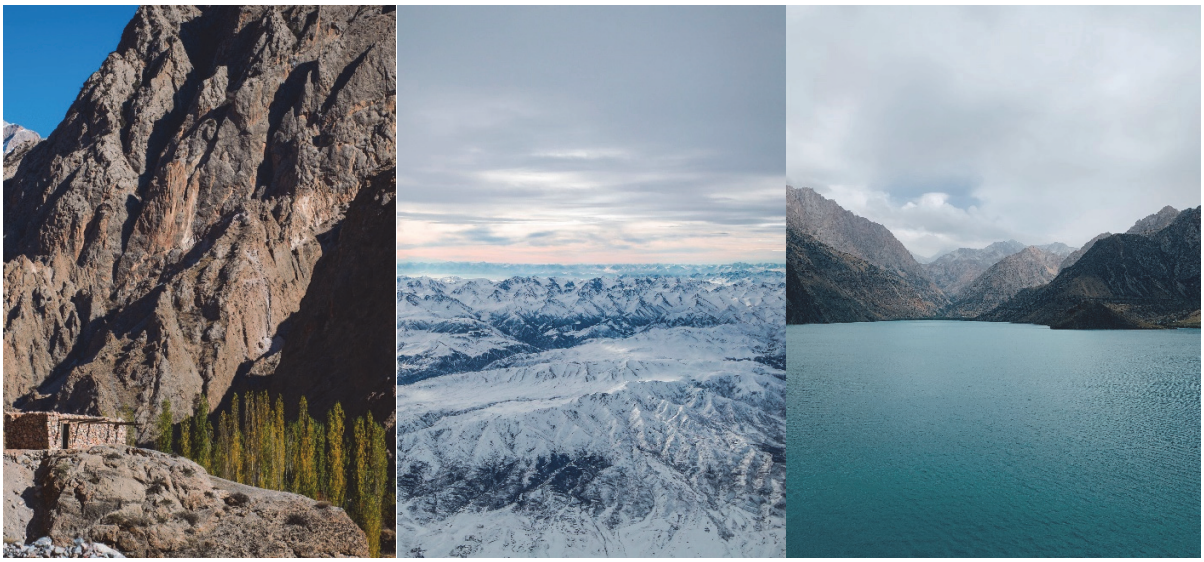
Committee for Environmental Protection
under the Government of the Republic of Tajikistan

CLIMATE CHANGE IN TAJIKISTAN:
SET OF STRATEGIC DOCUMENTS



Dushanbe 2022

Committee for Environmental Protection
under the Government of the Republic of Tajikistan

CLIMATE CHANGE IN TAJIKISTAN:
SET OF STRATEGIC DOCUMENTS

1. NATIONAL STRATEGY FOR ADAPTATION TO CLIMATE CHANGE OF THE REPUBLIC OF TAJIKISTAN FOR THE PERIOD UP TO 2030
2. UPDATED NATIONALLY DETERMINED CONTRIBUTIONS
3. NATIONALLY DETERMINED CONTRIBUTIONS IMPLEMENTATION PLAN

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Committee for Environmental Protection
under the Government of the Republic of Tajikistan

NATIONAL STRATEGY
FOR ADAPTATION TO CLIMATE CHANGE OF THE REPUBLIC OF TAJIKISTAN FOR THE PERIOD UP TO 2030

Dushanbe 2019

Approved
by the Decree of the Government of the
Republic of Tajikistan
October 2, 2019, #482

NATIONAL STRATEGY FOR ADAPTATION TO CLIMATE CHANGE OF THE REPUBLIC OF TAJIKISTAN FOR THE PERIOD UP TO 2030

Dushanbe- 2019

LIST OF ABBREVIATIONS

ADB	- Asian Development Bank
AF	- Adaptation Fund
GDP	- Gross Domestic Product
GCC A	- Global Climate Change Alliance
GEF	- Global Environment Facility
DID	- Department of International Development
EBR D EC	- European Bank for Reconstruction and Development
EU	- European Commission
GCF	- European Union
NSA G	- Green Climate Fund
CIF	- National Strategy Advisory Group
CoEP	- Climate Investment Funds
ICF	- Committee on Environmental Protection
M& E	- International Climate Fund
NDS-2015	- Monitoring and Evaluation
NGO	- Small Island Developing States
NDA	- National Development Strategy of the Republic of Tajikistan for the period up to 2015
NSAC C	- Non-governmental organization
MDP 2016-2020	- National Designated Authority
PPCR	- National Strategy for Adaptation to Climate Change
UNDP	- Medium-term Development Program of the Republic of Tajikistan for 2016-2020
UNFCC C	- Pilot Program for Climate Resilience
UKGB& NI SCCF	- United Nations Development Program
TACB	- United Nations Framework Convention on Climate Change
	- United Kingdom of Great Britain and Northern Ireland
	- Special Climate Change Fund
	- Technical Assistance for Capacity Building
	- Environmental and Social Safeguards

GENERAL PROVISIONS

1. The National Strategy for Adaptation to Climate Change of the Republic of Tajikistan for the period up to 2030 further - NSACC was developed on the basis of the provisions of the Constitution of the Republic of Tajikistan, the Law of the Republic of Tajikistan, Article 18 of the Constitutional Law of the Republic of Tajikistan "On the Government of the Republic of Tajikistan" and from the speech of the President of the Republic of Tajikistan, Leader of the Nation, His Excellency Emomali Rahmon at the Conference of the Parties of the United Nations Framework Convention on Climate Change (COP-22) in Paris and at the plenary meeting of the 72nd session of the United Nations General Assembly.

2. Speaking at the 21st Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC) in Paris, France, on November 30, 2015, the President of the Republic of Tajikistan, Leader of the Nation, His Excellency Emomali Rahmon noted that although the share of the Republic of Tajikistan in the volume of greenhouse gas emissions on a global scale are small, however, Tajikistan is one of the most climatically vulnerable countries in the world to the impacts of climate change.

3. Tajikistan ranks first among the countries of Europe and Central Asia in terms of the calculated simplified index of vulnerability to climate change, being a particularly sensitive country according to this criterion due to its low adaptive capacity. Given the aggravation of existing problems and the emergence of new risks, climate change is likely to act as a barrier to Tajikistan's achievement of its priority development areas.

4. The risks associated with climate change and adaptation measures to reduce the consequences of these risks for the population and key sectors of the economy are important elements of the National Development Strategy of Tajikistan for the period up to 2030. Pending the signing of an international climate agreement at the Conference of the Parties of the UNFCCC (COP-21) in December 2015 in Paris, Tajikistan has prepared an Intended Nationally Determined Contribution that assesses climate trends and develops various scenarios for further action to reduce emissions. Tajikistan signed on April 22, 2016 and the country's Parliament ratified the Paris Agreement on February 16, 2017.

5. The National Strategy for Adaptation to Climate Change (NSACC) also takes into account the international obligations of the Republic of Tajikistan on the Agenda for the 21st Century and the Sustainable Development Goals (SDGs) related to combating climate change approved by the 70th session of the UN General Assembly in September 2015. The main focus of the SDGs is the concept of sustainable human development. Based on this, the complete eradication of poverty, the change of unsustainable and the promotion of sustainable patterns of consumption and production, the combat against

climate change for further economic and social development are the main tasks and vital conditions for

Sustainable Human Development.

6. The impacts of climate change are appeared at all systemic levels: global, regional, subregional, national and local levels. Climate change in Tajikistan, given its geographical location, exceptional diversity of climatic conditions, economic structure, demographic characteristics and geopolitical interests, requires the early development of a comprehensive, balanced approach to climate problems and related issues based on a comprehensive scientific analysis of the environment, economic and social factors.

7. National consultations on the development of the NSACC as priorities, identified four sectors that are both climate sensitive and priority for development:

(1) energy, (2) water resources, (3) transport and (4) agriculture, and also included seven intersectoral areas: (1) health, (2) education, (3) gender, (4) youth, (5) migration, (6) environment, and (7) emergencies.

8. The NSACC can contribute to the formulation and implementation of Tajikistan's climate change and adaptation policy. It is aimed at supporting economic growth and accelerating the modernization of all sectors of the economy, diversifying and strengthening the global market, as well as increasing the competitiveness of the Tajikistan economy by increasing the country's adaptability and energy efficiency. The NSACC will allow the country to adopt a more comprehensive and dynamic approach to planning the sustainable development of the country as a whole, and in particular, its economy, and to take into account medium and long-term forecasts of climate change and variability.

9. At the international level, the NSACC will become a key instrument for Tajikistan to push and promote its negotiating position in the UNFCCC, reporting on the implementation of the obligations undertaken under the UNFCCC and further planning of the national economy in the context of climate change.

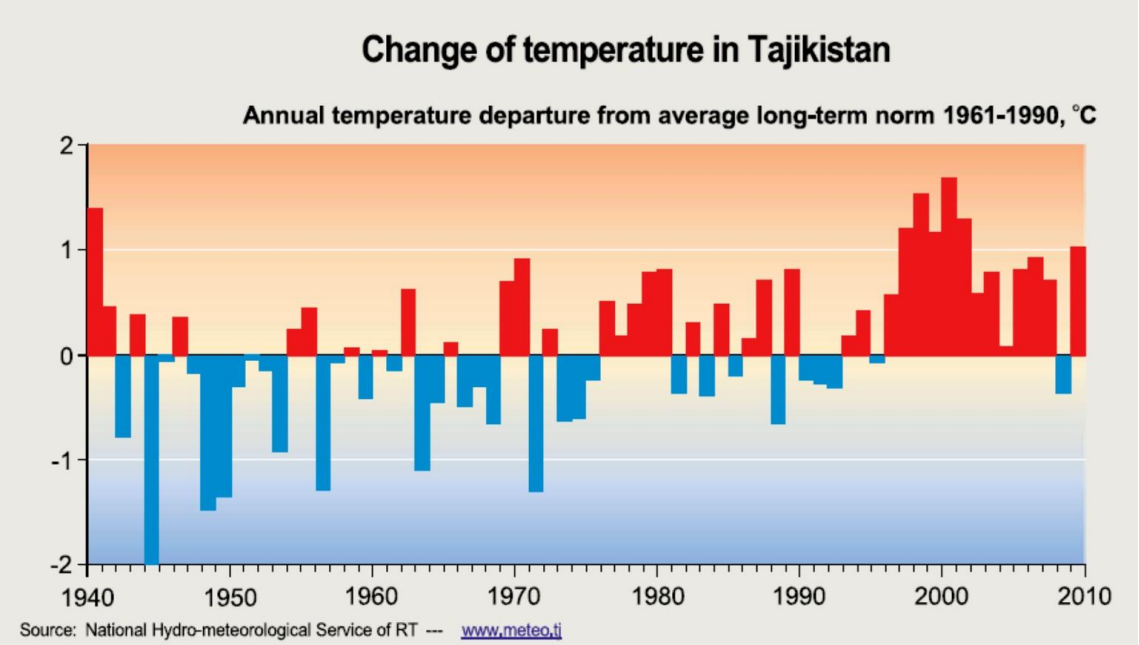
CHAPTER 1. CLIMATE CHANGE AND ITS THREATS TO TAJIKISTAN

§ 1. Historical trends in climate variability

10. Climate change causes great problems for Tajikistan, since the country is highly susceptible to it and has a relatively low ability to adapt. The World Bank lists Tajikistan as the most vulnerable country in Central Asia. Out of 180 countries ranked by the University of Notre Dame's Global Adaptation Index, Tajikistan ranks 111. Tajikistan ranks 78th among the most vulnerable countries and 52nd among the less prepared countries. Compared to other countries in the index, its current state of vulnerability is manageable. However, an improvement in the readiness indicator is necessary, if it would be done, in order to become better adapted to future climate changes and climate-related difficulties. In the index of long-term climate risks, Tajikistan ranks 29th.

11. In the period from 1940 to 2017, Tajikistan experienced a temperature increase of 0.1°C-0.2°C for each decade of this period. The number of days with a temperature of 40°C and above is growing (Figure 1). The greatest temperature increase was observed in Dangara (1.2°C) and in Dushanbe (1.0°C). Mountainous areas experienced an increase of 0.3°C-0.5°C, while in alpine areas the increase was 0.2°C-0.4°C. The latest warming trends recorded in the period 2001-2010 show that the average temperature for each decade was 0.8°C higher than the average for areas located at 1000-2500 m above sea level. In the alpine zone, the observed increase was 0.2°C above normal. Temperatures were higher on average by 0.1°C-1.1°C in winter and by 0.1°C-1.3°C in spring. The autumn temperature in all mountainous areas exceeded the average by 0.6°C-1.1°C.

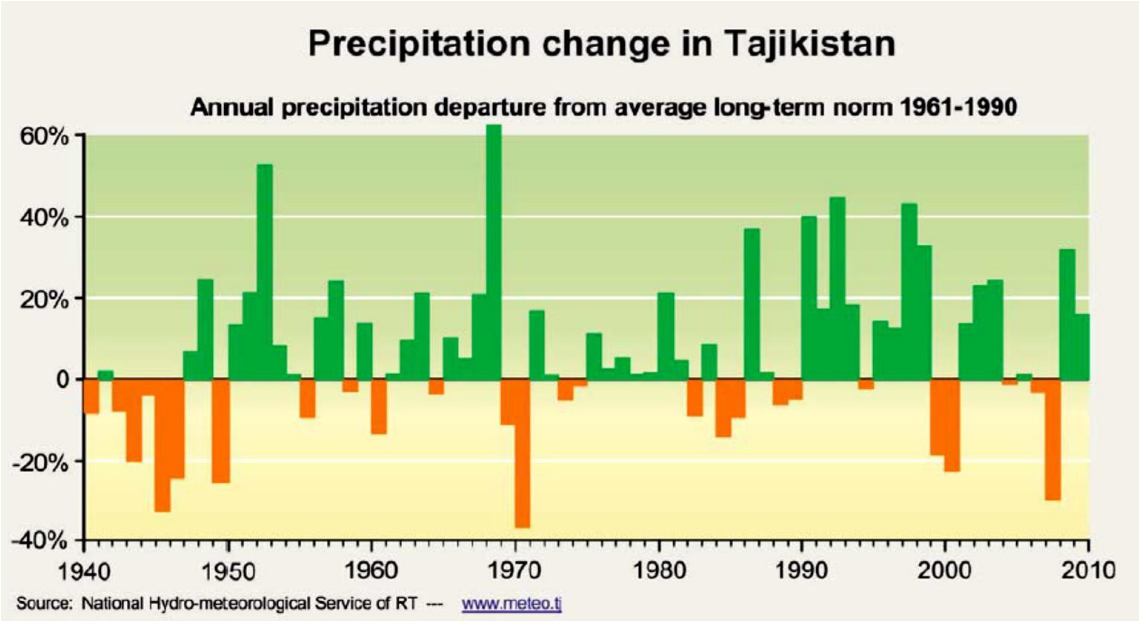
Figure 1. Changes in temperature in Tajikistan



12. The observed changes in the duration of the frost-free season, defined as the number of frost-free days (days exceeding 0.2°C) during the year, reflect an increase in the number of seasonal temperatures. Frost-free days reflect the warming trends of winter temperatures. Every year there were 5-10 more frost-free days. The days when average temperatures are recorded above zero now fall in early spring and late autumn.

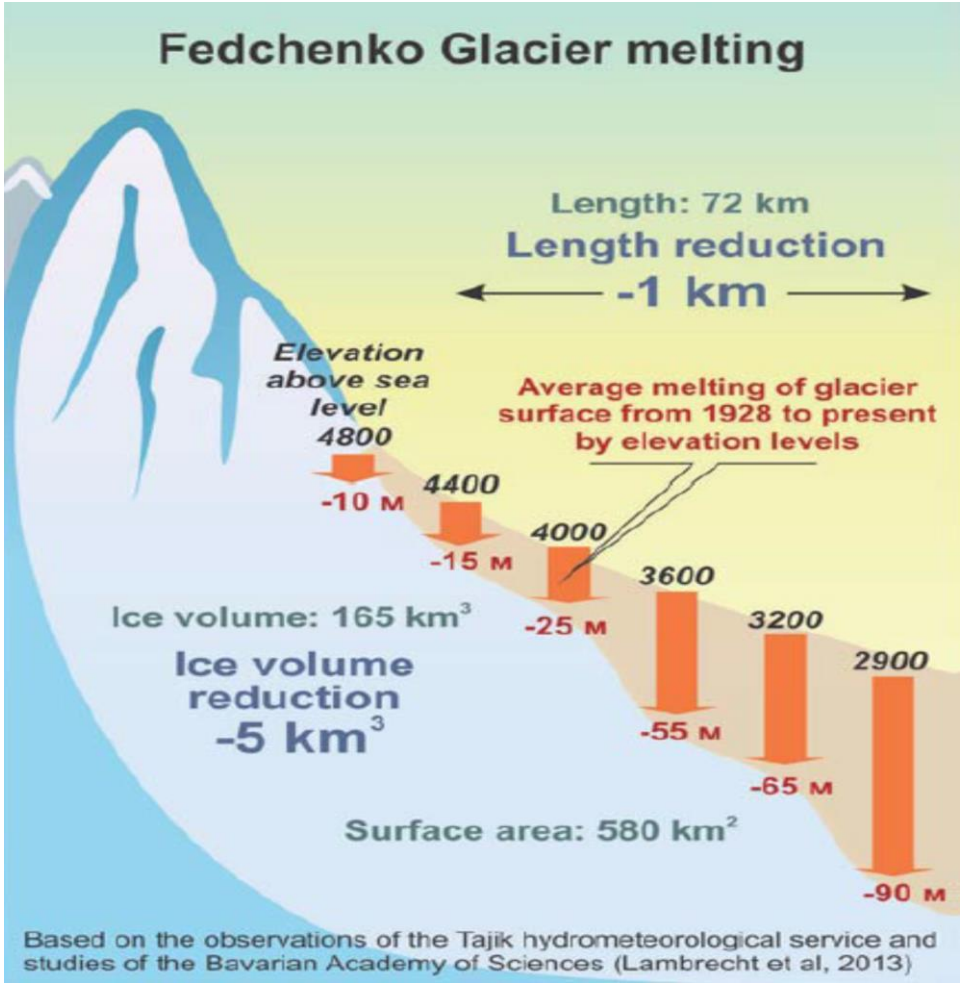
13. The volume of annual precipitation increased between 1940 and 2017 by 5% -10%. The highest amount of precipitation was observed in 1969. There was a relatively significant increase in precipitation during the summer periods from 1976 to 2017. In most regions of the republic, the number of days with a precipitation intensity of 5 millimeters or more has increased, especially in the central high-altitude areas. The number of days with heavy precipitation (30 mm per day) increased in the foothill areas of the country, such as in the Hissar Valley. The number of rainy days has increased, and the number of snowy days has decreased. The rainiest years were 1969, 1998, 1999, 2011 and 2016, with more frequent mudslides. In 1998, due to a mudslide, more than 7,000 houses were destroyed and more than 130 people died. Avalanches are causing growing concern. In 2002-2017, avalanches caused the death of more than 74 people. In 2010 and 2017, avalanches blocked the strategic road connecting Dushanbe with the north of Tajikistan.

