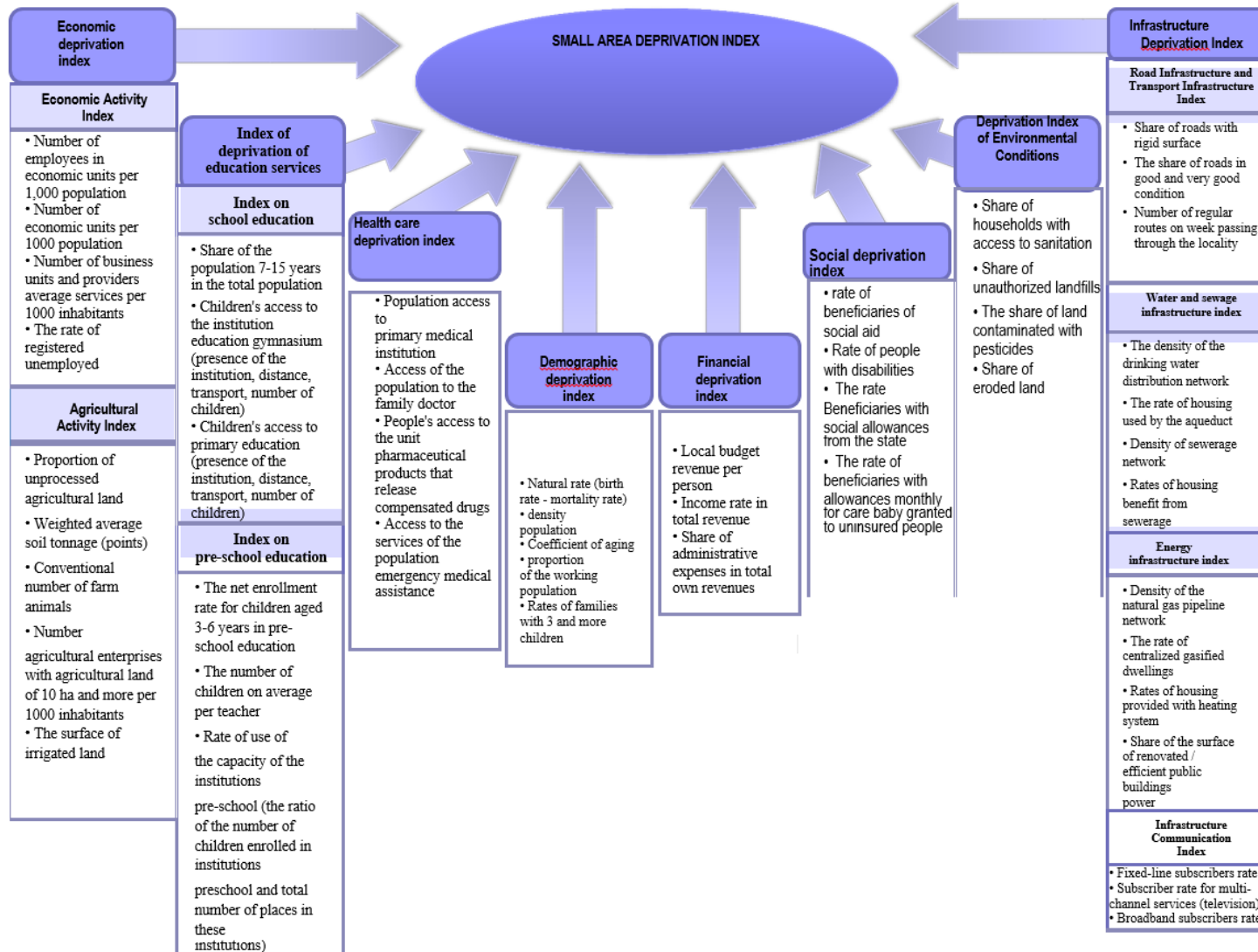
Analysis of Alternatives

Description of alternatives that were identified and their Screening in terms of: (a) Direct and Indirect Environment and Social Impact (b) Opportunities for enhancing environmental and social benefits

Recommendations

Risk Management options in terms of: (i) Preventing Risk (ii) Avoiding Risk^[1] (iii) Mitigating Risk (iv) Transferring Risk (v) Absorbing Risk.

Annex 4 Indicators comprising the SADI index.



Annex 5 TRTP-Adapt Design Mission Agenda

TRTP Design Mission Agenda Week 1 (01 – 07/04/2019)		
Date	Time	Activity
Monday 01/04/19	9:30	Meeting with CPIU Senior staff and update on current status on ongoing IFAD projects
	10:30	Discussion on Agenda for the current week and setting appointments
	14:00	Meeting with Mr. Ion Chicu, minister MoF
	15:00	Meeting with UN/UNDP RR Mrs.Dima Al-Khatib, UN House premises,
	16:00	Meeting with Mr. Nicolae Ciubuc, minister MARDE
Tuesday 02/04/19	11:30	Meeting at NCFM
	13:00	Meeting with Mrs. Iulia Costin, General State Secretary, Ministry Economy and Infrastructure
	14:00	Meeting at MoldAgroinbank
	14:00	Meeting at AIPA, Mr. Vadim Curmei, director
	15.30	NCO Moldcredit (cladirea Eurocreditbank, et. 7 bir 701)
	16.00	Meeting with Mr. Usurelu, General State Secretary Ministry Agriculture
Wednesday 03/04/19	Field Visit Team 1	
	08:45	Departure from Hotel
	09:30	Site visit to Group 1: Siret village, Straseni raion, at Primaria (Contact Solonari Constantin 060043174)
	14:00	Site visit Group 2: Sipoteni village, Calaras raion at Primaria (Contact Stefan Chitroaga 069009844)
	Field Visit Team 2	
	08:00	Departure from the hotel
	09:00	Visit to SCA Valea Vilcului (licence B), Hincesti Branch Rodica Gabura 067572492/Zinaida Onuta 067572497 (<i>near Consiliul raional and scoala de arte</i>)
	10:15	Visit to SCA Caracui Hincesti district /Anatolie Dubceac 079773736, de asemenea exercita functia de primar/ contabil 060829243
	12:15	Visit to YE Nederita Andrei /68181611, S. Bujor Hincesti culturi de cimp
	14:00	Visit to YE Honey house, honey packaging, Durlesti (disponibila max.14-00) /79833390 Viorica
Thursday 04/04/19	Field Visit Team 1	
	08:15	Departure from hotel
	09:30	Site visit Group 3: farmers with 0- 30 ha Hincesti, Directia agricola, sala sedinte et.1(contact Danu Natalia 060201276)
	12:15	Departure from Hincesti
	14:30	Site visit Group 4: farmers with 0-50 ha Raculesti village, Criuneli, at Primaria (Frunze Vasile 068160278).
	Team 2	
09:30	Meeting at NBM, Constantin Schendrea	