Figure 2. Changes in precipitation in Tajikistan



14. The ongoing melting and retreat of glaciers associated with climate change is a concern for Tajikistan, since glaciers and snow reserves in Tajikistan are the main sources of irrigation water. Approximately 30% of the ice sheet has been lost since 1930; the current melting rate is 0.5% -0.8% loss in annual terms. The largest glacier in Tajikistan, the Fedchenko Glacier, retreated to a distance of 1 km, and lost about 5 km of ice since the beginning of the twentieth century (Figure 3). Small glaciers in the lower reaches are getting the greatest impact from climate change and are melting at an unprecedented rate. For example, in Diakhandarya, a glacier with a surface area of less than 1 km2, located in the upper reaches of the Karatag River, completely melted. The size of the Zeravshan Glacier decreased by 10% between 1927-2010, and retreated by 2.5 km.

Figure 3. Melting of the Fedchenko Glacier



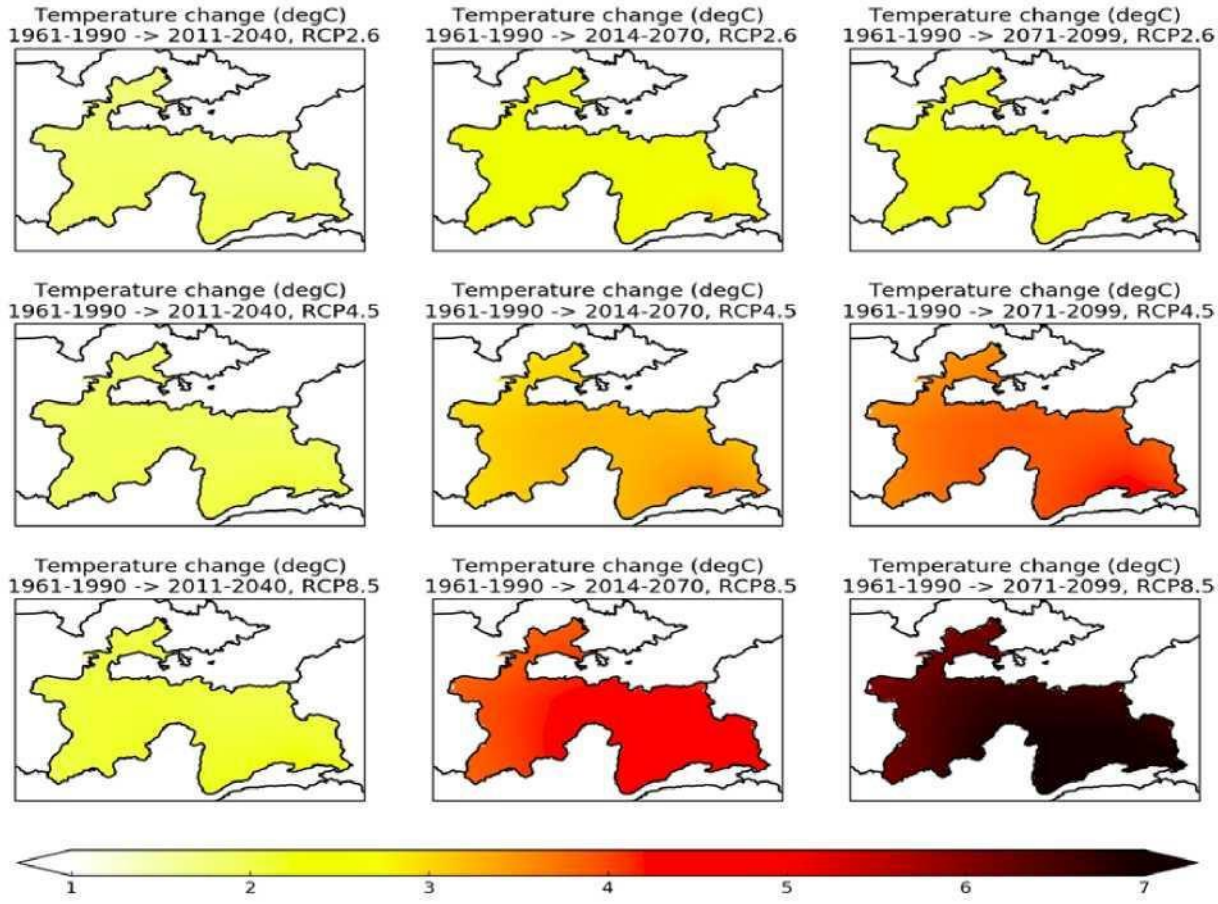
15. The wind speed has gotten stronger over the years. Wind speeds equal to or exceeding 15 miles per second are observed at weather stations in narrow mountain valleys (for example, Khujand and Faizabad), in mountain passes (for example, the Anzob pass), as well as on a high plateau (for example, the Eastern Pamir). The number of days with westerly winds decreased as a result of less intrusion of cold westerly air, but the number of days with easterly and northeasterly winds increased.

§ 2. Future scenarios of climate change

16. According to Tajikistan's Third National Communication to the UNFCCC, climate change is expected to cause (i) an increase in air temperature, (ii) greater variability in precipitation, (iii) accelerated melting of glaciers, and (iv) an increase in both frequency and and the magnitude of extreme weather events caused by climate. More detailed details of the projected changes in climate are as follows:

- **air temperature scenarios.** Compared to 1961-1990, by 2030, annual average temperatures will increase by 0.2°C-0.4°C in all regions of the country; this is in line with trends observed over the past 15-20 years. In winter, the maximum expected temperature rise is around 2°C. In summer and winter, the temperature will rise even in Pamir and in the Hindu Kush mountains. In fact, temperatures in mountainous areas will rise at a faster rate than in flat and arid areas. By the end of the 21st century, according to the scenario, warming is expected to exceed 5°C in the southern regions of Tajikistan, as well as in the mountains of central Tajikistan and the western Pamir (Figure 4);

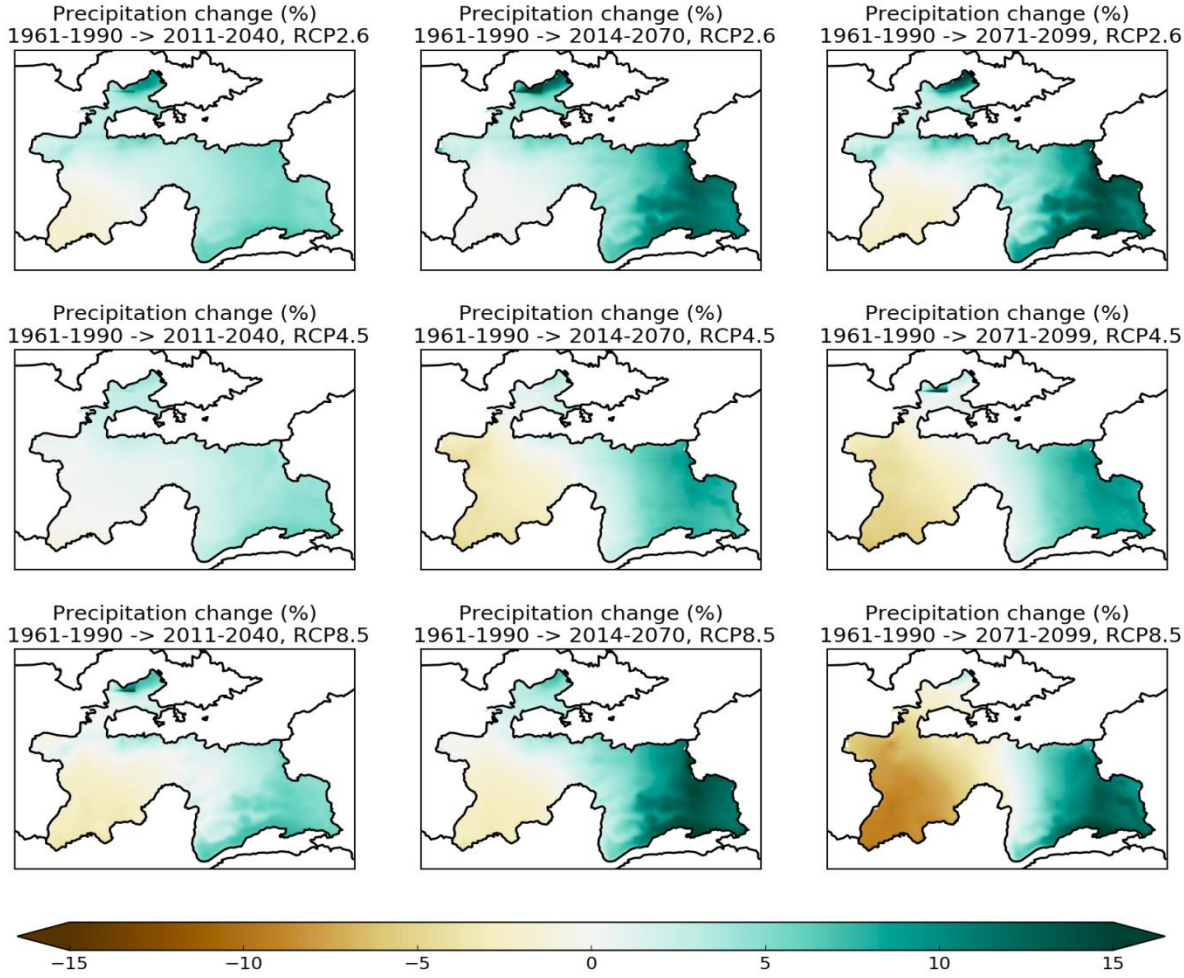
Figure 4. Predicted temperature change



- **precipitation scenarios.** Precipitation scenarios are developed based on three emission scenarios (A1B, A2, B1) and it is assumed that there will be no significant changes in precipitation in large river basins, such as the

Vakhsh and Pyanj (Figure 5). However, changes in maximum and minimum precipitation levels will increase, as the amount of rain precipitation increases and the amount of snowfall decreases. The scenarios assume that there will be large changes in the intensity of precipitation and its geographical distribution, with a decrease in annual precipitation in the southern regions of the country. According to forecasts, summer times will be wetter and winter times will be dry, which can lead to floods and longer periods of drought;

Figure 5. Predicted amount of precipitation



- **drought tendency.** The projected increase in temperature will increase the risk of drought due to higher levels of evaporation and early snowmelt. For example, by the middle of the 21st century, in the densely populated Fergana Valley, precipitation is predicted to increase by 10 mm, and evaporation by at least 70 mm;
- **- the retreat of the glaciers.** Glacial zones are projected to decrease by 15% -20% compared to the current level, while according to forecasts based on the current rate of glacier retreat, most of the small glaciers in Tajikistan will completely disappear in 30-40 years. The reduction of the number of glacial zones will have a significant impact on the fresh water reserves in the

Zarafshan, Kafernigan, Karatag and Obikhingou rivers, which will further exacerbate tensions over the rights to use water resources, both inside and outside the state borders;

- **river flow.** The recently observed increases in river flows are unlikely to continue until the middle of the 21st century in the rivers of the Western and Eastern Pamir (the Pyanj River basin). In the absence of adequate preventive measures, climate change can increase the average temperature of the basin from 0.7°C to 1.40°C-3.0°C by the middle of the 21st century and reduce the volume of glaciers by 50%-70%;

- The flow in the Vakhsh basin are projected to increase by the middle or late 21st century. The models also predict a 10% -20% decrease in river surface and flow. Moderate scenarios predict a 5% -10% increase in surface flow by the middle of the 21st century. In the Vakhsh River Basin, the average annual temperature is projected to increase from 3.3°C to 6.9°C in the middle or at the end of the 21st century.

17. Higher levels of temperature and precipitation will have a cascading effect on climate-sensitive sectors such as water, energy, agriculture and transport. For example, an increase in tension over water, due to climate change, will negatively affect the overall growth of productivity in agriculture. Agricultural yields could fall by up to 30% by 2100 in some areas of the country, potentially affecting about 2 million people who are below the food security line, and of which 800 thousand are directly at risk of hunger.

18. The threat to food security caused by climate change will increase if measures are not taken, as more people will live in areas that are highly vulnerable to climate change and extreme weather events. By 2050, the population living in climatically vulnerable territories will increase by 77.2% (Table 2).

19. Impacts may also be lower than predicted, given that countries, including Tajikistan, are committed to meeting their expected nationally determined contributions. Tajikistan aims to reduce GHG emissions by 65% - 75%, which will amount to 1.2-1.7 tons of CO2 equivalent per capita by 2030, through investment projects and national programs in the field of energy, transport, agriculture, forestry, water resources management, disaster risk reduction, promotion and diversification of renewable energy sources, reduction of energy losses, modernization and new technologies.

§ 3. Losses related to climate change

20. Extreme climatic events (such as floods, droughts, avalanches, landslides) periodically destroy land, crops, infrastructure and sources of income. Annual losses from climate change and extreme climate events are estimated at US $ 600 million, or 4.8% of Tajikistan's gross domestic product (GDP). The losses caused by climate change will increase with an increase in

the level of temperature and precipitation. By 2030, the average temperature is projected to increase by 2.3 °C. The average amount of precipitation is likely to increase by 8% in areas located up to 2500 m above sea level and decrease by 3% in mountainous areas. Climate change can harm Tajikistan by affecting a number of different social, cultural, economic and natural resources. More frequent extreme climatic events can adversely affect the functioning and stability of both anthropogenic and natural systems, as well as further aggravation of climate-induced damages and losses. Unless reliable measures are taken to reduce vulnerability and increase adaptation, the country is likely to experience significant additional economic losses, humanitarian problems and environmental degradation.

21. Tajikistan's high dependence on climate-sensitive sectors makes the country extremely vulnerable to climate change and extreme weather events. The lack of human and institutional capacity to effectively reduce and manage the risks and impacts of climate change makes it extremely difficult to reduce vulnerability to climate change and create the levels of resilience necessary to overcome the impending climate challenges. Projected climate change can not only reverse the development gains made in the past, but also plunge more people into extreme poverty, reducing agricultural yields, increasing the cost of food and increasing the spread of vector-borne diseases.

22. Some parts of Tajikistan may experience a 30% drop in agricultural yields by the end of this century. A decrease in agricultural productivity and pasture productivity will negatively affect the nutrition of the population. Changes in biodiversity and ecosystems can cause infectious diseases and outbreaks of diseases that spread through water and food. When preparing Tajikistan to deal with dangerous climate threats and impacts, more in-depth knowledge of likely situations and adaptation options is needed to reduce their harm. Successful adaptation to climate change at the country level depends on several factors, such as adaptation projects that require joint work of both national and local authorities and public figures, as well as the availability of funding and effective exchange of climate information between sectors for planning activities and investment decisions.

§ 4. National risks and threats of climate change

23. The Program on Climate Risk Management in Central Asia (CA-CRM) has prepared the results of a joint assessment of climate risks in Tajikistan in 2014. This report assessed and predicted a) the potential damage from each type of climate-related natural disasters, broken down by regions of Tajikistan; b) the vulnerability of the population and the impact on it, broken down by regions and sectors of the economy; c) the frequency of incidents (the period of recurrence) of each climate-related phenomenon, by region; d) projected losses

from each climate event in US dollars for the year, by region for the period 2015 and 2030.

24. 24. The CA-CRM workshop made an assessment throughout the country, during which climate and natural disasters were ranked in descending order of priority:

- pasture degradation
- temperature reduction and freezing
- dust storms
- drought
- hurricanes
- temperature increase
- agricultural insects
- mudflows
- duration of snow cover
- heavy precipitation
- landslides
- floods and seasonal flooding
- avalanches
- waterlogging

25. Based on an analysis by region, impacts and frequency of natural disasters, the cost of nationwide damages per year from climate change is estimated to increase annually from $ 50.4 million in 2014 to $ 132.3 million in 2030. Despite the fact that rising temperatures, drought and degradation of pastures over time cause the largest annual losses, from 2014-2030, rising water levels and floods, agricultural pests, avalanches, landslides and mudslides are expected to collectively bring the most serious increase in annual losses.

§ 5. Impacts by industry

26. Knowledge about the impacts and disruptions caused by climate change at the national level is necessary to better prepare for climate change, but more importantly, have a deep understanding of climate change issues and impacts on priority climate-sensitive areas that are crucial for the overall development of the country. It is important to provide informal leaders, politicians and the public with the most complete available scientific data to make decisions on adaptation options to climate change. Thematic Working Groups (TWGs) identified priority and climate-sensitive industries (energy, water resources, transport and agriculture), industry impacts, as well as climate change adaptation options and investment projects for each priority industry.

27. Many of these industries and problems intersect. As a result of the climate change risk management framework discussed below, additional cross-

sectoral categories have been selected for consideration and inclusion in the NSACC. They should be considered for individual investment projects.

28. In Tajikistan, the areas of electricity production and transmission are sensitive to climate change and extreme climatic events. Since energy and water systems are interconnected, changes in precipitation, a high risk of drought, a reduction in snow cover and different snowmelt times can negatively affect the production and supply of electricity. For example, the melting of permafrost and strong winds can damage power lines and negatively affect the distribution of electricity throughout the country.

29. Agriculture, which is another priority sector on which a significant part of the population of Tajikistan depends, as a source of purchasing means of subsistence, income and employment, may suffer from climate change. Droughts caused by climate changes, reduction of rain-fed lands, reduced yields and production, as well as crop failures and losses in livestock production can negatively affect farmers in Tajikistan. Rising temperatures and changes in precipitation patterns may force farmers to leave their land in search of more suitable agricultural areas. Higher evaporation rates may cause farmers to spend more water to grow the same variety, and the volume of agricultural crops in new cultivation sites. They may have to change their traditional growing methods and the number of crops they receive in order to adapt to longer growing seasons. Reduced water supplies in dry areas can potentially lead to significant economic losses for farmers, especially small farmers who are already facing the consequences of climate change and extreme climate events.

30. The transport sector may also be directly affected by the impacts of climate change due to infrastructure problems. Roads and railways will be subject to more frequent or severe flooding. Increased precipitation and flooding can accelerate the deterioration of road infrastructure (for example, wells due to the loss of hydraulic locks). In the highlands, melting permafrost can damage roads and bridges. Due to the increased temperature and solar radiation, asphalt can become brittle and crack, which will lead to temporary or permanent road closures.