	11:00	Meeting at World Bank, Anatol Gobjila
	14:00	Meeting at EIB project "Livada Moldovei"
Friday 05/04/19	10:00	Meeting with Small Business Association(at CPIU office)
	11:00	Meeting with procurement specialist at World Bank
	11:30	Meeting at Agrostoc Coop(str. Ismail 81/1) +37322597080; 030556052; +37369079039, Mr. Iurii Togadiuc
	14.30	Meeting Mr. Tudor Robu FAO Deputy Representative
Saturday 06/04/19		
Sunday 07/04/19		
Week 2 (08 – 14/04/2019)		
Monday 08/04/19	Team 1	
	10:00	Meeting with Agrobouse(international marketing platform) at CPIU
	12:30	Meeting at EU Delegation
	14:00	Meeting with President of Table Grape Association
	14:00	BCR Chisinau SA
	15-40	BC Mobiasbanca -Groupe Societe Generale SA
	Field visit Team 2	
	07:20	Departure from Hotel
	11:00	Site visit Group 1: Cernoleuca village, Donduseni raion, SCA "Cernoleuca", Munteanu Irina, tel. 069417765
	14:00	Site visit Group 2: Cotova village, Soroca raion, SCA "Cotova", Flocosu Pietru, tel. 069558981
Tuesday 09/04/19	Field visit – Team 1	
	08:00	Departure from Hotel
	10:30	Site visit Group 1: Cantemir
	14:00	Site visit Group 2: Cantemir
	Team 2	
	10.00	Meeting with AIPA Bank
	11.00	Meeting President of Sheep producer Association
	14:00	Meeting with UNDP
	15.30	Meeting with National Programme on Conservation Agriculture (Ministry of Agriculture).
	15.30	Meeting with Inga Podoroghin, UNDP specialist and Silvia Pana-Carp Programme Analyst
19:00	Meeting with Eugen Chiabur FAO pilot project manager	
Wednesday 10/04/19	11:00	Meeting with Syngenta
	14:00	Meeting with Mrs.Valentina Tapes, State Secretary MARDE (Environment Agency / Adaptation Fund Representative)

Thursday 11/04/19	10:00	Validation workshop in Chisinau with stakeholders
Friday 12/04/19	10:00	Meeting with Apele Moldova National water service provider.
	14:00	Meeting with ACSA National Agency for Rural Development (FAO pilot implementing NGO)
Saturday 13/04/19		
Sunday 14/04/19		
Week 3 (15 – 17/04/2019)		
Monday 15/04/19	11.20	Mr Mihail Durac Associate Professor Dept. Of Crop Science State Agrarian University. Tel. +373 79184049
Tuesday 16/03/19	10.00	Wrap-up meeting with Mr. Usurelu, General State Secretary Ministry Agriculture
Wednesday 17/04/19		Return home.

Annex 6 List of People Met

Name	Organisation	Position	Contact.
Mr. Usurelu	MARDE	State Secretary Ministry Agriculture	
Mrs.Valentina Tapes	MARDE	State Secretary Ministry of Environment (standing-in as Adaptation Fund Focal Point due to staff absence)	
Mr Vasile Scorpan	MARDE	Senior Manager - Low Emissions Capacity Building Programme	+373 22232247 v.scorpan@yahoo.com
Prof. Rurac Mihail	State Agrarian University	Associate Professor Department of Crop Science	+373 79184049 m.rurac@gmail.com
Dr Anatolie Fala	ACSA	Programme Director	+373 22235354 afala@acsa.md
Dr Constantin Ojog	ACSA	Executive Director	+373 22838520 office@acsa.md
Mr Vivrel Botnarm	ACSA	Programme Coordinator	vbotnaru@acsa.md
Mr Victor Robu	FAO	Assistant FAO Representative	+373 222109979 tudor.robu@fao.org
Mr Eugen Chiabur	FAO	FAO Pilot Project Coordinator	eugen.chiabur@gmail.com
Ms Sivia Pana-Carp	UNDP	Programme Analyst - Climate Change, Environment and Energy Cluster	+373 22 269121 silvia.pana-carp@undp.org
Ms Inga Podoroghin Programme Specialist	UNDP	Programme Specialist - Climate Change, Environment and Energy Cluster	+373 22 220045 inga.podoroghin@undp.org

Lista participanților / ATTENDANCE LIST - TART Design Mission

Localitate / Community Scaud, Strășeni

Data /Date 3 aprilie '19

#	Nume / Name	Teren propriu Own land	Teren cultivat Cultivated land	Culturi Crop	Sex (B/F) Gender (M/F)	Vîrstă Age	Telefon contact Contact phone	Semnătură Signature
1	Darii Adrian	15 h.	5 h	Cireș, Vișin, Nuc, caise	M	35	076718525	
2	Blaonduț Ion	10 h.	10 h.	struguri de masă	M	48	069130561	
3	Rebeja Tamara	3 ha.	3 ha.	struguri de masă	F	65	068146932	
4	Liobanu Larisa	20 ha.	20 ha.	persic, cireș, ^{nușca.} nuc	F	53	060004241	
5	Mereneanu Mihail	3	3	struguri de masă & ploștici sărate	M	63	068188651	
6	Bleonduro Petru	0,66	3 ha.	Cultivarea usturoiului	M	34	069829084	
7	Castnșor Alexandru	8 hectare	8 hectare	Vișin, Cireși, Caise, Vii	M	31	060069960	
8	Acocă Ciomir	9 hectare		Cireș, Nuc	M	35	078826868	
9	Mincaru Natalia	17 hectare	7 ha	persic	F	63	069510637	
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11								
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Lista participanților / ATTENDANCE LIST - TART Design Mission

Localitate / Community Sipoteni - farmers

Data / Date 3/4/19
14:30

#	Nume / Name	Teren propriu Own land	Teren cultivat Cultivated land	Culturi Crop	Sex (B/F) Gender (M/F)	Vîrstă Age	Telefon contact Contact phone	Semnătură Signature
1	Mărou Vasile	10	10	MAI	sd.	57	069009478	<i>[Signature]</i>
2	Popovici Vasile	5	5	MAI	M	46	076724599	<i>[Signature]</i>
3	BRICARI ANDR	11	11	PRUN. NUC	M	48	068780440	<i>[Signature]</i>
4	Trifan Cozma	3	1	MAI	M	32	069835008	<i>[Signature]</i>
5	Popovici Petru	7	7	legume	m	48	061049279	<i>[Signature]</i>
6	Pote Ghe	5	5	livada	M	57	069564442	<i>[Signature]</i>
7	Draganescu Tatiana	2	2	MAI	F.	35	069081852	<i>[Signature]</i>
8	Chitoroșie Olee	6	3	MAI, porum, leg	F	58	069792432	<i>[Signature]</i>
9	Alexandra Rău	1m2.	3 stabil aranda	MAI, Floareaș	F	58	069364963	<i>[Signature]</i>
10	Morari Vasile	5 h	4	copaci, zona de agrement	M	51	068298684	<i>[Signature]</i>
11	Trifan Ghazaryan	6h.	2h.	arbuști de muci	M.	47.	068323368	<i>[Signature]</i>
12	Zaharia Ion	12 ha	1,5	cultivat neci	sd	25	069351015	<i>[Signature]</i>
13	Wietse Melieb.	—	—	consultant.			3456996390	wn.
14	Sam Ghazaryan	—	—	EAO water Engineer				
15	Suzueh Hum	—	—	IFAD Consultant.				
16								

Attendance List – TART(-Adapt) Design Mission



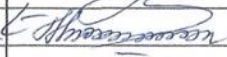
Community: Hincesti - Farmers Adult/Young B/F Telefon Date: 4/4/19 Land owned ha Land culti ha

	Name Nume	Profesia Designation	Organizație Organisation	Category (Adult/Youth)	Gender M/F	Telephone	Signature Semnatura	Land owned ha	Land culti ha
⑥	1	Sirghi Doina	director agronom SRL „Plantorops”	tinaz	F(39)	78816488	Sirghi	30	340
	2		(Regume, cereale)						
⑤	3	Blana Lilia	profesor în C.T. Tatiiana Kancu	1992	F	068044556	Blana	3	4
	4		viticulture						
④	5	Cristea Elena	asistent social C.T. Cristea M.Y	1970/1968	B/F	069960658	Cristea	12	95
	6	Chiriac Ghizela	Student C.T. „Chiriac G”	1999/1910	B/F	068242577	Chiriac	4	5
②	7	Gloznea Ioana	C. J. Moșnean	1983	B	078598605	Gloznea	11	7
	8	Kotaru Dumitru	director agronom S.P.H. Dumz. Agri	1994	B	068132508	Kotaru	25	450
①	9	Danu Daniela	conducător FIVFM	1968	F	069812176	Danu	1,36	1,36
	10	Blanari Ivan	C.T. Blanari Ivan	1963	B	069343902	Blanari	4	7
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Attendance List – TART(-Adapt) Design Mission

Community: Apela Maldives Agency

Date: 12/4/19

	Name	Designation	Organisation	Category (Adult/Youth)	Gender M/F	Telephone	Signature
1	<u>Cibotassi</u>	<u>Director</u>	<u>Adell</u>	<u>Set D Hall</u>		<u>022 280453</u>	
2	<u>A. Louis</u>	<u>Director</u>	<u>AAH</u>	<u>director</u>	<u>M</u>	<u>06912642</u>	
3	<u>Copreanus</u>	<u>Mazzang</u>	<u>ADH</u>	<u>rel interim DMPA</u>	<u>F</u>	<u>069504302</u>	
4	<u>Moncus</u>	<u>Liviy</u>	<u>ADH</u>	<u>Set DANC</u>	<u>M</u>	<u>069720002</u>	
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Annex 7 Gender Assessment

Introduction

277. The Adaptation Fund conceptualises the initial gender assessment as a tool for identifying the differences and providing empirical evidence in the form of qualitative and quantitative data for gender roles, activities, needs, and available opportunities and challenges or risks for men and women within a particular context or sector. It is required under the GP (para.12) as part of the project proposal development to ensure the integration of gender-responsive implementation and monitoring arrangements, including gender-responsive indicators.
278. The information and data generated by the initial gender assessment are the basis for possible subsequent gender mainstreaming actions throughout the project cycle. It informs the project planning and design and helps identify the gender-responsive activities needed in the implementation stage, in budgeting and in monitoring and evaluation.
279. The gender analysis is necessary in order to establish a data baseline at the project start against which implementation progress and results can be measured later. In general, the AF requires that gathering and collecting data should be gender-responsive and reflect the realities of women and men by breaking down the data not only by gender, but ideally also by age and other diversity factors such as ethnic origin and in response to questions that consider existing gender concerns and differentials.