31. Climate change will affect other important industries, including health, gender roles, biodiversity and education. For example, it can lead to more common cardiovascular, respiratory and infectious diseases such as diarrhea, hemorrhagic fever and malaria. Internal displacement and migration caused by climate change, combined with increased household workloads for women, can negatively affect gender equality and justice in the country. The loss of agrobiodiversity may worsen food security, which is already a serious threat in Tajikistan. Infrastructure problems caused by climate change can negatively affect access to education, as this can make it difficult for teachers and students to get to schools and other educational centers.

32. The identification of climate risks and impacts is one of the most important components of an iterative risk management system, which is useful

for decision-making in complex situations characterized by large potential consequences, persistent uncertainties, long time frames, potential for learning, as well as numerous climatic and non-climatic impacts that change over time. Knowledge about climate risks is important for a proper understanding of climate variability and the development of adaptation measures to manage future climate risks and impacts. Knowledge of the historical interactions between climate threats and society, including adaptation measures that have been developed to cope with these threats, is an important initial step in developing adaptation measures to manage future climate risks.

33. Potential risks and associated impacts and adaptation options were identified and reviewed by ministries and consultants of the Technical Assistance for Capacity Building (TACB) project funded by the Asian Development Bank (ADB) and approved by the Committee on Environmental Protection (CoEP). This was done for each priority sector and each intersectoral area of activity or sub-sector. The purpose of this work to identify risks, impacts and adaptation options was to: (a) brainstorm to discuss all possible climate risks for the sector; (b) identify all possible impacts or losses associated with each risk; and (c) find a number of adaptation options to prevent or mitigate impacts. Below is an example that has been prepared for agriculture.

Agricultural risks:

- increase in average temperature
- more frequent extreme temperatures
- extreme precipitation
- droughts
- seasonal changes in river flow
- possible disappearance of glaciers and reduction of water flows
- increasing weather variability
- changes in the time, scale, distribution of rainfall and precipitation
- frost and thaw cycles
- dust storms
- water scarcity
- changes in the population of agricultural insect pests and vectors of dangerous plant diseases
- shifts in seasons
- cold weather temperature changes

Agricultural impacts:

- increased need for irrigation due to drought
- reduced yields and potential yields, losses in pasture and agriculture
- changed growing conditions and seasons
- increased crop losses due to insects and diseases
- food insecurity, hunger, malnutrition and poverty

- loss of sources of livelihood and income in the village
- impact on all elements of the food system from production to consumption, especially grain
- increase in local and regional food prices
- possible relocation from own land
- loss of productive land due to land degradation caused by climate
- increased demand and costs for irrigation
- failures in the work of farmers and labor
- volatility in commodity prices

Adaptation options for agriculture:

- to study, disseminate and implement more effective methods of water resources use and storage practices
- increase water availability through small reservoirs or other sector projects
- improve irrigation efficiency by improving irrigation infrastructure, rehabilitation and maintenance, drip irrigation for more valuable crops, land leveling
- adapt and implement local knowledge systems and practices
- research and spread drought tolerant seeds and skills
- promote soil improvement and erosion protection, water resources and drainage systems management
- improving vertical drainage on farms to reduce soil salinity
- structural and vegetative measures such as terracing, water harvesting on a small scale to increase productivity and reduce erosion and related impacts
- to ensure the improvement of the quality of research and the expansion of agricultural services through small mobile units on farms and the expansion of farmers' access to information, skills and technology
- introduce crop diversity and plant breeding knowledge, other varieties, planting methods, plant protection from freezing and drought, or salt-resistant plants
- provide communities and farmers with a “tool kit” of appropriate planting options applicable to the predicted seasonal forecast for rain and water availability (see Adaptation of Water Resources)
- provide free land as test plots where farmers can experiment with new seeds, water management practices, and other recommended
- practices. (Government agencies have special tests for varieties in accordance with international standards.)
- provision of microcredits
- improving the yield and storage of products in order to reduce losses

- promoting the reuse of water on farms or reuse from other sources planting trees as a natural protection of the community and farm from the wind
- implement programs and incentives to expand agriculture in areas where conditions are projected to be more suitable to changing climate conditions
- assistance in improving the education of farming families so that they can diversify the sources of family income
- diversify options for crop insurance against drought
- improvement of irrigated lands and wetlands
- supporting farmers to grow traditional crops during a drought
- creation of insurance stocks of seeds and principles for their control
- train farmers on emergency prevention and response

34. Based on a literature review and stakeholder consultation, NASAG members have identified the climate risks and impacts faced by Tajikistan's priority sectors. The CoEP reviewed and approved the list of adaptation risks and impacts. They were subsequently prioritized by the participants in the first national consultation workshop, which included members of the NASAG, academia, technical experts, civil society, employees of relevant ministries/departments, independent experts, etc. Risk prioritization participants were selected based on their specialization and industry (energy, water, agriculture, transport, health, environment, education, etc.) and their ability to understand the severity of the risks and impacts faced. Scoring, risk and impact verification were based on subjective expert judgments. Participants were asked to assess and verify risks, taking into account: (a) the nature of the impacts (loss of lives, disease, obstacles to economic development, etc.), (b) the order of magnitude of the potential impact of climate change, (c) the likelihood, the ability and level of confidence, and (d) the urgency of action.

35. Ranking the risks of climate change in accordance with priority sectors and intersectoral spheres of activity of Tajikistan could be a starting point for policy makers to develop sectoral plans and frameworks necessary to reduce the climate risks and impacts faced by priority sectors and intersectoral spheres of activity. Risk ranking is important both from the point of view of limited resources and risk management. For a country with limited resources like Tajikistan, if the risks have a low assessment and do not pose a serious threat to human lives, development and well-being, in this case there is a low incentive or measurable reason for allocating limited resources to manage these risks.

36. In addition to the issue of understanding the climate risks faced by priority industries, it is also important to understand how sectoral risks are ranked among themselves. This helps to design and build a sequence of adaptation interventions that can reduce the climate vulnerability faced by more than one sector. For example, knowledge of how hydrological factors of water supply interact with changing water demand patterns and evolving water

management practices helps to better understand the risks of drought and plan the effectiveness of adaptation and mitigation options. Identifying and prioritizing risks and impacts is important because efforts to respond to climate change must be based on local perceptions of climate risks and existing strategies to address them. Risk information is essential to support adaptation. It helps policy makers identify appropriate risk management and adaptation methods, and prepare action plans and programs.

37. As a second step in the selection process, priorities on the impacts of climate change on sectors and intersectoral areas of activity were identified by the members of the NASAG, as well as participants from academia, civil society and development partners.

38. The identification and ranking of climate risks and impacts helps organizations gain a better understanding of the risks of climate change for various sectors and develop effective plans and programs for adaptation to climate change. For example, information about the impact of warmer temperatures and changes in precipitation patterns may encourage transport and civil engineers in the Ministry of Transport to responsibly plan and manage the country's transport infrastructure, better understand the ways of climate impacts and indirect effects of changes in the sector and design climate-resistant road infrastructure. The literature argues that adaptation occurs autonomously and gradually in many ways, often as a response to the impacts of climate change.

39. The impacts of climate change are key elements of adaptation and have a more prominent role in the early stages - in planning and implementation. The degree of certainty associated with the planning of various climatic parameters is important for the development of appropriate measures in the field of adaptation to climate change, but what is equally important if in natural and social systems any impacts from these changes will no longer be significant. In order to make decisions about how much they should invest in planning or updating adaptation responses in particular, development project officers often need to rank impacts. The identification and ranking of climate impacts is also important to ensure that there is a close relationship between the goals of the NSACC, current disaster risk management goals and national development goals.

CHAPTER 2. NEEDS AND OPTIONS FOR ADAPTATION TO CLIMATE CHANGE

40 Needs for adaptation to climate change (or adaptation needs) refer to circumstances that require a new or different set of information, resources and actions to ensure the safety of property and the public. Adaptation needs are the gaps between what can happen as climate changes and what we would like to see happen. Gaps can be: information needs, capacity needs, financial needs, institutional and technological needs. The adaptation needs of a country, region or city often include the combination of resources, capacity, information, finance, etc., necessary to effectively implement adaptation options to mitigate climate change impacts. The availability of information, access to technology and funding determine the successful implementation of adaptation activities. Identifying adaptation needs in the NSACC is important because local governments play a significant role in enhancing adaptation, but often do not have the time or experience to identify adaptation needs or options. They often face multiple challenges, such as backlogs in the provision of basic and essential services such as housing and water supply, which limit their ability to identify needs and continue with adaptation options.

41. As a second step in the selection of adaptation measures, the Technical Assistance for Capacity Building (TACB) consultants and members of the National Adaptation Strategy Advisory Group (NASAG) identified adaptation needs and options by sector. The needs and adaptation options were assessed based on stakeholder analysis and expert assessment. The TACB consultants and NASAG members identified adaptation needs and options in Tajikistan based on a literature review and stakeholder consultation. A list of adaptation options were reviewed and approved by the CoEP.

42. Assessment and verification were carried out on the basis of subjective expert assessments. Participants were asked to assess and verify options, considering: importance (i.e. effectiveness in preventing destruction associated with climate change), urgency (i.e. need to implement adaptation option immediately or whether it is possible to postpone the event to a later date), availability of low costs or no cost (adaptation options that benefit regardless of future climate change) and cross-sectoral co-benefits (options that have the potential to reduce climate change vulnerability across cross-sectoral areas and generate additional unrelated benefits with climate change).

43. Some adaptation options are better than others because they provide cross-industry benefits. For example, cross-sectoral adaptation options such as Integrated Water Resources Management (IWRM) and ecosystem-based adaptation are considered more effective than autonomous efforts to reduce climate-related risks. In this case, priority is given to adaptation measures having "low cost" and "medium cost", which combine high adaptive potential and high technical feasibility. The reason for preferring higher priority to "low

cost” and “medium cost" approaches is that they will not so much reduce climate risks, but rather provide other social, economic or environmental benefits. The adaptation options listed below served as the basis for the proposed investment projects in the field of adaptation to climate change.

§ 1. Energy sector

44. Tajikistan's energy sector is extremely vulnerable to climate change and extreme climatic events. Its vulnerability is of concern due to its heavy dependence on the hydropower sector for energy production: more than 98% of Tajikistan's electricity is generated by hydroelectric power plants. Hydroelectric power plants account for 93.9% of the total installed capacity, which generate 16.5 billion kilowatt-hours (kW) of electricity. Since most hydroelectric power plants were built several decades ago, their existing level of productivity may decrease with increasing risks and impacts of climate change if they do not provide for climate change resilience. Climate changes and extreme climatic events can affect energy production and delivery facilities and lead to supply disruptions. An increase in summer temperatures will increase electricity consumption, which will lead to an increase in peak loads in summer and worsen the shortage of energy in the country. Changes in the availability of water, both accidental and long-term, can change the potential of hydropower. Despite continuous progress towards expanding energy sources, Tajikistan is experiencing a significant shortage of electricity in the amount of 2.2-2.5 billion kWh in winter. The shortage of electricity in the winter months is 15.5% of the annual volume of energy production. The decline in energy production in the hydropower sector caused by climate change may negatively affect both access and use of energy, which is already limited.

45. Diversification of energy sources would reduce Tajikistan's heavy dependence on hydroelectric power. The spread of renewable energy sources, when occurring at a relatively slow pace, is important for adaptation to climate change. For a country like Tajikistan, which is already dealing with the impacts of climate change, adaptation and development are not necessarily mutually exclusive. The development of renewable energy sources can contribute to both of these goals. The climate of Tajikistan is very favorable for the use of solar energy: on average, there are 280-330 sunny days per year. The total intensity of solar radiation ranges from 280-925 MJ/m2 in the foothills and 360-1120 MJ/m2 in the highlands.

46. Like solar energy, small hydropower provides predictable, reliable, affordable, environmentally friendly energy that is produced locally. By adopting a long-term course for the development of small hydropower, Tajikistan can largely eliminate the existing energy deficit faced by the mainly rural population and strengthen the sustainability of the energy sector. The potential of wind energy is not fully used. The potential in the development of

wind energy is estimated from 1000-3853 MW and exists in such areas as Khujand, Kayrakkum, Faizabad, Shahristan, where the wind speed is 5-6 miles per second at an altitude of about 10 meters above the surface.

47. Table 1 presents several adaptation options to reduce the vulnerability of the energy sector to climate change and extreme climatic conditions, and to address existing gaps and adaptation needs. The adaptation options were combined by the TACB project staff in close consultation with the NASAG members. During the second national consultation workshop, the members of the thematic groups assessed each adaptation option (0-10), based on their ability to reduce the risks and impacts of climate change and strengthen adaptation. The averages were used to rank adaptation options.

§ 2. Water resources sector

48. The water sector overlaps with several key sectors such as agriculture, healthcare, energy and infrastructure. However, climate change adaptation planning in Tajikistan's water sector is not exhaustive and intersectoral. There is no consistency in the sectoral plans regarding the rational use of water resources. The main gaps exist at several levels - systemic, organizational and individual levels, which must be addressed in order to make the water sector resilient to climate change. Examples of gaps at the systemic, organizational and individual levels include:

Gaps at the system level:

- the problems of climate change are not included in the legislation concerning the sphere of water management
- the promotion of water-saving technologies is still not a priority

At the organizational level:

- Water Users Associations (WUAs) do not have the necessary information on the risks, impacts of climate change and adaptation skills
- lack of institutional capacity and necessary funding to promote water resources management policies, especially in remote areas

At the individual level:

- lack of information and knowledge about water saving measures
- lack of incentives for integrated water resources management
- lack of incentives for the introduction of water-saving technologies and methods of farming, taking into account water-saving skills

49. Table 2 presents several adaptation options that can (i) overcome existing adaptation gaps and needs, (ii) reduce the vulnerability of the water sector to climate change and extreme climatic events, and (iii) increase the level of adaptation of the sector to future climate change. As in the case of the energy sector, the water sector adaptation options were combined by the TACB project

consultants in close consultation with the members of the NASAG. The Ministry of Energy and Water Resources stressed the importance of small water reservoirs and other options that allow communities and their property to be protected from landslides. During the second national consultation workshop, the members of the thematic groups assessed each adaptation option (0-10), based on their ability to reduce the risks and impacts of climate change and strengthen adaptation. The average indicators were used to rank adaptation options for the water sector.

§ 3. Agriculture Sector

50. The Government of Tajikistan recognizes the need to reduce the vulnerability of the agricultural sector to climate change, especially given that agriculture contributes significantly to GDP and employment in the country: it accounts for 21.9% of GDP and employs more than 60% of the population of Tajikistan. The Government of Tajikistan is promoting pasture management and farming skills (eg, no tillage, perpendicular tillage on slopes, terraced tillage, cover crop cultivation, more use of organic fertilizers), and the rehabilitation of rangelands. With the support of development partners, the Government of Tajikistan is accelerating the diffusion of low-cost, climate-resilient agricultural technologies. Despite these concerted efforts by the Government of Tajikistan, agricultural productivity in Tajikistan is declining. Decreases will only intensify unless careful planning and management of climate change and increases in climate extremes is undertaken.

51. Climate change can increase irrigation needs, accelerate land degradation, and increase crop losses and damage from harmful insects, pathogens, fungi and weeds. Post-harvest losses are already a growing concern for farmers who have suffered declining productivity over the years. Higher temperatures can increase the number of infectious vectors and pests. Climate change-induced extreme weather events and heatstroke can increase morbidity and mortality in livestock production. Building resilience in the agricultural sector requires investment in agriculture and rural infrastructure development, economic diversification and preventive health care.

52. Currently, a number of gaps and needs hinder the agricultural sector's efforts to successfully adapt. Agricultural reform should focus on removing the constraints that tie farmers to growing cotton, creating incentives for efficient water management, and securing land ownership.

53 Table 3 offers several options for adaptation that can help reduce the current and future vulnerability of the agricultural sector to climate change and extreme climate change and address existing adaptation gaps and needs. Adaptation options for the agricultural sector have been drawn up by the TACB project consultants in close consultation with NSAG members.

§ 4. Transport Sector

54. Tajikistan's transport network is critical for the delivery of goods, services and people. It includes 500 km of rail links and 1,296.2 km of all-weather roads suitable for year-round traffic flows. Recognizing the threats posed by climate change and extreme weather events, the Government of Tajikistan has established 10 support sites to minimize transport disruptions. Side drains and weirs are constructed to protect transport infrastructure from recurrent floods and landslides. Mudflow bridges are being built to minimize the damage caused by mudflows in areas prone to mudflows. The slopes around the transport routes are also periodically processed and technical support is provided.

55. Continuous progress improves the adaptation of the sector and reduces its overall vulnerability to climate change. However, progress may not be sufficient to make the sector fully resilient to climate change and extreme weather events caused by climate. The first step towards building the necessary resilience is the need to fully understand the climate risks and vulnerabilities facing the transport sector.

56. Table 4 proposes adaptation options that can reduce the risks and vulnerabilities of the transport sector to climate change and extreme climate events, and overcome existing adaptation gaps and needs in the sector. The adaptation options were drawn up by the NSAG project consultants in close consultation with the TACB members.

§ 5. Healthcare

57. Climate change can negatively impact human health by adversely affecting the social and environmental determinants of health - clean air, safe drinking water, adequate food and safe housing. Even if the entire population is affected by the impacts of climate change, some will feel the effects more than others. For example, children, the elderly, and people who previously had health problems and are therefore less mobile will be more susceptible to health-related consequences for longer. The data clearly show that the increased mortality rate among vulnerable groups (children, the elderly) is a consequence of exposure to heat waves. In 2000-2001, a sharp rise in temperature and a prolonged drought led to an increase in the number of deaths in the country. The rise in mortality rates averaged 2,500 in 2001, 2002 and 2003. Climate change is likely to increase the number of malaria cases in the country, as the area of potential malaria transmission in the country is likely to increase.

58. In terms of the health sector in Tajikistan, in order to effectively respond to the increasing impacts of climate change, it is essential to fill the existing gaps. Systemic, organizational, and individual-level gaps (Table 5)

collectively represent a significant barrier to paradigm shift from responding to climate change impacts to proactively managing climate risks. Existing gaps have led to poor integration of climate change adaptation measures into planning, design and management processes in health care.

§ 6. Education

59. Climate change directly and indirectly affects the education sector. Damage to education infrastructure is an example of direct impact. The destruction of schools or related infrastructure can cause children to miss classes or drop out of school. They may also skip classes or drop out of school to help their families recover from extreme climate-related events. Indirect impacts will be in the case of a decline in academic performance and overall performance of the education system. Decreased water and firewood in the aftermath of extreme weather can cause children, especially girls, to spend more time looking for these resources. Girls also routinely care for the sick and elderly in the family after the effects of extreme weather events. Spending more time collecting water and caring for the sick also means girls have less time for education. Lower education reduces girls' access to health care, information or early warning systems, and as they grow up, they have low access and fewer opportunities in the labor market.