Demographics

280. Women make up 52 percent of the population in Moldova. In the (Global) Gender Inequality Index (GII) Moldova ranks 48th out of 189 countries⁶⁴, this favourable context is also reflected in the main indicators of health and education, as the country has a low maternal mortality rate (23 per 100,000 in 2015). The female-to-male ratios of primary school enrolment (95% for girls versus 93% for boys in 2016) and lower secondary education (90.3% against 89.8%) show that girls have slightly higher enrolment rates than boys. Moreover, and contrary to many countries, women are more present than men in higher education, with a female-to-male ratio of 60.8 percent and 39.2 percent respectively in 2015⁶⁵, and literacy levels are very high with 99.6 percent and 99.3 percent of female and males between the ages of 15 and 24 respectively.⁶⁶

Health.

281. Statistical data show that women live on average by 8,1 years more than men (female life expectancy at birth is 75 years and male life expectancy is 66,82 years). Women in rural areas have an average age of 39 years and the average life expectancy is of 74 years. Women in rural areas suffer twice as much of chronic diseases, compared to women living in urban areas, and they require continuous treatment. A third of women give up going to a doctor, out of which every one in four does so due to lack of money. The most poverty affected are women living in rural areas and surviving out of their retirement pension.
282. **HIV+.** Seven out of ten women newly diagnosed with HIV are under 39. The virus is predominantly sexually transmitted with 60 percent of HIV+ women being infected by their partner. Women are discouraged to give birth and the information about their health status is not kept confidential. Over half of them are still suffering from viral hepatitis. Their children, also HIV+, are regularly denied admission at local schools.⁶⁷
283. **Gender-Based Violence (GBV).** Seven out of ten adult women (between 45-59 years), six out of ten women with higher education women experienced at least one form of violence from their partner. One from ten adult women (35-59 years) have suffered from all types of violence from their partners.

⁶⁴ UNDP, 2017, <http://hdr.undp.org/en/composite/GII>

⁶⁵ UNDP, 2016, <https://www.md.undp.org/content/moldova/en/home/presscenter/pressreleases/2016/07/29/10-profiluri-statistice-ale-femeilor-i-fetelor-din-republica-moldova-pe-n-elesul-tutoror-.html>

⁶⁶ UNESCO, 2012 <http://uis.unesco.org/en/country/md>

⁶⁷ UNDP, 2016, Ten accessible statistical profiles of women and girls from Moldova <https://www.md.undp.org/content/moldova/en/home/presscenter/pressreleases/2016/07/29/10-profiluri-statistice-ale-femeilor-i-fetelor-din-republica-moldova-pe-n-elesul-tutoror-.html>

More than half of women are victims of psychological abuse. Every second female victim suffered multiple cases of physical violence. One in five adult women (35-59 years) is a victim of sexual offence. From ten women victims of violence from others than their partners, five were abused by their parents, and three by their siblings.⁶⁸

Access to land

284. Women in Moldova enjoy equal land tenure rights with no provisions set for any group in particular. Land tenure is governed by the 1991 Land Code (Law No. 828) and land ownership can be awarded to vulnerable groups – including orphans, widows, children and women. The Enforcement of Equality Law (No. 121) adopted in May 2012 furthermore prohibits discrimination in the sale or lease of movable or immovable property. Overseeing implementation of the Law and assessing complaints is the purview of the Council for the Prevention and Elimination of Discrimination, formed in 2013. Article 315 of the Civil Code also provides for equal ownership rights between men and women for property and equal ownership rights of property between married women and men is also referred to in Article 5 of the Family Code.⁶⁹
285. Despite this, only 36 percent of landholders in Moldova are women, which form only 19 per cent of agricultural lands. Women in Moldova manage smaller plots of land than men and on average have fewer livestock than their male counterparts. The average size of men's plot is 1.21 ha compared to 0.86 ha managed by women; the proportion of landholders with no education in agriculture is slightly higher for women at 82.2 percent compared to men's 79.5 percent⁷⁰; nationwide. Women also experience lower rates of access to agricultural technology, with tractors being the most commonly owned type of equipment. Around 22,000 or four percent of male-headed holdings own a tractor, compared with 2,000 or less than one percent of female-headed holdings.⁷¹

Poverty.

286. Despite a remarkable reduction of poverty (from 30.2% of the population below the absolute poverty line in 2006 to 2.9 percent in 2014⁷²), Moldova continues to rank at lower levels on the global Human Development Index, placed at 112th out of 187 countries in 2018. And while the precise details of gendered poverty in Moldova are unknown, the 2015 Global Gender Gap report says that, on average, a woman in Moldova earns 74% of a man's salary.⁷³ In addition, women undertake a high load of unpaid work due to discriminatory social norms. Women in Moldova average 4.9 hours per day per person, when the average of women in the OECD countries allocate 2.8 hours a day for household work.
287. Income inequality is caused by unequal opportunities in career and involvement in household activities. Although women represent half of the labour force of the country's active population according to National Bureau of Statistics (NBS) data, they are employed mostly in low paid fields. 70 percent of jobs are in public administration, education and health are held by women (78 percent), and 60 percent in trade, hotel and restaurant fields.
288. Three out of ten employed women are young (between 15-34 years) and six out of ten are of working age (between 35-64 years). Three out of ten have higher and vocational or specialized education. Six out of ten are employed in the public sector. Three out of ten are highly skilled professionals and four out of ten are low-skilled and skilled workers. Half of the employed women with higher education are concentrated in the central region and in the capital, Chisinau. Women occupy only one out of four leadership positions in companies. Only a third of self-employed workers have a university degree, a professional or specialised/expert education.