60. Low education among girls will have long-term adverse effects on a community's vulnerability to climate change. The more people in a society with limited access to early warning systems and labor market opportunities, the less likely the community will be well prepared to manage climate risks and impacts. Access to an early warning system enables communities to prepare for impending extreme events. Greater opportunities in the labor market allow vulnerable segments of the population to diversify their livelihoods. Diversifying livelihood options and strategies, increase adaptive capacity and reduce vulnerability.

61. 61. Lack of education and awareness on climate change issues is a concern because if people do not know they are at risk, they will be at even greater risk because they will not take any proactive steps to minimize their risks and losses. Education and awareness-raising play an essential role in enhancing the adaptive capacity of communities to climate change, as it enables people to undertake proactive planning to reduce and adapt to climate risks. There is still a lot to be done in Tajikistan to raise awareness of climate change through educational programs and trainings. The climate change curriculum must be embedded in the school curriculum at all levels to provide effective teaching and in-depth understanding of the cause, consequences and potential responses to the risks and impacts of climate change.

§ 7. Gender

62. Climate change affects everyone, but this does not mean that everyone is equally vulnerable to it. Some groups are more vulnerable than others. For example, the impacts of climate change and adaptive capacity are not gender neutral. Depending on their physical location and social status, individuals and specific groups have differential capabilities to cope with climate change and climate-induced extreme weather events. For example, compared to men, women who work in agricultural fields and walk long distances to fetch water and firewood are more susceptible to transmissible diseases and heatstroke. Because of their position in society, women, children and the elderly are more likely to fall prey to extreme weather events such as floods, landslides and mudflows.

§ 8. Migration

63. Currently, a lot of activity in the normative - legislative, research plan in the field of migration in the Republic of Tajikistan is relatively concentrated around external labor migration. Numerous studies have proven that migration is caused by economic and socio-ecological consequences / factors. There are only some facts that in certain regions of the republic, environmental problems contribute to a high level of migration. Environmental migrants are people living in environmentally hazardous areas who are subject to planned resettlement in order to prevent loss of life from natural disasters. The reason for the relocation of farms from ecologically dangerous zones is a real threat to the life of people living in territories prone to landslides, avalanches, mudflows, and other natural disasters. In total, during the period from 2000 to 2015, 8,293 families with a total number of more than 50,000 people were relocated from environmentally hazardous zones to safe places of residence on the territory of the Republic of Tajikistan. But, so far there are no full-fledged studies to assess and predict the relationship between the aspects of migration and climate.

- environmental degradation has an increasing impact on the migration behavior of the population of Tajikistan. Although the main migration strategy remains, which includes temporary labor migration plus agriculture in the homeland with a high level of participation of women and children, environmental factors are gradually changing it;
- the choice of the form of migration depends on the scale of destruction and losses incurred in the course of natural disasters, the likelihood of relapse, loss of livelihoods, the amount of aid, the level of poverty, remittances, potential opportunities in destinations;
- in areas prone to environmental degradation, the level of migration is highest. However, in a situation of extreme impoverishment, for example,

due to a natural disaster, households cannot finance the start-up costs of migration and choose internal migration or odd jobs.

64. As a result of climate change (for example, unexpected and rapid melting of glaciers), the risk of floods, mudflows and avalanches increases. they already occur regularly during the spring snowmelt months. Drought, floods or extreme weather conditions, through the intensification of the problem of poverty (destruction of crops and deprivation of income), contribute to an even greater activation of migration processes - the population is forced to move in search of work.

Climate change can increase both external and internal migration:

- loss or decline in incomes become factors of external labor migration. Currently, external labor migration is one of the key factors in the development of the republic. Remittances are an important part of income for many households. Due to extreme situations, the flow of migration and Russia is likely to increase
- relatively large population movements are likely to intensify as climate change forces people to leave flooded or arid and marginal areas. As a result, migration can create serious health problems, both directly, due to the various stresses associated with the migration process, and indirectly, in connection with the possible emergence of unrest that can be caused by uncontrolled movement of people.
- The reasons people migrate are complex, making it difficult to predict how climate change will affect migration in the future. However, climate change is likely to be an important driving force behind future migrations.

65. A national policy needs to be developed to take action on movement of the population related to environmental factors. Migration issues are still not included in national adaptation programs of action, and issues related to environmental factors and climate change are still not covered by national strategies in the field of migration management.

§ 9. Vulnerable groups of the population

66. Vulnerability to climate change and climate-induced extreme weather events are socially differentiated. For example, the poor and the elderly and children are disproportionately affected by climate change and extreme climate events because of their position in society and their differential access to benefits and rights. The need to reduce vulnerability is also based on the fact that the current state of vulnerability of these groups, in the same way, affects their ability to respond effectively to the effects of climate change. Identifying gaps and needs that impede the ability of these groups to effectively deal with growing climate risks and impacts, and promoting targeted action to build its resilience, are fundamental to developing effective adaptation strategies.

§ 10. Environment

67. The Committee for Environmental Protection (CEP) coordinates environmental protection activities and implements, monitors and evaluates the environment, the use of natural resources, land conservation, and other projects and programs on the environment and natural resources. Also oversees projects and programs in the field of climate change. While various adaptation projects and programs are underway, efforts are needed to integrate biodiversity and ecosystem management into development planning and productive sector activities to conserve biodiversity and maintain ecosystem services that support human well-being. Table 9 lists several gaps at the systemic, organizational and individual levels that must be overcome in order for this sector to reduce the current and future risks and impacts of climate change.

68. Table 10 lists several adaptation options that can help reduce the vulnerability of these intersectoral areas of activity to climate change and extreme weather events, and overcome existing adaptation gaps and needs in this area. The adaptation options were drawn up by the consultants of the NSAG project in close consultation with the members of the TACB.

CHAPTER 3. PRIORITY PROJECTS FOR ADAPTATION TO CLIMATE CHANGE

69. The NSACC aims to guide the Government and development partners towards investments that will reduce Tajikistan's vulnerability to climate change and extreme climate events and increase the adaptive capacity of the Tajik population. It proposes climate change adaptation options and investment projects with beneficial climate impacts. The strategy has three goals:

- reduce the vulnerability of the most vulnerable populations, priority sectors and cross-cutting areas to climate change and extreme climate events;
- prioritize climate adaptation investments that can be financed through sectoral investment plans and budgets, private sector investment, multilateral and bilateral development partners;
- design, implement, monitor, and assess climate risk management and adaptation measures needed to reduce current and future vulnerability to climate change and extreme weather events.

70. The NSAIC encompasses strategic actionable adaptation options and investment projects that need to be implemented in order for Tajikistan to build resilience and reduce the vulnerability of its natural and social systems to climate change. For implementation purposes, the NSAIC includes: (a) an implementation strategy, (b) an analysis of funding opportunities to support the implementation of adaptation options, and (c) strategies for monitoring implementation and evaluating the effectiveness of climate change interventions. By identifying and prioritizing risks, impacts, and adaptation options and interventions, the NSAIC has laid out a reliable path to climate risk management and building resilience for Tajikistan.

§ 1. List of projects admitted for inclusion in the NSACC

71. The following criteria were used to select projects:

- saving human life, health and sources of life;
- environmental protection (land, forest, water);
- protection of vital infrastructure facilities (hydropower production, communication systems, industry, cultural facilities and tourism);
- sustainable development, interaction with multilateral environmental agreements;

72. Proposed projects can be evaluated according to the following indicators:

- saving human life, health and sources of livelihoods;
- environmental protection;
- protection of the necessary infrastructure;
- creating synergies in implementation multilateral cooperation packages for sustainable development.

Table 11 provides an initial list of proposed projects by sector and their estimates.

§ 2. Share of climate adaptation costs in proposed projects

73. For the initial sectoral list of projects, additional screening was carried out and agreed with all stakeholders, ministries and government departments. The final selection of projects, both by sector and by cross-sectoral focus, is shown in Table 19 below. Projects include an estimated financial (non-economic) cost basis for projects and cost and allocation shares between development and climate change adaptation activities. For each sector, the priority of each project, after multiple ranking criteria, is shown on the left side. All 33 projects proposed for inclusion in the NSAIC are geographically diverse and have national, provincial, district and local coverage. They cover 10 different technical and specialized sectors, and include various levels of useful detail. It was not possible to carry out the same level of economic analysis for every project.

74. An incremental (step-by-step) analysis was prepared for the selected projects and focused on the extent to which adaptation activities can generate significant benefits to cover their costs. The decision making method is used to determine the actual cost difference between the alternatives. It was conducted to determine the extent to which an adaptation investment project could generate sufficient benefits to cover its costs. For 15 projects, it was possible to quantify the incremental costs and benefits for the cost-benefit ratio and the internal rate of return for the climate adaptation component of the project. Project benefits have been calculated based on the cost of the climatic impacts that the project will prevent or mitigate. Benefits have been calculated for specific location, scope and timeline of the project. No further efforts were pursued once the feasibility study for the project was completed. For example, if maintaining a potato crop fully justifies climate-adapted irrigation, then additional crops were not analyzed to calculate the total benefits. This “conservative” approach should not reflect the final outcome of the project after additional information has been gathered. It was decided to minimize assumptions, where there was enough

75. In all cases, the following were identified and analyzed in detail: (i) the relevance of the project on adaptation to climate change; (ii) losses and impacts that might otherwise arise; and (iii) the benefits that would result from adaptation. Where there was insufficient time and information to quantify the benefits of adaptation to climate change, multiple criteria analysis was applied. Eventually:

- 33 projects were assessed by multi-criteria assessment;
- 13 projects have a cost-benefit analysis and an internal rate of return;
- 2 projects were evaluated on economic average additional costs.

76. Since the level of detail and descriptions of projects varied widely, economic analysis should not be used to compare the rationale for one project with another. Some project descriptions include details of adaptation measures or their costs as part of larger development projects. There was also insufficient detailed information on the underlying conditions and benefits or types of beneficiaries.

77. Selected projects from priority sectors were not compared with projects from other sectors, as each sector was considered important in relation to national goals. This means the analysis and ranking were not cross-sectoral. To carry out the analysis for each sector, the PPCR and TACB project consultants took the following steps, which were then reviewed by the thematic working groups:

- identification of all potential climatic risks in Tajikistan by sector;
- ranking potential risks for each sector by degree of importance;
- determination of all associated climatic impacts and damage by sector;
- ranking of collateral impacts and damages for each sector by importance
- identifying all adaptation options and mitigation measures, or elimination of impacts and damages;
- physical assessment of additional losses and damages for each impact by sector;
- an estimate of the value of each unit (land, crops, etc.) for each type of loss; and
- written description and projected economic increase or loss depending on the type of impact and damage for a specific project location, as well as for climatic events from 2015 to 2030, taking into account an increase over five years for each proposed sector project.

CHAPTER 4. IMPLEMENTATION STRATEGY

78. The NSACC provides a framework for adaptation action to guide Tajikistan towards a low-carbon, climate-resilient future. Adapting to climate change requires concerted action by many sectors of Tajik society, including politicians and leaders, government agencies, civil society organizations, academics, academia and the private sector, as well as communities and households that are on the front lines of the impact of climate change.

79. During the consultation process, a list of national, provincial and local organizations was drawn up to coordinate and mobilize stakeholder efforts around priority climate change adaptation measures and the implementation of the NSAIC. The list includes:

National level:

- Committee for Environmental Protection;
- Committee for Emergency Situations and Civil Defense;
- Ministry of Energy and Water Resources;
- Agency for Hydrometeorology;
- Academy of Sciences;
- Agency for Land Reclamation and Irrigation;
- General Directorate of Geology;
- Ministry of Agriculture;
- Ministry of transportation;
- State Unitary Enterprise "Housing and Communal Services";
- "OAKHK" Barki Tojik;
- Ministry of Education and Science;
- Ministry of Health and Social Protection of the Population;
- Committee on Women and Family Affairs;
- Ministry of Economic Development and Trade;
- Ministry of Finance;
- State Committee for Investment and Management state property;
- Ministry of Labor, Migration and Employment of the Population.

Regional level:

- Local government bodies;
- Regional and district institutions involved in the environment;
- Regional and district authorities involved in irrigation and land reclamation;
- Regional and district departments for emergency situations and civil defense;
- Subdivision of OJSCHK "Barki Tojik".

Local level:

- Local self-government bodies;
- Local public organizations;
- Private business, Water Users Association, dekhkan (farm) farms.

80. Taking into account existing coordination mechanisms climate change adaptation in the country, the CEP and the Agency for Hydrometeorology will lead the implementation of the NSAIC. The Agency for Hydrometeorology should provide technical advice to the CEP on climate risks and impacts, while the CEP should: (1) serve as a focal point for climate change issues and problems, (2) provide programmatic and strategic advice to the Government of Tajikistan on the implementation of investment projects , and (3) ensure that climate change issues are included in the overall national planning process through coordination with relevant ministries, departments and government agencies. The implementation of specific adaptation options and investment projects will be carried out by the relevant ministries and departments, as well as regional and local authorities, in accordance with their functions and responsibilities in accordance with state authorities for environmental and climate protection.

81. In terms of reporting rules, NSAIC will follow the established government reporting system. In accordance with the legislation of the Republic of Tajikistan, the NSAIC should be updated every 10 years due to changes in: (a) risks, climate change impacts, adaptation measures, (b) government structure and sectoral priorities, and (c) development priorities.

In order to support the implementation of the NSAIC and overall development, The government should:

- attract and retain competent specialists in the field of climate change;
- to study and implement interactions between different directions of policies and programs in the field of climate change;
- update climate change issues in local environmental planning and programs;
- to carry out coordination between ministries implementing projects and programs on disaster risk reduction and adaptation to climate change;
- to provide the necessary support to ministries and departments interested in or working in the field of reducing and managing climate risks;
- raise awareness of climate change among regional institutions;
- study the interactions between programs, aimed at reducing and / or managing climate risks;
- to conduct trainings on the actualization of climate change issues in regional and local authorities;

- create regional / local funds for adaptation;
- conduct assessments of climate risks and adaptation planning opportunities;
- to support local government bodies, both with funding and technical assistance in the implementation of a project and / or program to combat climate change.

82. Implementation of the strategy will also depend to some extent on financial support from multilateral development banks. Some domestic funding from the government budget, the private sector, and individual contributions can contribute, but the resources required to effectively implement the NSAIC will require external support from donors. Although the actual cost of implementing the NSAIC has not been established, the key determinant in assessing the cost of building resilience to climate change can be indirectly derived from the identified climate change activities, i.e. investment projects in priority sectors and cross-sectoral areas of activity.

83. Adaptation strategies are always dynamic, given their relevance to changing climate risks and adaptation potentials, and are therefore regularly updated. The NSACC should be updated periodically based on new knowledge, advances in technology and future climate predictions.

§ 1. Link to national strategies, concepts and programs

84. The purpose of the NSACC is to provide a key reference point for coordinating and implementing adaptation initiatives through a collaborative approach to the problem and creating synergies with other relevant national strategies, concepts and programs. It was developed on the basis of the provisions of the Constitution of the Republic of Tajikistan and in accordance with the long-term goals and development priorities of the country. The NSACC also takes into account the international obligations of the Republic of Tajikistan to address the problem of climate change, as provided for by Agenda 21 and the Sustainable Development Goals (SDGs), approved by the 70th session of the UN General Assembly in September 2015.

85. Linking with national strategies, visions and programs is critical, as creating synergies leads to efficient use of resources. The nature and impacts of climate change intersect across different sectors and demographic levels, and require interdisciplinary and multi-stakeholder approaches to programming and action, and to create synergies between different existing policies and programs. The strategy will also ensure that Tajikistan's existing goals, strategies, institutions, policies, plans and treaties / agreements form the basis for supporting investment projects listed in the NSACC.

86. The National Development Strategy of the Republic of Tajikistan until 2030, adopted at the end of 2016, sets three strategic goals: (1) ensuring energy

security and efficient use of electricity, (2) ensuring food security, (3) breaking the communication deadlock and transforming country to transit country. The objectives of the NSACC are priority climate sectors and a selected list of proposed investment projects in the field of adaptation, support of the country's goals in the field of energy and food security. The issues of adaptation to climate change are reflected in the National Development Strategy for almost all key sectors of the economy. For example, NSACC is considering technical possibilities of using non-traditional (renewable) energy sources (solar, wind, biological, geothermal).

87. NSACC also proposes to diversify agricultural production, including the introduction of innovative approaches, taking into account ensuring the minimum impact on the environment and the quality of land. Significant risks to agricultural development are associated with long-term global climate change. The low level of environmental sustainability of agricultural development is associated with increased land and water degradation, with specific and indirect consequences for arable land as a result of erosion, pollution, salinization, waterlogging, an increase in the level of groundwater, a decrease in forest areas, land withdrawal from agricultural use, as well as changes in climatic factors

88. Medium-Term Development Program of the Republic of Tajikistan 2016-2020 includes indicators for monitoring natural resource use efficiency, environmental sustainability and climate change for the period 2016-2020. The Strategic Environmental Assessment (SEA) system provides for poverty reduction through environmental issues and the efficient use of natural resources. Environmental protection and the formation of a strategic environmental assessment (SEA) system, as well as adaptation to climate change, are included in the SDP 2016-2020 as cross-sectoral priorities.

89. The purpose of the State Program for the Study and Preservation of Glaciers is to study the state and preservation of glaciers in the Republic of Tajikistan in the period from 2010 to 2030. There is a need to create an effective system of glaciological monitoring of the state of glaciers and snowfields in all river basins of the republic. This will make it possible to promptly take effective measures to reduce the impact of the effects of climate change on the people and economy of the country and the region. The tasks set in this program correspond to the tasks set by the NSAIK in the field of climate monitoring and research work.

90. The Agricultural Reform Program (2012-2020) also aims to reduce vulnerability to climate change through (a) widespread application of good practices based on the principle of joint pasture and forestry management, with an emphasis on the restoration and protection of natural resources, and use; (b) promoting sustainable land management and fertilizer use; (c) promoting methods and technologies for economical water storage, such as rainwater harvesting, drip irrigation, mulching; (d) the development of nurseries for the production of the necessary seedlings and seedlings, with particular emphasis

on the cultivation of indigenous, drought-resistant species; and (e) promotion of drought and flood tolerant varieties, etc.

91. National Strategy for Disaster Management. Linking with the National Disaster Risk Management Strategy is equally important as the overall focus of both the National Disaster Management Strategy and the NSACC is aimed at reducing vulnerability and building resilience to weather and climate threats. An excellent opportunity for synergy comes from the fact that both teams of professionals in this and that area are applying a risk management approach. The experience gained from implementing a national disaster risk management strategy over many years can inform the implementation of priority adaptation options and projects.