⁶⁸ Reference 67 supra

⁶⁹ World Bank (2014) "Moldova land governance assessment framework (LGAF) final report," *World Bank*, http://siteresources.worldbank.org/INT/LGA/Resources/Moldova_Final_Report.pdf

⁷⁰ National Bureau of Statistics of the Republic of Moldova 2014

⁷¹ FAO, 2016 Gender and Rural Development in Central Asia: Key Issues.

⁷² World Bank, 2016 Moldova Poverty Assessment. Poverty Reduction and Shared Prosperity In Moldova: Progress and Prospects.

⁷³ World Economic Forum 2015 The Global Gender Gap Report

Cultural Context and Gender Roles

289. Despite the democratic transformation and economic development of recent years, a large share of the country's population retains conservative beliefs about the role of women and men in society. Society in Moldova is patriarchal and the relationship between genders is still traditional which perpetuates traditional gender roles. A survey by the Women's Law Centre reveals that 90 percent of men and 82 percent of women believe that the most important thing for a woman is to take care of the house and children; 85 percent and 75 percent respectively believe that it is only the mother's responsibility to change baby's nappies as well as bathing and caring for children; and 86 percent and 50 percent respectively believe that the man should have the final say in the household decision making process. 86 percent of men and 74 percent of women believe it is necessary for a man to be strong, while 83 percent of men agree they should use force when men are humiliated. Gender-based stereotypes are transmitted to children starting at preschool and continues through to higher education, including into the labour market, in the mass media and by the means of sexist adverts which leads to 61 percent of men and 60 percent of women believing that when women are employed they take away jobs that are meant for men.⁷⁴

Gendered Division of Labour

290. **Unemployment** is low in Moldova with 3.8 percent of men and 2.9 percent of women being unemployed. The labour sector is however very gender-biased and there are for example feminised fields in education, health, and services that result from strong stereotypes and patriarchal models inherited from the Soviet times. The situation has remained unchanged during the years of independence perpetuating the disadvantages that women face who want a professional career.
291. **Women work predominantly in the service sector** (59 percent compared to 42 percent of men), and in education, public administration, health and social assistance (71 percent of women versus 29 percent of men). 36 percent of women work in agriculture in rural areas where other jobs are not sufficiently developed. In agriculture female and male landholders spend similar amount of time on undertaking agricultural activities in the holding – both daily and throughout the year, but women spend on average an additional 4.9 hours a day more than men on household duties.
292. Women work more in low value-added agricultural production sub-sectors, operate on a smaller scale, and more likely to work as family workers. Women entrepreneurs face barriers getting access to bank loans and to state-funded business and entrepreneurship development programmes.⁷⁵ The activity of women in agriculture is correlated with the level of education - the lower the level of education, the higher the rate of women who work in this field: in 2014 93% of women had primary education, 70 percent had lower secondary education, 58 percent had high school or general education, 42 percent secondary education, 29% vocational training and only 10% of women had a higher education degree.⁷⁶
293. **Discrepancies in labour force participation.** Women delay their entry into the labour force for longer and take longer breaks from the labour force. There is a substantial difference in labour force participation between women with and without children (20% in 2014, one of the highest rates in Europe). Moreover, a declining share of women return to work after taking maternity leave. Despite provisions in the Labour Code that prohibit gender bias, it exists in the labour market, partly fostered by restrictive maternity leave policies, lack of flexible work arrangements, and scarce childcare options for children under 3.
294. **Entrepreneurship and livelihoods.** Entrepreneurship can be an important gateway to livelihoods for both men and women, especially in rural areas where employment opportunities are scarcer. Entrepreneurship can give a viable alternative to women who may otherwise opt for migration at a high family and social cost. Women in Moldova are less likely to start a business, and when they do, they are less likely to expand and employ others. Detailed research and policies on women in

⁷⁴ Woman's Law Center, 2015, Men and gender equality in the Republic of Moldova.

⁷⁵ <http://eca.unwomen.org/en/where-we-are/moldova>

⁷⁶ UNDP 2016 National Human Development Report: Inequalities and Sustainable Human Development in Moldova.

business is incipient; available data suggests that barriers include social norms, access to productive assets, and the need for skills such as leadership, management, financial literacy, etc.⁷⁷

The Impact of Migration on Gender Roles

295. Out migration is a big challenge for the government of Moldova as it is the 11th country worldwide in terms of out-migration. In 2013 emigrating women comprised six percent of the population while men 5.3 percent.⁷⁸ Research⁷⁹ shows that intra-family gender roles are significantly affected by migration—particularly when the migrants are mothers. The migration of one or both parents rearranges the division of labour within the family in Moldova. One family member's departure entails handing over household responsibilities to other family members.
296. Migrating mothers appear to have a much greater negative impact on childcare than the migration of fathers. Survey data⁸⁰ suggest that in 14 percent of families with mother-migrants, children believe that no one is taking care of them (compared with only 3 percent for families with 'only' the father abroad). Similar problems are evident in other areas of family life in which women traditionally play significant roles, such as educating children, helping with school work, taking children to the doctor, and supervising children during their leisure time. However, women working abroad have shown to become more self-confident and gain self-esteem. While violence against women is widespread in Moldova, women who have worked abroad seem to be less willing to tolerate abuse by their partners. Instead, they seem more likely to insist that abusive partners change their behaviour; if not, they divorce and try to rebuild their lives.

Gender-Based Power Structures

297. As noted above Moldova is a country with entrenched traditional gender roles. This prevents women from having a say in decisions that affect them and their households. Women are affected by the patriarchal society that leads to both genders predominantly believing that the place for a woman is to take care of the house and children and that it is the man that should have the final say in the household. The power structures extend from the social roles and decision making to physical enforcement as the majority of men believe that violence is the solution to solving problems, particularly if they feel humiliated.
298. Entrenched gender stereotypes are imparted from a young age as they are reinforced throughout the entire educational system and by extension by the labour market and media. The power structures in society are such that the majority of women and men believe that jobs held by women are in fact taking away positions meant for men. The gender-based power structures impact women by creating barriers that impede women from fulfilling their professional ambitions. The number of women in decision-making positions are insufficient for creating a fairer social system for both sexes, this results in women needing to take time out of the labour market for their children at the cost of their own professional ambitions. Women consequently are mostly employed in low paid fields. In agriculture women work as much as men, however the power structures are such that the household responsibilities are additional and overburden women, a point that has been raised in the community focus groups. In the agricultural sector women work more in low value-added agricultural sectors and are more likely to work as family workers. Women entrepreneurs also face barriers getting access to bank loans and to state-funded business and entrepreneurship development programmes.
299. The impact of out-migration is having a detrimental impact on families as women leave their children behind, who in turn are more likely not to be cared for in their mother's absence, despite having a father present. Reversely however, a transformation of gender-based power structures has been observed as women return from abroad with a revised understanding as to the role that women can have in the home and in society more broadly.

Gender Legal and National Strategies Context.

300. Moldova lacks a comprehensive non-discrimination legislation that provides definitions of direct and indirect discrimination, as well as provisions on adequate sanctions, compensation and on shared

⁷⁷ World Bank, 2017 Moldova Country Gender Action Plan

⁷⁸ UNICEF <https://esa.un.org/migmgprofiles/indicators/files/Moldova.pdf>

⁷⁹ Scalabrini Migration Centre (2003). *Hearts Apart: Migration in the Eyes of Filipino Children*.

⁸⁰ Mihail Peleah, 2007, *The Impact of Migration on Gender Roles in Moldova*

burden of proof. However, in relation to discrimination against women, on 9 February 2006 the Parliament of Moldova approved the Law No. 5-XVI on Ensuring Equal Opportunities for Men and Women (Law No. 5-XVI). Article 1 of said Law stipulates that its purpose is to ensure equal rights to women and men in political, economic, social, cultural and other spheres of life - rights guaranteed by the Constitution of the Republic of Moldova - in order to prevent and eliminate all forms of gender-based discrimination. It provides definitions relevant to discrimination of women, including the comprehensive approach to equality between women and men; affirmative action; gender-based discrimination; direct discrimination on grounds of sex; indirect discrimination on grounds of sex; equal opportunities; equality between women and men; sexual harassment; and sex.⁸¹ Below is a table summarising the relevant laws and strategies and the gender analysis.

Document	Gender Analysis
Law 71 2016	Introduced 40% quotas for women in political party lists, and lists for cabinet nominees, also amended 15 other national laws to include more gender-sensitive provisions; for example, prohibiting sexist language and images in media and advertising, allowing a 14-day paid paternity leave, establishing a process for overseeing implementation of the Gender Equality Strategy, etc. However, the implementation and enforcement of the legislation is still weak.
Enforcement of Equality Law (May 2012 No. 121)	The Enforcement of Equality Law prohibits discrimination in the sale or lease of movable or immovable property.
Law on Preventing Domestic Violence (18 September 2008 No. 45-XVI)	Law No. 45 XVI is aimed at strengthening, protecting and supporting the family, to ensure respect for fundamental principles of law in the family, and to ensure equal opportunities between women and men in their human right to a life without violence.
Law on Equality of Opportunities for Men and Women (24 March 2006, No. 5-XVI)	This Law ensures the exercise by women and men of their equal rights in the political, economic, social, cultural, and other spheres of life, rights guaranteed by the Constitution, with a view to preventing and eliminating all forms of discrimination based on the basis of sex.
Civil Code (June 6 2002 No. 1107-XV)	Article 315 of the Civil Code provides for equal ownership rights between men and women for property.
Criminal Code (April 18 2002 No. 985-XV)	Article 201 on domestic violence, established physical or verbal domestic violence as a criminal offence committed by a family member on another family member, causing physical pain, slight bodily injury, distress, material or moral damage.
Family Code (October 26 2000, No. 1316-XIV)	Article 5 of the Family Code guarantees equal ownership rights of property between married women and men.
Land Code (1991, Law No. 828)	The Land Code ensures that land ownership can be awarded to vulnerable groups – including orphans, widows, children and women.
Strategy for Gender Equality for 2017–2021	The Strategy aims to mainstream gender in a wide range of policy areas including health, education, social services, labour market, women, peace and security, climate change and disaster management, political participation, etc.
National Strategy on Preventing and Combating Violence against Women and Domestic Violence for 2018–2023	The Strategy prevents violence against women and domestic violence by cultivating zero tolerance for violence. It combats stereotypes and prejudices leading to violence against women and domestic violence. It informs, raises awareness and encourages the reporting of cases of violence; it strengthens the education system to ensure the education of new generations

⁸¹ Olga Manole, 2011, Discriminatory ill-treatment of Women in Moldova. The Equal Rights Review, vol.6.