92. 91. Linkages with the above strategies and programs will help in the implementation of the NSACC because they also aim to reduce national vulnerability to climate change and extreme weather events caused by climate change. For example, the strategic goal of the National Development Strategy is to ensure food and energy security, which coincides with the goals of the NSACC.

§ 2. Barriers to implementation

93. NSACC offers a portfolio of prioritized investment projects that must be implemented urgently to empower vulnerable communities and sectors to build resilience and reduce their vulnerability to climate change and extreme weather events associated with climate change.

94. For the successful implementation of the NSACC and the achievement of the desired level of adaptation to climate change, it is necessary to remove some legal, institutional barriers and capacity gaps. For the successful implementation of the NSACC, these barriers need to be removed in the long, medium and short term, through consistent technical assistance programs from the MDBs.

95. Legal barriers. Legal barriers represent fundamental challenges to long-term sustainability and overall development. In general, in Tajikistan:

- existing laws, regulations and codes on environmental protection, energy, drinking water supply, construction and disaster risk management do not include climate change issues;
- programs, strategies and other legislative conditions do not stimulate government bodies to take measures to reduce vulnerability and strengthen adaptation measures;

Legal reforms require a responsible multi-stakeholder approach for sustained policy dialogue and technical assistance that reflects political realities and adapts to changing political structures, priorities and personalities. Legal reforms require long-term strategic responsibility.

96. Institutional barriers. The capacity of Tajikistani institutions to tackle climate risks and ensure equitable resilience is hampered by insufficient:

- mechanisms for integrating climate change problems into national and sectoral action plans;
- coordination and cooperation in the field of collection of information on climate change issues between key ministries and departments;
- coordination between institutions that manage projects and programs for disaster risk reduction;
- the foundations for long-term development plans and effective allocation of resources, both from donors and the state.

97. The twin difficulties of poor coordination and collaboration undermine synergies and mutual benefits between programs. Reforming institutions with a clear distribution of roles, responsibilities, and communication to adapt to climate change requires a medium to long term strategy, as such work inevitably encounters resistance, territorialism and the practicality of government institutions with limited resources, which have limited incentives to change.

98. Capacity barriers / obstacles. Awareness, skills and technology gaps can be closed in the short term with targeted, well-resourced technical assistance. Tajikistan needs to continue the work started under the PPCR to develop and support:

- raising awareness on climate change issues among the population, as well as on the benefits of adaptation among specialists;
- institutional flexibility for implementation
- innovative projects and programs in the field of adaptation;
- institutional capacity for the collection and processing of hydrological and meteorological data and information;
- knowledge and skills of civil servants who work on climate change issues;
- specialized research the Climate Change Institute to support the collection and dissemination of data and information on climate change;
- the technical potential of the sector's specialists to implement projects and programs in the field of adaptation;
- financing for the implementation and monitoring of projects and programs in the field of adaptation to climate change.

§ 3. Recommendations for removing barriers to the way Implementation

99. The donor community has assisted Tajikistan in implementing meaningful reforms, which is a prerequisite for building long-term resilience to climate change. To address the set of institutional and capacity barriers, as well

as support the subsequent implementation of the NSAIC, investment projects and related technical assistance programs should support reforms to:

- introduction of the main issues of climate change in the processes of national, regional and local planning;
- improve institutional capacity to improve coordination and cooperation among institutions involved in the collection and dissemination of information on climate change;
- improve coordination between ministries in the field of risk reduction, climate change management and implementation of projects and programs in the field of adaptation;
- create a research center for the study of climate change and promote the collection of data, research and analysis on combating climate change;
- improve the method of developing long-term development plans in order to eliminate duplication of activities and improve communication;
- ensure adequate and timely provision of the financial resources necessary to raise awareness of climate change, reduce vulnerability and implement the project;
- to increase the number of staff working on climate change issues in the relevant ministries and departments;
- raise awareness of climate change and the technical capacity of industry experts working on climate change projects in sensitive sectors.

100. The implementation of the NSACC requires additional support for three general recommendations: (a) Facilitate coordination and interaction at the regional and local levels; b) improving access to climate data and dissemination of climate information; c) strengthening human, educational and scientific potential to combat climate change.

101. Facilitate coordination and interaction at regional and local levels. Coordination and synergy between agencies and programs is essential if proposed investment projects are aimed at achieving their fullest potential and minimizing possible duplication. Institutional fragmentation leads to unnecessary duplication of efforts to reduce and manage climate risks. At times, institutional fragmentation can lead to disruptions in coordination, especially during and after extreme weather events such as floods and droughts. A specific investment project will become more effective when one government agency takes the lead coordinating position to oversee the progress of implementation.

102. At the national level, the CEP will provide general policy and technical oversight for the pyritisation and implementation of proposed investment projects. It will work closely with the relevant ministries in the implementation and monitoring and evaluation of priority projects. The

Collaborating Industry Agencies will be responsible for the day-to-day project management and administrative functions through their contact points for the various projects. At the oblast level, the policy and technical oversight of the project will be carried out by local government authorities, as well as oblast and rayon units responsible for the environment, irrigation and reclamation, as well as emergencies and civil defense.

103. To improve the coordination mechanism, the Government and development partners should continue the work initiated by the PPCR and other climate change adaptation initiatives with a view to:

- establish an appropriate framework for the implementation of the climate change adaptation program and establish a lead coordinating body for better coordination;
- identify potential areas of interaction between different climate-sensitive sectors;
- develop and maintain a system of business relations to disseminate information on climate change;
- build capacity at the local level (e.g. Water Users Association, Farmers Association)
- develop a coordination mechanism for regional and local bodies dealing with disaster risk reduction / management and adaptation to climate change;
- improve communication with civil society, NGOs and local vulnerable communities;
- create and maintain an information portal for the exchange of information on adaptation to climate change;
- to involve civil society in the process of implementation, monitoring and evaluation of projects and programs on adaptation to climate change; and
- Strengthen the capacity and business relationships of agricultural service workers.

104. Improving access to climate data and dissemination of climate information. Lack of access to reliable climate data and information is a major barrier to adaptation in Tajikistan. Actions to be taken include:

- Strengthening the collection methods and data dissemination capacity of the Agency for Hydrometeorology;
- mapping and reporting on the risks and impacts of climate at the community level;
- creation of a database on knowledge of local climate changes, including measures to adapt the local population;
- increasing the capacity of vulnerable groups in the use of technologies (eg SMS, climate maps, seasonal weather forecasts);
- Creation of a central information database on climate, where data and information are stored, covering all climate-sensitive sectors;

- Conducting a campaign to raise awareness of climate change on a regular basis;
- creation and maintenance of information centers in the field of climate change;
- to encourage the exchange of information on climate change between various government agencies; and identify and better communicate best practices for climate change adaptation.

105. Strengthening human, educational and scientific capacities to combat climate change. To strengthen human, educational and scientific capacity to address climate change needs, it is necessary to continue the initiatives launched by the PPCR and other initiatives to:

- to develop the necessary educational programs for schools and universities;
- create fully funded state research programs in the field of climate change;
- create research and training centers for climate change;
- develop scholarship programs for scientists interested in pursuing higher education degrees in the field of climate change; and
- periodically organize scientific and practical conferences, seminars, round tables, as well as a systematic exchange of experience and practices.

CHAPTER 5. FINANCING OPTIONS AND STRATEGIES TO SUPPORT NSACC

106. To tackle climate change, a variety of funding sources are needed, including national and international, as well as public and private funds. The strategy includes the financial support required from multilateral development organizations and the Government for the implementation of investment projects in the field of climate.

107. National funding for climate resilience. The review of the national budget has shown that it is impossible to determine the level of expenditures that can be allocated for climate change adaptation activities. Taking into account that in 2015, the Republic of Tajikistan officially submitted INDC (Intended Nationally Determined Contribution) to the Secretariat of the UN Climate Change Convention and on April 22, 2016 signed and the Parliament of the country ratified the Paris Climate Agreement on February 16, 2017. With regard to developing countries, within the framework of this Agreement, measures are defined to provide specific assistance to adapt to climate change. Development of legal protection mechanisms, provision of financial support and satisfaction of needs for provision of new technology will be carried out taking into account the prevention of the risk of climate change.

108. Funding for the NSACC differs from other national strategies. The key difference is the essence of the strategy, which is that this strategy acts as a roadmap for investing in development. Its financing is likely to be gradual in line with the additional priorities of the multilateral development banks and supplemented by public partner funds.

109. International Climate Assistance. Total annual climate-related assistance in the period from 2010-2012 in the world reached $ 21.5 billion; only 58% is aimed at mitigation targets, only 25% is aimed at adaptation, and 18% is aimed at both mitigation and adaptation. Experience shows that Tajikistan is at an early stage of access to various international sources of financing for adaptation processes.

110. In addition to international climate funds, there are important adaptation projects supported by official bilateral development assistance. Countries supporting these adaptation projects are Switzerland (<US $ 7.5 million), Germany (<US $ 4 million), and Finland (<US $ 1 million) according to data from the Organization for Economic Co-operation and Development on flows of climate finance from bilateral and multilateral sources directed to the Government of Tajikistan in 2014.

111. In addition to these projects, the Government of Tajikistan has also received funding for an adaptation project from two international climate funds: the Global Environment Facility (GEF) and the Climate Investment Fund (CIF) under the Pilot Program for Adaptation to Climate Change (1P1AIC). No calls have been made to the Adaptation Fund (AF) and other funds yet.

112. In 2014, approved funding for Tajikistan from the PPCR was US $ 60.7 million, with an expected co-financing of US $ 84.4 million. Additional World Bank financing of US $ 2.83 million was approved in June 2015.

113. The PPCR stands out from all others as one of the largest sources of funding, which receives a certain share of its co-financing from the state budget of the Government of Tajikistan. This is a very important element that can be used to convince donors to fund investment projects included in the NSACC.

This chapter provides an overview of the climate finance mechanism and recommended options for Tajikistan to consider on NSACC financing.

§ 1. Green Climate Fund

114. The GCF is a financial mechanism adopted by the UNFCCC in 2011. The Fund intends to become the main channel for climate finance to achieve the goals of the international community in the field of mitigation and adaptation.

115. GCF plans to increase investment in international community efforts to $ 100 billion per year by 2020. Countries have now pledged a total of US $ 10.3 billion to the GCF, of which US $ 10.1 billion was deposited and US $ 2.2 billion disbursed. Accredited intermediaries will have access to these financial resources mainly in the form of subsidies or concessional loans in several directions.

116. Access to GCF resources is carried out through national, regional and international executive agencies, after accreditation by the GCF Board of Directors. Recipient countries determine the access mode and mechanisms can be used simultaneously. The GCF Board Council at its 13th meeting approved (US $ 19 million for the World Bank's Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB)) in Tajikistan and Uzbekistan.

117. The Government of Tajikistan has designated the CEP as the focal point for the GCF (as well as for the Adaptation Fund) and established a National Designated Authority (NDA) under the CEP. NDA has a Secretariat and a technical expert group with nominated representatives from various ministries and civil society. The project proposals will be submitted to the NDA Secretariat, which will convene a technical expert group to review the proposals and check the project proposals against national and sectorial priorities.

118. NDA recommends funding for the project proposal to the GCF Board of Management, thereby ensuring that the activities are in the right direction and in line with the recipient country's national climate strategies and plans. To build national capacity, governments may request support from the GCF and other donors in preparing to access and effectively use GCF funds in line with the strategic objectives of the GCF.

§ 2. Adaptation Fund

119. The Adaptation Fund (AF) is a financial mechanism under the Kyoto Protocol for the UNFCCC. The AF was established to finance national and regional adaptation projects and programmes in developing countries committed to the Kyoto Protocol. The AF is funded by 2% of the Certified Emission Reductions allocated to Clean Development Mechanism projects, as well as voluntary contributions from donor governments (mainly Germany, Sweden and Spain).

120. Currently, $ 471.6 million has been deposited with AF and $ 112.5 million has been disbursed. Since 2010, the AF has committed $ 318 million for climate change adaptation and resilience activities in 50 countries. The AF's financial position is difficult given the high volatility in the Certified Emission Reduction market and the predominance of voluntary contributions to the GCF. Thus, the AF is considering acceptable institutional arrangements for an arrangement with the GCF.

121. Activities eligible for AF include: water resources management, land management, agriculture, health, infrastructure development and vulnerable ecosystems. AF also supports projects related to improving disease monitoring and forecasting, establishing early warning systems for climate change, building capacity to combat climate change, and strengthening existing or establishing national and regional centers and information networks for rapid response to extreme weather events.

122. In addition to being a party to the Kyoto Protocol, the countries concerned must be particularly vulnerable to the adverse effects of climate change. These include Small Island developing States and low-lying countries, countries with fragile mountain ecosystems, countries with arid and semi-arid regions, and countries prone to flooding, drought and desertification. The criteria also include the level of vulnerability to climate change, the level of urgency and risks associated with delayed action.

§ 3. Global Environment Facility Trust Fund

123. The Global Environment Facility (GEF) Trust Fund is a multi-coordination project made up of 183 partner countries, international institutions, civil society organizations and the private sector. The GEF Trust Fund is the financial mechanism for the UN climate regime and has been in operation since 1991. Since the World Bank's initial $ 1 billion pilot program, the fund has provided $ 14.6 billion in grants and $ 74.3 billion in co-financing for 4,032 projects in more than 165 developing countries the world. Funds are allocated to developed and developing countries for mitigation and adaptation projects and programs in areas such as biodiversity, climate change, international waters, land degradation, chemicals and waste.

124. Countries that are eligible for loans from the World Bank and receive technical assistance from the United Nations Development Program (UNDP) can apply for different project areas, mainly in the form of grants such as:

- full-scale projects worth more than USD 2 million.
- medium-sized projects up to USD 2 million.
- catalytic activities to assist countries in preparing national inventories, strategies, action plans and reports on various conventions, up to USD 0.5 million.
- programmatic approaches that include partnerships between countries, the GEF and other stakeholders (eg, the private sector, donors and / or academia) in the amount of USD 5-150 million.
- small grants program up to USD 50,000 funded by the GEF as a corporate program.

CHAPTER 6. MONITORING AND PERFORMANCE EVALUATION

125. Addressing the impacts of climate change on key sectors and societies through adaptation requires a coordinated response across multiple sectors and at multiple levels. Given the complexity of these measures and the technical issues involved in assessing their effectiveness and impacts, establishing a useful and relevant monitoring and evaluation (M&E) system is essential to measure the success of the NSAQ in meeting its goals and indicators. The M&E system will focus on knowledge generation through collaborative approaches, identification and sharing of lessons learned. It will support a long-term learning process to determine “what works” in adaptation and provide a toolkit for managing climate change adaptation activities in the face of uncertain climate change impacts. Good practice, lessons learned, gaps and needs identified in ongoing and completed projects, policies and programs will inform future action, thereby creating a repeatable and comprehensive adaptation process.

126. The NSACC offers broader national guidance for establishing and strengthening a national M&E framework for climate change adaptation, with the aim of integrating this framework into national development planning processes. Strengthening and mainstreaming M&E activities will be a long-term effort to ensure: (a) effective implementation of adaptation policies, measures and actions; (b) compliance with international reporting obligations; (c) sharing information on best practices; and (d) demonstrate Tajikistan's commitment to climate finance by providing a credible platform for attracting international climate finance.

Annexes
under the National adaptation Strategy of the Republic of Tajikistan for the period up to 2030

Table 1. Assessment of climate change impacts by sector *

Risk	**Energy**	**Water resources**	**Transport**	**Agricultural industry**	**Intersectoral areas of activity**
Clearing dirt roads			10		
Damage to roads, railways, vehicles			9		
Poor regulation of reservoirs	8.5	8.5			
Increased erosion-high level of subsidence	8	8			
Decline in energy production, water supply and consumption, decreased mobility and loss of life	7.5	7.5	9		
Delayed rescue operations			8		
Decreased provision of irrigation water, and decreased agricultural productivity due to drought		7.5		10	
Higher evaporation rate of surface water due to drought	7.5	7.5			
Inconsistency of current use and future availability due to seasonal changes in precipitation	7.5				
Damage to perishable goods due to climate-related transport infrastructure problems			9		
Increased costs of restoration work			9		
Death of people			9		10
Reduction of rainfed farming				10	
Reduced yields and production				10	

Crop failures and the death of livestock				10	
Degraded quality of fresh water from glacial runoff and sediments		7.5			
Road surface wear			8		
Disruption of infrastructure maintenance			8		
Increase in infectious diseases such as diarrhea, hemorrhagic fever, malaria, etc.					10
Internal resettlement and migration caused by climate change					9
Increasing the volume of domestic work for women					9
Increase in cardiovascular and respiratory diseases					9
Loss of soil and its nutrients					8
Loss of biodiversity					7
Loss of access to education					6

*1= low priority, 10 = highest priority

Table 2. Prioritized adaptation options for the energy sector

№	Adaptation options	Ranking (0-10)			Average
		1	2	3	
1	Development of short-term models to deal with the consequences of extreme weather events. Development of cost-effective adaptation options to mitigate the effects of drought and energy impacts on GDP	9	9	9	9
2	Infrastructure protection: Raise the height of the dam, add bypass channels, regulate water discharge	10	9	8	9
3	To train employees of the authorities in the field of energy on the use and methodologies necessary for the assessment of climate risks and vulnerability	8	8	7	8
4	To review maintenance procedures and technical incentives to improve the safety of transmission networks and distribution lines from extreme weather events	8	8	8	8
5	Promotion of energy efficiency policy through demand management and a system of incentives in the field of energy efficiency	8	8	8	8
6	Improving access to energy sources and energy security in rural areas (for example, through expanding the rural electrification program, energy-efficient stoves and the development of ethanol-based stoves)	8	8	8	8
7	Enhancing adaptation and planning tools for long-term hydropower generation, to address challenges with constant changes in water and energy availability	8	5	7	7
8	Promotion of energy efficient sectors	7	7	7	7
9	Inclusion of other (less climate-affected) energy sources in the energy balance to ensure greater reliability	7	7	8	7
10	Investing in climate resilient hydropower infrastructure to enhance hydropower resilience and productivity potential	7	7	7	7