	from the perspective of gender equality values and a non-violent communication culture; it strengthens the mechanisms of protection and assistance for victims of violence against women and domestic violence; it develops specialised services for victims of violence, including sexual violence, in line with the international standards; It promotes women's economic empowerment and socio-economic independence; and it provides integrated policies in cases of violence against women and domestic violence, based on multi-sectorial cooperation and data collection, and other specific objectives
National Strategy on Preventing and Combating Trafficking in Human Beings for 2018–2023	The strategy will ensure continuity of the state policy on reforming the national and transnational cooperation between governmental, non-governmental and intergovernmental organisations to implement measures aimed at preventing and combating Trafficking in Human Beings (THB) in order to promote the rights of victims and presumed victims of THB, and gender equality. The Strategy will also contribute to the implementation of the 2017-2019 National Action Plan implementing the RM-EU Association Agreement and the 2018-2022 National Human Rights Action Plan.
National Strategy on Agriculture and Rural Development 2014 - 2020	In addressing the issues related to the inequality between men and women as for holding power and decision making at all levels, the Ministry of Agriculture and Food Industry promotes an active and visible policy of gender mainstreaming. In case of all policies and programs, before taking decisions, an analysis of the effects on women, respectively, on men is carried out. These efforts are aimed at enhancing the participation of women at all levels of decision making.
National Development Strategy 2020	Little gender mainstreaming in the document with the exception that a statement is made that special attention is paid during the operationalisation and implementation process to interrelated aspects, namely gender in the process of action formulation for the implementation of strategy priorities.

301. **The analysis of laws** and discussions with stakeholders revealed that despite the legal framework in place to protect women, there are reports of delays in starting criminal prosecutions as well as the refusal and delays in issuing protection orders. Manfred Novak (UN Special Rapporteur on torture and other cruel, inhuman or degrading treatment and punishment) and Yakin Ertürk (UN Special Rapporteur on Violence against Women) in 2009 highlighted the failure of the law enforcement bodies in Moldova to respond to allegations of domestic violence. They conclude that this discriminates against women in their access to an effective remedy and may constitute complicity in such ill-treatment. In Moldova, crimes of violence against women are not perceived as a problem warranting legal intervention, unless they result in serious injury.⁸²
302. In 2012 The UN Working Group on Discrimination Against Women in Law and in Practice called on the Government to promptly address obstacles to the enforcement of legislation which have undermined women's access to full judicial recourse and remedies, particularly in the area of violence within the home, the community and trafficking. It was concerned about delays in issuing protective orders and in notifying the offenders of such orders; the current impossibility for police officers to issue immediate, short-term protection orders; and reports that the administrative sanctions on perpetrators breaching these orders are usually paid from the family budget or by the victim herself.⁸³
303. **In terms of strategies**, analysis shows that gender has thus far not been mainstreamed in the environmental and climate change strategies and documents, such as in the INDC, the 2016 update report to the UNFCCC, or in the Environment Strategy 2014 - 2023. It is however noted that the

⁸² See reference 81 supra

⁸³ UNHRC Office of the High Commissioner, 2013, End of Mission Statement <https://newsarchive.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=12197&LangID=E>

Gender Equality Strategy of 2017-2021 aims to achieve mainstreaming across a wide range of policy areas, including climate change.

Differentiated Climate Change Impacts on Gender

304. **Globally** there is increasing attention on the differentiated climate change impacts on men and women, and their differentiated capabilities to adapt to these. There is growing evidence demonstrating how the livelihoods of both men and women may be affected differently by climate change, due to culturally established roles such as the gendered division of labour (like caring for children) or land ownership. Currently, however, there are no in-depth studies regarding gender-differentiated impacts of climate change in Moldova.
305. **Women in Moldova** work on average 4.9 hours per day per person in the home. They also carry out many of the same agricultural responsibilities and therefore work longer hours than men as they play a fundamental role in the three components of food security; namely, food availability (production), food access (distribution), and food utilisation. While men also play a crucial role in food production, they face far fewer constraints than women. Men are more likely to have access to productive resources such as land, credit and extension services. In cases of crop failure due to harsh climatic conditions and water scarcity, inherent institutional and cultural gender biases make it harder for women to mitigate these risks for example through access to credit for building climate resilience into the on-farm productive capacity.
306. **Multi-dimensional vulnerability enhanced by climate change.** Socio-economic determinants of vulnerability, including poverty, gender inequality are some of the key factors that keep Moldova and its population vulnerable to the negative impacts of climate change. The reduced agricultural productivity, linked to ongoing climatic changes, land degradation and water scarcity are reducing the quality of agricultural produce that makes them uncompetitive on the national market and consequently unsold and left to rot. This continues to expose the rural poor to perpetual cycles of poverty and increased climate vulnerability. Inequality related to gender, and income inequality are some of the factors that contribute to structural inequality. This inequality predisposes rural communities, including women, to poverty and reduced income that further increases the vulnerability of households and communities to the negative impacts of climate change.
307. In addition to the aforementioned environmental and socio-economic determinants of vulnerability, there are important knowledge, access to finance and governance issues. A key issue is poor access to relevant climate information, which limits the ability of people to plan ahead in dealing with current climate variability, not to mention longer-term climate change. In the absence of adaptation planning, for most farmers, climate change implies lower agricultural outputs, and declining incomes.

Gender-Related Issues Raised from Community Consultations.