Table 3. Prioritized adaptation options for the water sector

№	Adaptation options	Ranking (0-10)			Average
		1	2	3	
1	Eliminate future water scarcity by improving water efficiency, reuse, recycling and demand management	10	10	10	10
2	Strengthen the capacity of Water Users Association (WUA) and provide recommendations on efficient water use practices	10	10	10	10
3	Enhancing adaptation and planning tools for long-term hydropower generation to cope with constant changes in water and energy availability	9	9	9	9
4	Consider the deployment of a regional water distribution system or the use of transboundary water resources for economic and environmental benefits	9	9	9	9
5	Development of fish farms, introduction of fish ponds; creation of legislation and implementation of regulation on the use of fish resources	8	9	10	9
6	Establish stricter rules for wastewater treatment and wastewater management to maintain water quality and maintain cleanliness	8	9	9	9
7	Supply of water supply systems through the system of market relations	9	9	9	9
8	By mapping the vulnerability of climate-updated hazards, notifying communities at risk of floods and landslides, involving communities in the construction of buildings and zones, safe climate events, and providing technical and financial assistance	8	9	9	9
9	Providing a back-up system for water storage and storage system through pumping injection	8	8	8	8
10	Improvement of the groundwater resources management system	8	8	8	8

Table 4. Prioritized adaptation options for the agricultural sector

№	Adaptation options	Ranking (0-10)			Average
		1	2	3	
1	Promote soil health and erosion control, and manage water resources and drainage systems	10	10	10	10
2	Assisting in the development of pasture management schemes	10	10	10	10
3	Introduce crop diversity and plant breeding knowledge, combined plant cultivation, structure and planting method	10	10	10	10
4	Establishing seed banks in communities, especially for crops resistant to drought and disease	10	10	10	10
5	Renovation and improvement of irrigation methods such as drip irrigation for the economical use of water or more expensive crops	10	9	10	9,7
6	Improving community storage systems for crop and food storage to reduce waste	9	10	10	9,7
7	Improving research and expanding agricultural services through small mobile devices driving to farms to provide and improve farmers' access to information, practices and technologies. Provide communities and farmers with a training kit on appropriate growing options applicable to the predicted climate and water availability	9	9	9	9
8	Promote drought tolerant seeds and practices, and knowledge of plant frost protection	9	8	10	9
9	Plant trees to protect the community and farm from the wind	9	10	10	9
10	Develop crop drought insurance options	9	9	9	9

Table 5. Prioritized adaptation options for the transport sector

№	Adaptation options	Ranking (0-10)			Average
		1	2	3	
1	Improving the long-term operation of transport infrastructure	8	8	8	8
2	Development of civilian construction and natural vegetation protection methods to prevent landslides in mountainous areas, on roads and river banks	8	8	8	8
3	Establish best practices for engineering standards and building guidelines that ensure infrastructure resilience to temperature extremes, high rainfall rates and rock falls.	8	8	8	8
4	Carry out structural modernization of the existing transport infrastructure	9	6	9	8
5	Protecting mountain road infrastructure from landslides that destroy roads	9	6	9	8
6	Provide support to improve infrastructure, access roads in the country, especially in hazardous and vulnerable areas	9	6	9	8
7	Promotion of incentives, regulations for fuel efficient vehicles	8	6	8	7
8	Introduce new legislation to strengthen guarantees of national quality standards for materials, road building guidelines / codes and practices, and enforcement.	8	7	6	7
9	Consideration of climatic influences on the structure or strengthening of bridges	8	5	7	7
10	Providing warning signs in high-risk road areas	8	5	5	6

Table 6: Health Sector Gaps by Capacity Level

Potential level	Gaps
Systemic	1. Lack of necessary authority to address climate-related health risks and impacts 2. Lack of population surveys hinders the generation of data on the prevalence of infectious diseases 3. Lack of early warning and response systems for extreme weather events that threaten human health (eg heatstroke or floods).
Organizational	4. Difficulties in retaining qualified personnel in the regions 5. Lack of funding for medical education and laboratory training required to properly understand climate-induced risks and impacts
Individual	6. Health professionals are not well trained to implement proper monitoring of climate-related diseases (eg vector-borne diseases) and / or impacts. 7. Some people in some regions are not used to temperature extremes and do not have knowledge of how to protect themselves

Table 7: Gaps in Education by Capacity Level

Capacity level	Gaps
Systemic level	1. Climate change is not factored into environmental education laws and policies 2. Climate change is not included in curricula, even if laws and policies support it through environmental education 3. Various environmental education initiatives overlap, spreading scarce resources even more narrowly 4. Ongoing support for national campaigns to raise awareness on climate change and climate change adaptation is not enough 5. Awareness-raising campaigns are heavily dependent on donor funding, and their sustainability is lacking 6. Lack of media news coverage of environmental issues limits opportunities for journalists genuinely interested in finding stories about climate change
Organizational level	7. Lack of coordination and duplication of authority hinders the ability of government agencies to deliver education on the environment and climate change 8. Educational institutions do not have access to materials in Tajik that are relevant to local conditions 9. Lack of a climate change curriculum at universities and after-school educational institutions across the country 10. Lack of equipment and / or laboratories to support the implementation of the climate change curriculum 11. Lack of funds in government agencies and NGOs for ongoing outreach and training and the activities they cite are highly dependent on donors
Individual level	12. Educators and government employees working in the education sector do not have sufficient knowledge about climate change 13. The growth of knowledge about climate change among students and interns is limited due to the lack of materials on climate change in Tajik. Students often lack the language skills necessary to use specialized materials that are available in other languages.

Table 8: Gender Sector Gaps by Capacity Level

Capacity level	Gaps
Systemic level	1. Low level of representation of women in all branches of government 2. Social principles restrict women's rights in decision-making, both at the household and farm levels 3. Social norms impede the presence of women and their level of participation in trainings, especially in groups where both sexes are involved
Organizational level	4. State women's associations do not deal with climate-related issues 5. Women's NGOs have very low awareness of climate change and adaptation issues 6. Organizations cannot understand the scale of climate threats to women, especially in rural areas
Individual level	7. Lack of awareness of climate change issues among women 8. Insufficient decision making power among women to take 9. Lack of information on preparing for and responding to extreme weather events among women, including knowledge of evacuation rules and basic survival skills such as swimming 10. Lack of opportunity to attend workshops and trainings on climate risk reduction and management

Table 9: Migration Gaps by Capacity Level

Capacity level	Gaps
Systemic level	1. Internal migration creates additional costs of labor and funds, both for the Government and for households 2. Programs do not recognize increased climate-induced extreme weather impacts
Organizational level	3. Organizations working with internal and external migration do not associate migration with climate change, despite the fact that the number of people moving from areas prone to extreme weather events is increasing
Individual level	4. Lack of awareness of climate change among internal migrants, especially those displaced due to floods, mudflows and avalanches

Table 10: Gaps in the Vulnerable Groups Sector by Capacity Level

Capacity level	Gaps
Systemic level	1. Climate change and adaptation are not fully integrated into Social Sector Strategic Documents
Organizational level	2. The Ministry of Labor, Migration and Employment of the Population does not have the necessary financial resources related to adaptation, even when they would like to reduce the threats faced by vulnerable groups 3. NGOs and community-based organizations (CBOs) working with vulnerable groups often lack adequate awareness of climate change and adaptation
Individual level	4. Vulnerable individuals lacking the necessary benefits and empowerment to become climate resilient 5. 5. Vulnerable persons lacking access to climate information and knowledge

Table 11: Gaps in the Environment by Capacity Level

Capacity level	Gaps
Systemic level	1. Lack of an action plan to assist in adaptation at the ecosystem level
Organizational level	2. Compared to other ministries, the CoEP has limited authority and the least power 3. Lack of adequate funding to implement the large-scale ecosystem-based adaptation measures needed to mitigate increasing climate risks and threats to the environment
Individual level	4. People living in areas with vulnerable ecosystems lack the necessary climate change awareness and support to build resilience

Table 12: Prioritized Adaptation Options for Cross-Sectoral Areas

№	Adaptation options	Ranking (0-10)			Average
		1	2	3	
1	Diversified revenue-generating activities, improve infrastructure for market access and improve inter-agency linkages	10	10	10	10
2	Strengthening forestry, agroforestry, joint forest management, conservation of natural resources and management skills	10	10	10	10
3	Building climate change awareness at all levels	10	10	10	10
4	Design and implement an awareness raising program on adaptation to potential impacts of climate change for cross-sectoral areas	10	10	10	10
5	Improving early warning systems to minimize climate impacts on intersectoral action areas	10	10	10	10
6	Strengthening the capacity of health care institutions to effectively prevent cardiovascular and respiratory diseases in people vulnerable to climate change and extreme climate events	9	9	9	9
8	Providing grants to support local NGOs, microfinance and microcredit organizations working in cross-sectoral areas	9	8	10	9
9	Development of small dams and other storage facilities to reduce flood risk, water storage and fish farming development, and fish farming in communities	9	8	9	8.6
10	Promote the proper use of meteorological information at all levels	10	5	10	8.5

Table 13. Ranking of adaptation projects

Project code	Project	Ranking criteria (from 0 to 10)				Average score
		Human life saved, health, sources of livelihoods	Environmental protection (land, forest, water)	Vital infrastructure facilities (hydroelectric power plant, communication systems, industry, cultural facilities, tourism)	Sustainable development, interaction with the Ministry of Railways	
		1	**2**	**3**	**4**	
Energy sector						
01	Emergency tunnel on the Vakhsh river in the area of the Baypazin landslide	10	10	10	8	9
02	Modernization, reconstruction of the Varzob hydroelectric	8	8	8	8	8
03	Modernization, reconstruction of the Centralnaya HPP	7	8	8	6	7
04	Modernization, reconstruction of the Perepadnaya HPP	7	8	8	6	7
05	Installation of 37 kW photovoltaic solar power plant in Okuchashma village	6	8	6	6	6
06	Construction of a 4.7 MW hydroelectric power station in the Nazarmergan area in the Jirgital district	5	5	5	5	5
07	Construction of 15.5 MW Dombarchi HPP in Jirgital district	5	5	5	5	5
08	Increasing the useful capacity of the Nurek reservoir	4	4	4	4	4
Water sector						
01	Strengthening the material and technical base of the state unitary enterprise for "Protection Against Mudflows"	9	10	9	9	9.25
02	Machine irrigation on an area of 24,000 hectares in the town of Mizoravat-Samgard in Bobojon Gafurov district of Sughd region	9	6	8	7	8
03	Reconstruction of the hydrotechnical facility of the Big Gissar Canal	9	8	8	7	8

04	Construction, reconstruction of an irrigation system for the development of new waters, existing land reserves in Jirgital district	9	7	7	8	7.75
05	Construction of the Punuksay reservoir (reservoir for mudflows) in the Asht district of the Sughd region with a capacity of W = 3.8 million m3	9	6	8	6	7.25
06	Reclamation, water supply of the existing area of the Matpari territory in the Isfara district, Sughd region	10	5	7	7	7.25
07	Transfer of the Dakhkat part of the stream to the Daganay reservoir in the Ganch district, Sughd region	9	5	7	6	6.75
08	Construction of the Kafernigan reservoir (first stage)	8	6	7	6	6.75
09	Air monitoring of glaciers in Tajikistan	6	7	6	8	6.75
10	Glacier Atlas of Tajikistan	6	7	6	8	6.75
11	Provision of equipment, provision of consumables to improve monitoring of water quality in rivers of Tajikistan	7	7	7	6	6.75
12	Assessment of needs, technological capabilities for water storage in the context of climate change	7	7	7	6	6.75
13	Construction of a reservoir in Isfanay area of Jabor Rasulov district of Sughd region	6	5	7	6	6
14	Scientific research of glaciers in Tajikistan	6	6	6	6	6
15	Reclamation of new lands, water supply for existing lands in Karadum in Kumsangir district of Khatlon region	5	2	4	6	4.25
Agriculture						
01	Development of highly productive crops (export-oriented and import-substituting) in the context of climate	10	10	10	10	10

02	Development of technologies in the field of adaptation of agriculture (for example, the introduction of drought-resistant crops)	10	10	10	10	10
03	Renovation, improvement of existing storage facilities, construction of new modern storage facilities for crops, livestock products	10	10	8	10	9.5
04	Establishing a food safety monitoring system in the context of climate change	8	10	8	10	9
05	Improving land use efficiency through diversifying agricultural production	10	10	8	8	9
06	Introduction of new technologies / methods in agricultural production	10	10	8	8	9
07	Development of seed production in the context of climate change	8	8	8	7	7.8
08	Creation of industrial unions, in the form of sector associations for the development of machine and tractor stations	10	5	5	8	7
09	Integrating Pest Management, Plant Disease Control in the Context of Climate Change	10	10	8	8	9
10	Agrotechnical measures against secondary salinization	10	10	8	8	9
11	Raising public awareness, free information about agricultural producers in the context of climate change	8	7	7	8	7.5
12	Strengthening the forage base through sustainable use, natural resource management in the context of climate change	8	8	8	6	7.5
13	Creation of a guarantee fund for insurance of the agricultural sector in the context of climate change	8	**8**	7	6	7.3
Transport sector						
01	Construction of a dam for a railway bridge over the Kafirnigan river in the city of Vahdat	8	6	7	7	7
02	Recycling of used tires, lubricants	7	8	7	6	7
03	Reconstruction of the Guliston-Farkhor-Pyanj-Dusti highway	8	6	6	7	6,7
04	Reconstruction of the Rushan-Basid-Savnob highway	7	6	7	7	6.7

05	Reconstruction of the Khorog-Roshtkala-Toguzbulak highway	7	6	7	7	6,7
06	Construction of a new bridge to replace the existing one in the Vahdat district, the passage of the Dushanbe-Kulma highway	8	5	6	7	6,5
07	Reconstruction of the Kolkhozabad-Kubadiyan-Shaartuz-Ayvaj-Mazori Sharif highway with the construction of bridges on the Amu Darya river near the Ayvaj village	8	6	5	6	6,2
08	Construction of a bridge on the Muksu river, Mingbulak village, Jirgital district	6	4	6	7	5,7
09	Construction of a highway in the Yagnob valley	7	6	5	6	6
10	Construction of the Muminabad-Childukhtaron highway	6	5	7	6	6
11	Reconstruction of the Baljuvan-Sari Khosor-Guldara highway	6	4	5	6	5,5
12	Reconstruction of the Baldzhuvan-Kangurt highway	6	4	5	6	5,5
13	Reconstruction of the Baljuvan-Khovaling highway	5	5	5	5	5
14	Reconstruction of the Kangurt-Temurmalik highway	4	4	4	4	4
Intersectoral areas of activity						
01	Organization, implementation of systematic social and hygienic monitoring of activities for the provision of services for state sanitary and epidemiological surveillance in the context of climate change	10	9	9	9	9.2
02	Implementation of international standards for the management of risks associated with drinking water in the context of climate change	10	10	9	9	9.2
03	Women for survival in the face of climate change	10	8	7	10	8.8
04	Enhancing Learning Capacity for Climate Change Adaptation	10	8	8	8	8.5
05	Environmental migrants, internal migrants in the context of climate change	10	8	8	8	8.5

06	Provision of equipment, consumables to improve monitoring of water quality in open reservoirs for home use	10	8	8	8	8.5
07	Reconstruction of the CoEP training center	10	6	7	9	8,4
08	Raising awareness of youth about climate change, training volunteers	8	7	8	9	8
09	Tajik youth against the negative impacts of climate change	10	7	8	8	8
10	Revision, development of physiological norms for food consumption in the context of climate change	10	7	6	9	8
11	Climate Change: Women, Employment, Development	10	8	4	9	7.8
12	Promoting the health of vulnerable populations for cardiovascular and respiratory diseases	10	7	6	7	7.8
13	Migrant workers' families and climate change	9	7	7	8	7.7
14	Development of a methodology for calculating economic losses from morbidity, mortality in the context of climate change	9	6	6	7	7.3
15	Organization of broad awareness-raising campaigns in the context of climate change	9	6	3	6	6.8
16	Raising awareness of vulnerable population groups, especially women, heads of households, families of labor migrants on climate change and its consequences	10	8	2	8	6.8

Committee for Environmental Protection
under the Government of the Republic of Tajikistan

UPDATED NATIONALLY DETERMINED CONTRIBUTIONS OF THE REPUBLIC OF TAJIKISTAN

Dushanbe 2021

1. VISION FOR CLIMATE CHANGE

The Republic of Tajikistan is a lower middle-income country, which, on the one hand, has one of the lowest GHG emissions in Central Asia, and on the other hand, is highly vulnerable to climate change impacts. Coping with climate change is a challenge for a landlocked mountainous developing country such as the Republic of Tajikistan. Affected by extreme events and dependent on natural resources, the country is highly vulnerable to climate variability and climate change impacts. Taking into account that climate change will exacerbate existing problems and pose additional risks to the achievement of national development priorities, the Republic of Tajikistan is aimed to address the economic and social impacts of climate change in a sustainable way and initiate transformational change in different economic sectors. The enhancement of adaptive capacity of the community and the different economic sectors by the building of climate resilience across the country is one of the essential pillars of the Republic of Tajikistan. In this regard, the Government of the Republic of Tajikistan in order to address the development priorities requires close cooperation with international and national institutions.

Coronavirus infection (COVID-19) significantly affected the socio-economic situations in the country, including the impact of pandemic on climate change initiatives. This unprecedented situation highlighted the importance to de-risk and properly plan further actions and consider new collaborative opportunities in the field of climate change.

The main objective of NDC of the country is to support the sustainable and efficient development taking into consideration climate change, environmental and socio-economic challenges. The Republic of Tajikistan formally communicated its INDC under the Paris Agreement in 2015 which became its NDC upon ratification of the Paris Agreement in 2017. During this short period, the Republic of Tajikistan has undertaken steps to increase its ambition through development of the national regulatory framework, as well as implementation of different projects and interventions. Mainly, the Republic of Tajikistan has increased its understanding of climate change impact and has made progress in coping with it with help of the international support (financial and technical) and by developing the institutional framework. However, institutional and community capacity in climate risk management requires enhancement.

Unlike country's original NDC, the Updated NDC includes the changes in an unconditional greenhouse gas (GHG) emissions reduction goal for 2030 and a conditional GHG emissions reduction goal. Additionally, the focus on adaptation has been strengthen. The Updated NDC is significantly improved by involving a broader scope of the participants from line ministries, academia, international organizations, donors, nongovernment organizations, business representatives and media, and their continued support during the implementation process is appreciated. Taking into account its national circumstances, the Republic of Tajikistan offers the ambitious targets and measures to achieve the transition to a low-carbon and climate-resilient development in a sustainable manner. The Republic of Tajikistan is keen to achieve a progress towards implementing the Sustainable Development Goals (SDGs) at national level by mainstreaming the focus of Agenda 2030 into the Updated NDC.

NDCs' revision process involves five key sectors identified as priorities for Tajikistan: agriculture, energy, forestry & biodiversity, industry & construction, transport & infrastructure.

This document enhances the initial effort of Tajikistan NDCs in accordance with decisions 1/CMA.2 of the Paris Agreement, 1/CP.21 of the UNFCCC and Article 4 of the Paris Agreement, as well as the country's interest to work together with the international community to limit global warming to well below 2, preferably to 1.5 degrees Celsius as stated in Article 2 of the Paris Agreement.

The updated information on Tajikistan NDCs consists of mitigation contributions to be implemented with its own efforts and conditional contributions that rely on adequate international support, namely financial and technical support, technology transfer as well as capacity building. The whole supporting package will accelerate the mitigation efforts and adaptation practice in the Republic of Tajikistan.

The **unconditional contribution** (NDC) of reducing greenhouse gas emissions in Tajikistan is not to exceed 60-70% of greenhouse gas (GHG) emissions as of 1990, which is the reference year, by 2030.

The **conditional contribution** (NDC), subject to a significant international funding and technology transfer, is not to exceed 50-60% GHG emissions as of 1990 by 2030.

The adaptation of these measures reflects a broader understanding of the country's high vulnerability to the impacts of climate change, and comprises 5 strategic sectors and 27 lines of action defined for the implementation in the country.

This document contains the scope and the criteria followed by the Republic of Tajikistan to enhance its ambition in adaptation and mitigation efforts of its initial NDCs. Furthermore, the updated NDCs also include information on the initial elements for establishing an Enhanced Transparency Framework as outlined by Article 13 of the Paris Agreement.

2. MITIGATION EFFORT

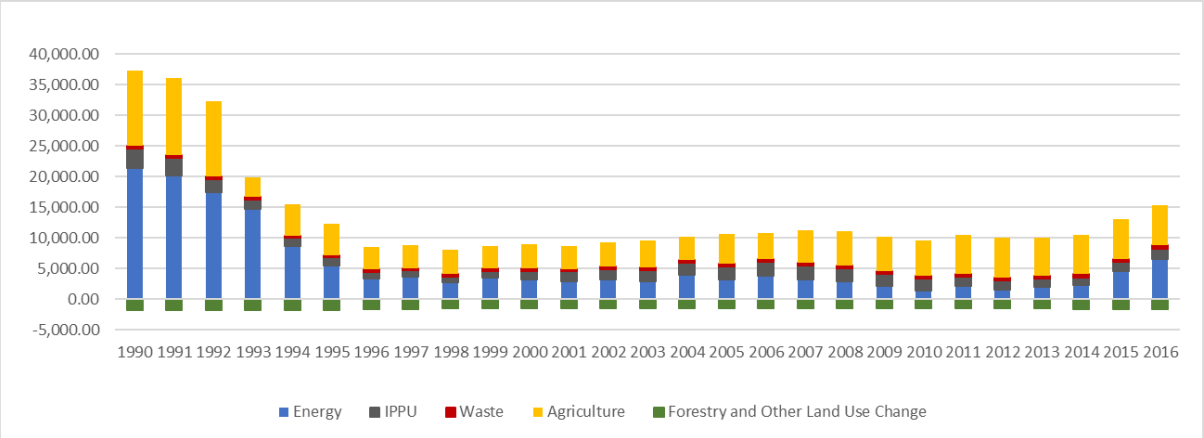
2.1.GHG INVENTORY

Tajikistan as one of the main efforts in its NDC Update process has updated its GHG Inventory from the 1996 IPCC Guidelines to 2006 IPCC Guidelines. It has resulted in a significant increase in the GHG emissions of the country initially reported. As it can be seen in the Figure 1, the entire dataset of the GHG Inventory yields higher values, especially for the period of 1990 to 2003 as for the rest of the years after 2003 year (2004 -2016). The last is owe to the fact that the previous GHG Inventory dataset of 1990 to 2003 was calculated with the 1996 IPCC Guidelines and from 2004 to 2016 with the 2006 IPCC Guidelines. Consequently, the update and harmonisation of the entire GHG Inventory affected the GHG emissions of the base year, which is 1990 by the subsequent increase of the overall GHG emission value of the country from 25.52 MtCO2eq to 35.53 MtCO2eq. The main increase in the GHG emissions is due to the new estimations in Agriculture and in the Industrial Processes and Product Use (IPPU).

The last also affected the initial per capita emissions of the country. In the initial NDC Tajikistan indicated that its per capita emissions value was of 4.1 tCO_2eq in 1990. With the current update the new per captia emissions value has increased up to 6.73 tCO_2eq in 1990.

Tajikistan considers the update of its GHG Inventory as substantial enhancement to its updated NDC in order to bring more transparency and clarity and understanding, including the mitigation targets.

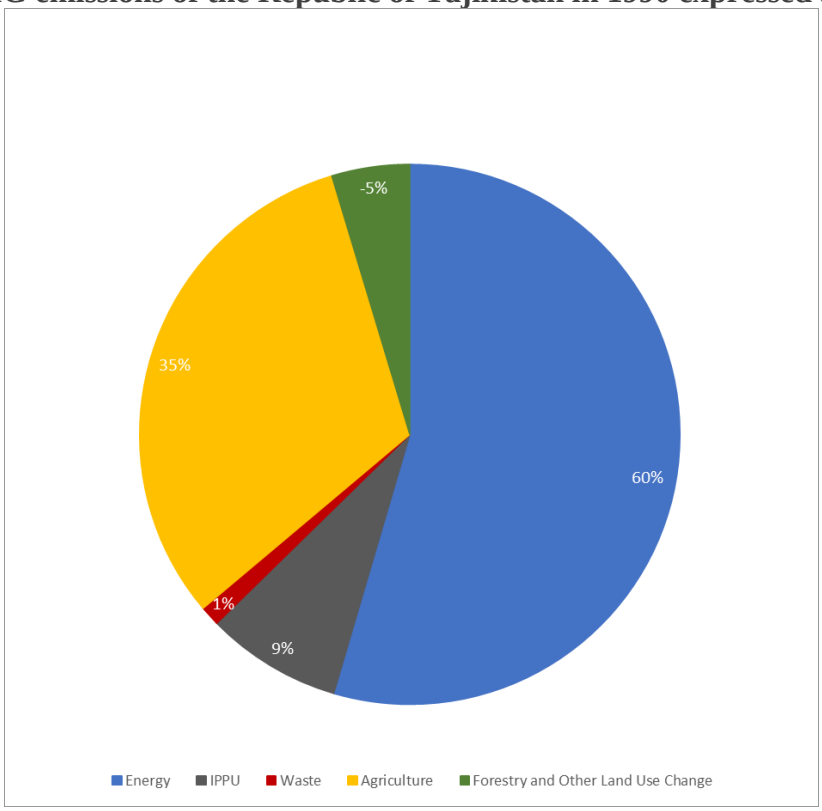
Figure 1: Greenhouse Gas Inventory of Tajikistan for 1990 to 2016



Source: FAO, based in the GHG Inventory provided by Hydromet and UNDP

The analysis of the GHG emissions per sector shows that in 1990 the 60% of the overall GHG emissions of the country comes from the Energy sector, followed by Agriculture with 35% and IPPU with 9% of the total GHG emissions of the Republic of Tajikistan (Figure 2). Waste and LULUCF has minor weight in the overall GHG emissions of the country in 1990.

Figure 2: GHG emissions of the Republic of Tajikistan in 1990 expressed as percentage



Source: FAO, based in the GHG Inventory provided by Hydromet and UNDP

Although there is an overall increase in the base year, it is necessary to highlight that the last year of the GHG Inventory, which is 2016, solely represents the 39% of the overall GHG emissions emitted in 1990. Therefore, the Republic of Tajikistan believes that this substantial reduction favours the world common goals of global GHG emissions reduction, and with the support of the international community the Republic of Tajikistan can reach a low carbon development.

2.2. GHG EMISSION PROJECTION SCENARIOS

The Republic of Tajikistan has followed a novel approach of generating a hybrid model for formulating its future GHG emission scenarios. The first step was to establish the macroeconomic and other general parameters that were used for defining the Baseline and mitigation scenarios (Table 1).

The second step was the formulation of the Bottom-up models for each sector considered under the Updated NDC. The sectors considered were: 1) Energy; 2) Agriculture; 3) Forestry (LULUCF); 4) Transport; and 5) Industry and Construction. Once the sectoral assessment was conducted, their GHG estimations were integrated into the overall country scenarios.

Table 1. Macroeconomic and other parameters used for formulating the baseline and the mitigation scenarios of the Republic of Tajikistan for the Updated NDC

	SCENARIOS					
	Baseline			**Mitigation**		
	Includes all policies and measures adopted up to 2020			*Includes NEW policies and measures from 2020 to 2030*		
COMMON PARAMETERS	**Moderate Growth**	**Intermediate Growth**	**Fast Growth**	Moderate Growth	Intermediate Growth	Fast Growth
GDP (Real, %/year 2018-2030)	**4 -5 %**	**5-6%**	**7-8%**	**4 -5 %**	**5-6%**	**7-8%**
Population	2%	2%/year for 2018-2030 (UN Median)	2%/year for 2018-2030 (UN Median)	2%/year for 2018-2030 (UN Median)	2%/year for 2018-2030 (UN Median)	2%/year for 2018-2030 (UN Median)
SECTORAL PARAMETERES	• Sectoral GDP growth per year, expressed in percentage; • Percentage share contribution to the GDP; • GDP per capita; • Country Inventory of Greenhouse Gas Emissions; • Emissions factor used by the Republic of Tajikistan					

Source: FAO based on the inputs of UNDP, GIZ, European Commission and the WB

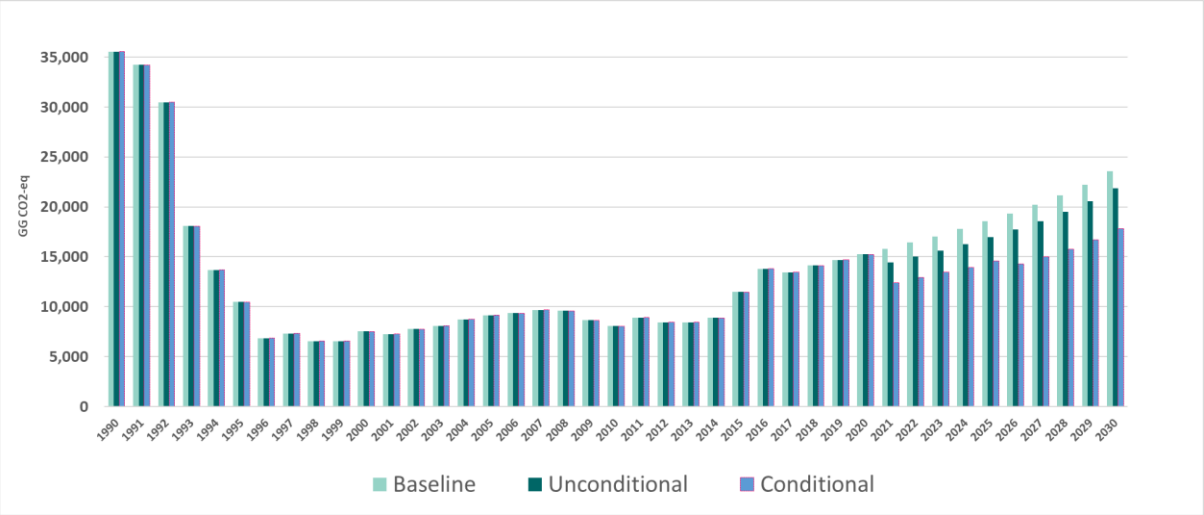
For formulating the projections of greenhouse gas emissions in the Republic of Tajikistan until 2030 (Gg CO_2e), three scenarios were formulated:

1) **Baseline scenario.** This scenario considers that any mitigation measure would be successfully implemented;
2) **Unconditional scenario**. This scenario considers all the existing mitigation measures that will be implemented with country efforts up to 2030; and

3) **Conditional scenario.** This scenario considers additional mitigation measures, for implementation of which the Republic of Tajikistan will require a support of the international community.

The results of the formulation of the three aforementioned scenarios could be seen in the Figure 3., where the expected GHG emissions under the Baseline scenario are of 23.54 $MtCO_2eq$ by 2030, under an intermediate growth. The last implies that under this scenario the overall GHG emissions of the Republic of Tajikistan would reach the 66.25% of the existing GHG emissions in 1990.

Figure 3: GHG Emissions of the Republic of Tajikistan by scenario



Source: Lopez Blanco, M.J., Martín Ortega, J.L., Rivas, A. 2021. GHG forecasting in key sectors and impact assessment of climate change mitigation policies and measures. Projections of GHG emissions to 2030 in Tajikistan. UNDP

Under the unconditional scenario the GHG emissions expected by 2030 are of 21.87 $MtCO_2eq$. The last represents to 61.55% of the existing GHG emissions in 1990 or a reduction of 7% compared to the baseline scenario.

Whereas under the conditional scenario, the GHG emissions by 2030 will be of 17.83 $MtCO_2eq$, amount that means 50.10% of the GHG emissions of 1990 or a reduction of 24% compared to the baseline scenario.

2.3. MITIGATION TARGETS

It is important to highlight that the Republic of Tajikistan has defined an emission cap target in its initial NDC: the **unconditional target** was an emission cap between 80 to 90% of the GHG emissions of 1990 and the **conditional target** was an emission cap between 65 to 75% of GHG emissions of 1990. The **unconditional target** expressed in per capita was of 1.7 to 2.0 tCO_2eq by 2030. Whereas the **conditional target** expressed in per capita emissions was of 1.4 to 1.7 tCO_2eq.

For the Updated NDC of the Republic of Tajikistan the mitigation targets were defined based on the three GHG emission scenarios formulated for the Republic of Tajikistan. Therefore, based on the GHG emission projections, the Republic of Tajikistan would have an **unconditional target** which is an emissions cap of **60 to 70%** of existing GHG emissions in

1990. The last means that the Republic of Tajikistan should not goes beyond 21.32 to 24.87 $MtCO_2eq$ emitted in 2030. Whereas the **conditional target** would be an emission cap of **50 to 60%** of GHG emissions occurred in 1990. Thus represents a limit of 17.76 to 21.32 $MtCO_2eq$ emitted in 2030.

The last if it is expressed as GHG emissions per capita indicates that the **unconditional target** goes between **1.9 to 2.2 tCO2eq** and the **conditional target** goes between **1.5 to 1.9 tCO2eq per capita** by 2030.

The table below provides the summary of the Information on Clarity, Transparency and Understanding (ICTUs) of the enhanced Tajikistan's NDCs.

1.	**QUANTIFIABLE INFORMATION ON THE REFERENCE POINT (INCLUDING, WHERE APPROPRIATE, A REFERENCE YEAR):**	
A	**Quantifiable Information on the Reference Point (including, where appropriate, a reference year):**	Reference year or Base year is 1990
B	**Quantifiable information on the reference indicators, their values in the reference year(s), reference year(s), reference period(s) or other starting point(s), and, as applicable, in the target year;**	The net GHG emissions of the Republic of Tajikistan in 1990 were estimated at 35.53 $MtCO_2eq$. Gases Covered: GHG not controlled by the Montreal Protocol -Carbon Dioxide (CO_2), -Methane (CH_4), -Nitrous Oxide (N_2O). Sectors Covered: **1)** Energy: 21.37 $MtCO_2eq$; **2)** Industrial processes and Product Use (IPPU): 3.18 $MtCO_2eq$; **3)** Agriculture, Forestry and Other Land Use (AFOLU): 10.51 $MtCO_2eq$. **a.** Agriculture: 12.33 $MtCO_2eq$; **b.** Forestry and Other Land Use (FOLU): -1.82 $MtCO_2eq$; **4)** Waste: 0.46 $MtCO_2eq$. Methodology: 2006 IPCC Guidelines for National Greenhouse Gas Inventories.
C	**For strategies, plans and actions referred to in Article 4, paragraph 6, of the Paris Agreement, or policies and measures making part of NDCs where paragraph 1(b) of the above Agreement is not applicable, Parties are to provide other relevant information;**	Not applicable.
D	**Target indicator(s) compared to the reference one(s), expressed numerically, for example in% or amount of reduction;**	The Republic of Tajikistan is committed to an unconditional target, which is an emissions cap of 60 to 70% of existing GHG emissions in 1990 level by 2030, which stands at 21.32 to 24.87 $MtCO_2eq$ by 2030, or 1.9 to 2.2 tCO2eq per capita. The conditional target of reducing GHG emissions in the Republic of Tajikistan would have an emissions cap of 50 to 60% compared to the 1990 level by 2030, which stands at 17.76 to 21.32 $MtCO_2eq$ by 2030, or 1.5-1.9 tCO_2e per capita

		if provided access to affordable financial resources, technology transfer and technical cooperation.
E	**Information on data sources used when quantifying the reference point(s);**	The following data sources were used in order to quantify the reference points: **i.** National Development Strategy (NDS) of the Republic of Tajikistan until 2030; **ii.** Mid-Term Development Program (MDP) of the Republic of Tajikistan for the period of 2021-2025; **iii.** First Nationally Determined Contribution of Tajikistan, 2017; **iv.** National Communications of the Republic of Tajikistan under the UNFCCC; **v.** The First Biennial Update Report of the Republic of Tajikistan under the UNFCCC, 2019; **vi.** National GHG Inventories for the period of 1990-2016; **vii.** National Statistical Data; **viii.** National Strategy of the Republic of Tajikistan on Disaster Risk Reduction for the period of 2019-2030; **ix.** National Strategy for Adaptation to Climate Change in the Republic of Tajikistan until 2030; **x.** Sectoral Strategies of the sectors involved in the NDC implementation, which are: o Agriculture, Irrigation, Energy, Forestry & Biodiversity, Industry & Construction, Transport & Infrastructure. xi. National cross-sectoral long-term strategies, national programs and regulations of the Republic of Tajikistan. xii. Assessments carried out by international development partners.
F	**Information on the circumstances under which the Party may update the reference indicators.**	Throughout the NDCs enhancement process, the reference year and GHG Inventories were recalculated according to the 2006 IPCC Guidelines. Nevertheless, some sectoral assessments were estimated using Global Warming Potential of the 2019 IPCC Guidelines for National Greenhouse Gas Inventories (Agriculture and Forestry). The reference indicators might be recalculated and updated through: - Continuous improvement in the methodological approach to the baseline or the mitigation scenarios; - Improvement in the activity data by virtue of the enhancement of the national statistics; - Application of higher methodological tier from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories; - Update or new national emission factors; - Reduction of uncertainty in the national GHG inventory; - Update of the national GHG inventory according to the 2019 IPCC Guidelines for National Greenhouse Gas Inventories.
F.1	**Whether the baseline scenario target is static (constant value in a period of time) or dynamic (changing value in a period of time), if applicable; any threshold of significance in**	The target indicator of the baseline scenario is static as it corresponds to the overall GHG emissions of the Republic of Tajikistan in 1990. The only plausible option of being modified is a transition from the 2006 IPCC Guidelines to the 2019 IPCC Guidelines for National Greenhouse Gas Inventories.

	order to determine whether changes in emissions drivers are enough to require a recalculation of the scenario.	
2.	**TIME FRAMES AND/OR PERIODS OF IMPLEMENTATION:**	
A	**Time frame and/or period of implementation, including start and end date, taking into account any further relevant decision adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA);**	The deadlines to fulfil the obligations under the enhanced NDCs of the Republic of Tajikistan will begin immediately after the submission of the Updated NDC to the UNFCCC Secretariat. The commitments stated in the document are valid until December 31, 2030. Nevertheless, the Republic of Tajikistan will revise its target indicators in its second NDC to be submitted in 2025. Tracking of the country commitments will be conducted on a biennial basis through the Biennial Update Report (BUR) and the Biennial Transparency Report (BTR). BUR will be the viable reporting mechanism until 2023, and BTR - from 2024 on onwards. Both reports will, according to the requirements of the UNFCCC, communicate the updated GHG inventory and the implementation of the relevant mitigation efforts to fulfil the mitigation targets of the country.
B	**Whether target indicator(s) is/are single-year or multi-year (where applicable);**	The target indicators are single-year and are set for 2030.
3.	**SCOPE AND COVERAGE**	
A	**General description of the target indicator(s);**	The Republic of Tajikistan is committed to an unconditional target which is an emissions cap of 60 to 70% of existing GHG emissions in 1990 level by 2030, which stands at 21.32 to 24.87 $MtCO_2eq$ by 2030, or 1.9 to 2.2 tCO2eq per capita. The conditional target of reducing GHG emissions in the Republic of Tajikistan would have an emissions cap of 50 to 60% compared to the 1990 level by 2030, which stands at 17.76 to 21.32 $MtCO_2eq$ by 2030, or 1.5-1.9 tCO_2eq per capita if support in terms of finance, technology transfer and capacity building is provided to the Republic of Tajikistan by the international community.
B	**Sectors, gases, categories, and pools covered by NDCs, including, where applicable, references to the IPCC Guidelines;**	Gases covered: GHG not controlled by the Montreal Protocol: ● Carbon dioxide (CO_2); ● Methane (CH_4); ● Nitrous oxide (N_2O); IPCC Sectors covered: 1) Energy; 2) Industrial processes and Product Use (IPPU); 3) AFOLU **a)** Agriculture; **b)** Forestry and Other Land Use (FOLU) 4) Waste. The Republic of Tajikistan will reduce GHG emissions at economy-wide level and it has not settled any specific mitigation contribution per sector.
C	**Party's considerations on paragraphs 31(c) and (d) of decision 1/CP.21;**	The Republic of Tajikistan has included all relevant GHG sources and sinks in its Updated NDC, and is committed to extend its scope and coverage to all categories of anthropogenic emissions.