308. The project will use the climate vulnerability map to target areas that are most climate vulnerable. The assessment identifies communities that are chronically vulnerable and most at risk to the adverse impacts of climate change. The SADI index (annex 4 of project document) includes those communities that are disadvantaged in terms of employment, access to education and healthcare and with large families. The assessment will also focus on areas with high rates of disability, dependency on state welfare, levels of access to sanitation and water availability among others.
309. A gender-sensitive approach was used for the consultations that contributed to the developing of the AF proposal and which have fed into this Gender Assessment. To ensure inclusive coverage, of the target population, community consultations took place in areas that scored highly on the climate vulnerability map in central and southern Moldova in April 2019. The consultations were organised through village and farmer association leaders with specific instructions to be gender sensitive and to this end requests were made for gender-disaggregated focus group consultations. The women however wanted to be treated on an equal footing as the men and preferred to be part of the same discussions.
310. Targeted questions identifying the women's needs were asked that among other things confirmed that women carry out the same on-farm duties as men while being overburdened by substantial household responsibilities, but also because fewer opportunities through reduced access to land as land is not registered in their name. Other concerns included a lack of access to water for irrigation; reports of inability to connect to sources of water due to absence of tertiary irrigation canals; complaints of insufficient rainfall; inability to sell produce to the national supermarkets; lack of access to affordable

credit due to collateral requirements and high rates of interest; and a lack of advice on market trends and crop diversification. Youth, who had in several cases, returned after working abroad and invested their savings in agricultural enterprises, highlighted their difficulties in accessing credit due to high collateral requirements and rates of interest as they were perceived to be 'high risk'. Some young farmers maintained that they could only access credit and support their farming enterprise if they continued to work abroad for some months. Generally, it was noted that the majority of community members were unaware of the benefits of drip irrigation and of the on-farm adaptive agricultural techniques could have on agricultural productivity.

Project responses to climate change gender inequalities.

311. In view of the differentiated vulnerability of all smallholder farmers to the interlinked challenges of climate change, it is critical to address the developmental needs of increased drought, access to water, land degradation, reduced agricultural productivity and gender discrimination in order to develop and implement a more enabling and gender-transformative environment for addressing climate change. The climate vulnerable areas identified in the climate vulnerability map will benefit from enhanced irrigation water availability and water-efficient irrigation technology that will make sustainable use of limited water supplies to increase agricultural product quality, productivity and sales. By targeting smallholders that have limited access to credit and are dependent on rainfall agriculture, the project beneficiaries will have increased climate resilience capacity to withstand the next drought. Farmers will also increase their household income, leading to increased nutrition and wellbeing.
312. Women in Moldova face specific education and labour market barriers and persistent patriarchal attitudes that limit their educational choices and employment options. Given their increased vulnerability to climate change, the project has set fixed targets for women and youth inclusion. The project will target 40 percent of women which is more than the 36% percent of female participation in the labour force. In doing so it aims to increase the number of women working in agriculture by overcoming identified gender-biased obstacles such as access to finance and support for entrepreneurial development. The target for youth inclusion will be set at 50 percent to help tackle outmigration and rural youth employment. Gender concerns will also be mainstreamed into the youth targets as the project will factor in the family responsibilities of child rearing. Women take out 4-5 years from the labour market to care for their children, project will therefore add 5 years to the age limit of officially being considered young in Moldova from 35 to 40.
313. A gender-transformative approach will be mainstreamed into the design and implementation of the AF project. In this sense, actions and procedures will be identified across all three components aimed at mainstreaming gender and ensuring that it provides women and men with an equal opportunity to build resilience, address their differentiated vulnerabilities and increase their capability to adapt to climate change impacts.

Some specific gender-related activities that will be implemented include:

- The project is geared towards women and youth with the matching grants activity under TRTP, should AF beneficiaries decide to upscale with their newly acquired knowledge. This focus on gender is to compensate for the disadvantages women face in the workforce and the fact more women work in low value-added agricultural production sub-sectors and also face discriminatory practices that include significant wage disparities, segregation into lower-paying occupations and unequal sharing of work and family responsibilities and limited access to childcare. The adult male participants of the project will have access to other cheaper loan options through TRTP (in a separate activity), as will women and youth.
- The project will provide innovative solutions to overcoming obstacles in access to finance faced by all rural poor communities but disproportionately so for women and youth due to the need for collateral and land ownership in securing favourable bank loans. The project will cover 70 percent of the required initial capital investment cost for the drip-irrigation infrastructure – which some of the beneficiaries were unsuccessfully trying to get loans for. This will be further supported through the project's capacity development programme and can be further capitalized upon by the beneficiaries as they have access to the TRTP facilitated financing mechanisms. The TRTP-Adapt pro-poor strategy will also ensure that an escrow account system is put in place as an innovative solution to the lack of capital investment fund needed to pay in advance for the grants for what is expensive drip irrigation technology. This is a further example of how the project is overcoming poverty, gender and youth inclusion barriers.

- The promotion and development of Conservation Agriculture in Moldova is key to combating long-term trends in land degradation. The project will directly support the development of the National Programme on Conservation Agriculture (NPCA) through long-term solutions in mainstreaming CA into the higher-level educational system as well as supporting innovative gender-sensitive and smallholder focused research into CA. These efforts will contribute to sustainable long-term increases in the adoption of CA. CA significantly increases the resilience of rainfed agriculture to drought, improves soil conditions through lowering of soil temperatures, increasing soil humidity and crop yields in comparison with traditional ploughing practices. Reduced/no till, agriculture residues as mulching and crop rotation will significantly improve soil carbon stocks and reduce CO² emissions into the atmosphere. This will furthermore protect biodiversity in and reduce the risk of desertification. Focus group discussions have shown that CA is being increasingly adopted by large-scale farms, hereby demonstrating that there is a commercial future for CA in Moldova. The project will support the future development of CA by designing university and technical college curriculums in CA. An inclusive and gender-transformative approach has been integrated by setting quotas for girls in scholarships and in ensuring that any CA-related research produced by the research institutions will have a strong gender focus.