D	**Mitigation co-benefits resulting from Party's adaptation actions and/or economic diversification plans, including description of specific projects, measures and initiatives thereof;**	Mitigation co-benefits resulting from the adaptation actions are aligned with the national policies of the Republic of Tajikistan and were identified for each sector as follows: <u>Energy</u>: ● Promoting water-energy-land interaction with renewable energy sources; ● Climate protection of the energy system infrastructure; ● Ensuring the functioning of the energy infrastructure under any climatic condition; ● Modernization of existing Hydroelectric Power Stations and construction of new HPPs.; ● Improving the energy efficiency in industry by means of more efficient equipment, production technology improvements, reduction of heat losses and/or increased utilization of waste heat, resource efficiency; ● Modernization of transmission lines or substations and/or distribution systems to reduce energy consumption and/or technical losses, including increasing stability/reliability of the network (in case of capacity expansion, under the condition of the investment provided and contribution to the reduction of existing losses); ● Modernization of a thermal power plant through a switch from a GHG-intensive fuel to less GHG-intensive fuel; ● Use of architectural designs of efficient houses and buildings, which comprise a set of measures that goes from energy efficient appliances and equipment, building practices with aim to reduce the energy consumption, surpass the available standards and meet high energy efficiency certifications or rating; ● Retrofitting of existing buildings: architectural or construction changes that reduce energy consumption; ● Improving energy efficiency in the utilities by installing more efficient lighting or equipment, improving energy consumption, reducing losses or improving resource efficiency; ● Reconstruction of district heating and cooling systems. Decrease in heat losses and/or increase in waste heat recovery; ● Extensive use of renewable energy sources, primarily solar energy, solar water heaters and other available technologies of thermal use of solar energy in all sectors of the economy; ● Use of renewable energy resources in the construction sector and rational use of waste heat from power generation plants. <u>Industrial and construction sector:</u> ● equipping large enterprises with modern energy-saving and digital technologies; ● development of industrial sectors of the national economy, taking into account the implementation of measures for environmental protection and the "green economy"; ● introduction of rational consumption and production models, the "greening" of enterprises; ● development of sustainable infrastructure based on the implementation of "green" investment projects,

		● creation of early warning systems for the adoption of protective measures and prevention of damage and loss of infrastructure. <u>Water resources:</u> ● Assessment of the water resources available, better access to water resources and effective water management; ● Taking into account social and gender issues related to water access and management; ● Reducing the risk of water-related disasters; efficient water purification and water reuse. ● Achievement of economically efficient and environmentally sustainable management of water resources; ● Improving water resources management through the full implementation of basin and integrated water resources management; ● Adoption and implementation of the National Water Strategy of Tajikistan for the period up to 2030; ● Development and implementation of basin plans for water resources management; ● Development and implementation of the Drinking Water Supply and Sanitation Program for the period up to 2030; ● Development and implementation of the Program for the Development of Land Reclamation and Irrigation for the Period up to 2030. <u>Agriculture:</u> Managing the balance between emissions and removals can help guide Tajikistan's transformational pathway towards a low-carbon and resilient agriculture. There are strong synergies and trade-offs between their impact on productivity, adaptation benefits, GHG mitigation benefits, gender and biodiversity benefits. The mitigation potential in the agricultural sector is assessed as a co-benefit of agricultural development and adaptation measures. Adaptation measures identified have also many synergies with the national objectives to increase agricultural productivity, improve farming profitability and incomes, protect biodiversity and promote gender inclusive agricultural growth. Some measures have a net mitigation co-benefits and are in line with existing polices and measures, such as: ● Promoting efficient irrigation technologies, ● Rehabilitation of irrigation and drainage systems ● Optimizing the use of fertilizers, i.e. reducing the use of synthetic fertilizers); ● Promoting crop diversity; ● Integrated pest management; ● Advancing integrated food, water and energy systems ● Promoting and scaling of agroforestry, horticulture, viticulture, climate-smart and conservation agriculture; ● Improved pasture management planning; ● Improve existing carbon pools, such as rangeland management, collection and use of oil cake, rice hulls or other agricultural waste, reducing the use of tillage methods that increase soil carbon, restoring degraded land, etc.;

		● Introduction of technologies and equipment for collecting of anaerobic systems, manure storage and processing and also an adequate poultry manure management; ● Mastering ecologically safety, highly efficient and energy-saving technologies for the disposal and use of agricultural waste; ● Biofuel production, including biodiesel and bioethanol (only if net emission reductions can be demonstrated); ● Improved livestock breeding; ● Sustainable practices in the pasture management. <u>Forestry:</u> ● afforestation/reforestation, natural regeneration and active regeneration for erosion stabilization/prevention, timber production, firewood production, NTFP production, degradation reduction; ● promoting Nature based Solutions, Forest Landscape restoration and other relevant approaches to improve forest conditions; ● promoting forest protection and sustainable management of existing forests and ecosystem services; restoration in degraded pastures, agroforestry and silvopastoral practices; ● promoting crosscutting actions: integrated land management, improving the regulatory framework, strengthening law enforcement, developing a sustainable financing system, conducting inventory and monitoring, and investing in science and innovation. <u>Transport:</u> ● Resilient urban infrastructure to reduce exposure to climate risks; ● Increasing climate resilience of transport infrastructure (roads, bridges, viaducts, railways, tracks); ● Adoption of climate resilience codes and standards; ● Access of the rural population to a climate-resilient road system that takes into account social, age and gender issues; ● Switch to cleaner and environmentally friendly fuels for vehicles. Further expansion in use of vehicles having high fuel efficiency, corresponding to the world standards; ● Measures to encourage transition from polluting fuels to other less polluting energy or fuels, or biofuels, as well as transition to a modern energy efficient transport working on energies like gasoline to liquefied gas, hybrid vehicles (gasoline/electricity), electric vehicles and etc; ● Building facilities for car manufacturing as well as for disposal and recycling of old vehicles; ● Planting of protective tree rows along roads on the roadsides; ● Altering modes of urban transportation: priority to public urban transportation, non-motorized transport (bicycles, skateboards and pedestrians); ● Development of transport and urban planning (multipurpose land use, pedestrian communities, multimodal and intermodal transport, etc.) that helps to reduce the use of cars; ● Encouraging railway transportation, which allows to move the freight and/or passenger flows from road to rail;

		improvement of existing lines or construction of new railways and electrification of railway lines. Waste utilization: ● improvement of industrial waste management; ● improving economic mechanisms in waste management; development of a static accounting system for waste generation, monitoring of waste movement and disposal sites; ● development of innovative technologies and infrastructure in the involvement of waste into economic circulation.
4	**PLANNING PROCESS:**	
A	**Information on the planning processes the Party undertook to prepare its NDCs and, if available, on the Party's implementation plans, including:**	The enhanced NDCs have been formulated on the basis of the first Biennial Update Report (BUR) and the draft of the Fourth National Communication of the Republic of Tajikistan under the UNFCCC (the Fourth NC of the Republic of Tajikistan will be formally approved tentatively on October 30, 2021). The baseline scenario and the mitigation efforts were widely discussed with all national stakeholders between 2017 and 2019. The sectoral assessments were conducted between 2020 and 2021 with the support of the partners of the Climate Action Enhancement Action Package (CAEP) for the energy, agriculture, irrigation, industry & construction, transport & infrastructure and forestry sector. Various meetings at sectoral level and inter-ministerial technical working group took place to agree upon the progress and contents of the sectoral reports, as well as the enhanced NDCs. Hence, in December 2020, the first draft of the enhanced NDCs was submitted to the government and the civil society for comments and suggestions. The latter have been included in the final draft of the enhanced NDCs before their approval.
A.1	**Domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples in a gender-responsive manner;**	The domestic arrangements for the enhanced NDCs were carried out by the Committee of Environmental Protection (CEP) under the advisory of an Inter-ministerial Technical Working Group (IMTWG), - established for the revision and approval of the NDC, and with the scientific advisory of the National Agency for Hydrometeorology. Specific consultations on gender and climate change were held with the civil society and the Committee on Women's Affairs and Family. The enhanced NDCs were available for the perusal by the civil society at the website of the CEP. Two multistakeholder meetings were held with the participation of NGOs, business representatives and academia. Those suggestions were analysed and considered by the Government of the Republic of Tajikistan, including by the above-mentioned IMTWG set up to formulate the enhanced NDCs and submit them for approval.
A.2	**Information on context, including, inter alia:**	
A.2.1	***National set of conditions, such as geography, climate, economy, sustainable development and poverty eradication;***	Geography. The Republic of Tajikistan is a landlocked country in the southeast part of Central Asia. The country covers an area of 142.100 km^2; to the north, it borders Kyrgyzstan (border length: 630 km), to the east - China (430 km), to the

		south - Afghanistan (1,030 km), and to the north and west - Uzbekistan (910 km). Three mountain systems - Tien Shan, Gissar-Alay and Pamir - occupy about 93% of the country's territory. The terrain height ranges from 300 to 7.495 meters above sea level, with almost half of the country's territory at an altitude of over 3.000 m above sea level (ASL). In addition to the highest mountain peak in the country, Kullay Ismoili Somoni (7.495 m), located in the Pamir mountain range, there are 72 mountain peaks in the Republic of Tajikistan with a height of over 6.000 m ASL. The Republic of Tajikistan is prone to frequent earthquakes, as it is located in a seismic belt that covers the entire southeast part of Central Asia. High mountains are constantly covered with snow, ice and glaciers, which occupy 8.476 km^2, or about 6% of the country's total area, and are estimated to contain 576 km^3 of fresh water. Melting snow and glaciers feed the rivers of the Aral Sea basin with 6-13 km^3 of fresh water per year, which is approximately 10-20% of the total river flow of the basin. One of the topographic features of the Republic of Tajikistan are alpine lakes with a total area of over 680 km^2, most of which are located in the eastern part of the Pamir. Among approximately 1.000 lakes, 80% are located over 3.000 m ASL. The features that distinguish the west of the country are foothills and steppes (semi-arid grassy plains), while lowlands are located only in river valleys in the southwest and in the extreme north, where the Republic of Tajikistan owns a strip of land that includes part of the fertile Fergana Valley. Unique natural ecosystems – from hot deserts to cold highlands – are home to a variety of animal species. The vast variety of local flora ranges from drought-tolerant grasses and low-growing shrubs in steppe regions to dense coniferous forests that cover the mountain slopes. Climate. The climate of the country is a continental one. However, a large amplitude of heights in combination with a very complex relief structure determines the formation of unique regional and local climatic zones with large differences in temperatures, characterized by significant daily and seasonal fluctuations in weather conditions. There are abrupt changes in the average annual precipitation – from a minimum level of less than 100 mm in the Eastern Pamirs to 500-600 mm in the Vakhsh river valley in the south and a maximum value of over 2.000 mm on the Fedchenko glacier. Economy. The economy of the Republic of Tajikistan is a mix of agrarian and industrial ones, where the basis is agriculture: cotton and other various crops cultivation, animal husbandry as well as industry, mechanical engineering, production of aluminium, mineral fertilizers, textile and light industry, energy and production of consumer goods. Relative remoteness and communication isolation from the existing

		world transport infrastructure, high-mountainous relief, lack of access to the sea shape a largely unfavourable economic and geographical position. The total GDP of the Republic of Tajikistan in 2019 amounted to USD 8.1 billion, which gives USD 840 per capita. The structure of GDP is the following: agriculture - 22%, industry - 15.1%, construction - 15%, services - 35%, transport - 10% and net product tax - 6%. Tajikistan's public external debt at the end of 2018 amounted to USD 2.9 billion (40% of GDP), compared to 24% of GDP in 2014. According to the World Bank, real GDP growth slowed from 7.3% in 2018 to 6.2% in 2019 and will decline to 5.5-5.0% between 2020-2021, reflecting a weaker economic growth in Russia and the decline in world commodity prices associated with COVID-19. Remittance inflows will remain slow in the medium term. Economic activity will be mainly supported by mining, manufacturing and construction. Out of the total employed population, 46% are employed in agriculture, 6.8% in industry, 8.6% in construction, 12.2% in trade and services, 4.6% in the public administration system, 4.1% in healthcare, 8.1% in the education system and 9.3% in other sectors of the economy (finance, communications, science, etc.) Sustainable development and poverty eradication. It is important to stress that the Republic of Tajikistan was included in the list of 10 countries with the fastest rate of poverty reduction over the last few decades. The poverty rate fell from 81% in 1999 to 29.7% in 2017. The extreme poverty rate fell from 73% to 14% accordingly. The analysis of data from 2003 to 2018 showed that the factors that reduced poverty were wage increases, remittances from abroad, timely pension payments, among others. In the world ranking by the Human Capital Index (HDI-0.53), the Republic of Tajikistan was ranked 57th among 130 countries in 2018. According to the Human Development Index (HDI-0.656) of 2019, the Republic of Tajikistan is 129th among 187 countries and according to the Gender Inequality Index (GII- 0.377) the Republic of Tajikistan reached the 84th place in 2019.
A.2.2	***Best practices and experience to formulate NDCs***	Methodology to estimate emissions: the recalculation/update of GHG emissions was carried out in accordance with the 2006 IPCC Guidelines for GHG Inventories. Stakeholder engagement: all key stakeholders, both governmental and non-governmental, were fully involved and constructively engaged in the decision-making when working out NDCs. Commitment: NDCs have been formulated in conformity with the relevant national policies and strategies, in particular the National Development Strategy of the country until 2030, the National Strategy for Adaptation to Climate Change until 2030 and other sectoral plans and programs. The process of formulating the Updated NDC included involvement of the different stakeholders (mentioned above) to make the process as most inclusive possible.

A.3	**Specific information applicable to the Parties, including regional economic integration organizations and their member states that decided to act jointly under Article 4, paragraph 2, of the Paris Agreement, including the Parties that decided to act jointly under Article 4 paragraphs 16–18, of the Paris Agreement;**	Not applicable
A.4	**How the Party uses the outcome of the global stocktake in preparation of its NDCs, in accordance with Article 4 paragraph 9, of the Paris Agreement:**	Information on the results of the global stocktake in accordance with Article 4, paragraph 9, of the Paris Agreement will be taken into account when preparing the subsequent NDCs of the Republic of Tajikistan.
A.5	**Information on adaptation action(s) and/or economic diversification plan(s) resulting in mitigation co-benefits, in conformity with Article 4, paragraph 7, of the Paris Agreement:**	Please refer to Section 3 (d) above.
A.5.1	**Economic and social consequences of response measures taken into account when formulating NDCs;**	Not applicable
A.5.2	**Specific projects, measures and activities to be implemented to contribute to mitigation co-benefits, including information on adaptation plans that also yield mitigation co-benefits that may cover, but are not limited to, key sectors, such as energy, resources, water resources, coastal resources, human settlements and urban planning, agriculture and forestry;** **economic diversification actions that may cover, but are not limited to, sectors such as manufacturing and industry, energy and mining, transport and communication, construction, tourism, real estate, agriculture and fisheries.**	Not applicable
5.	**ASSUMPTIONS AND METHODOLOGICAL APPROACHES, INCLUDING THOSE FOR ESTIMATING AND ASSESSING ANTHROPOGENIC GREENHOUSE GAS EMISSIONS AND, WHERE APPROPRIATE, GREENHOUSE GAS REMOVALS:**	
A	**Assumptions and methodological approaches used for assessing anthropogenic GHG emissions**	The Republic of Tajikistan assesses its anthropogenic GHG emissions and removals using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories as guided by decision 1/CP.21 and Article 4, paragraph 13 of the Paris Agreement.

	and removals corresponding to the Party's NDCs, in conformity with decision 1/CP.21, paragraph 31, and accounting guidance adopted by the CMA;	
B	**Assumptions and methodological approaches used for assessing the policies, measures or strategies to implement NDCs;**	For the GHG emissions assessment in the baseline scenario, the key elements that could affect the GHG emission values are the following: **1)** Yearly GDP growth of the Republic of Tajikistan **2)** Estimated population growth of the Republic of Tajikistan until 2030 For the choice of mitigation efforts, the critical parameters are: **1)** Yearly GDP growth of the Republic of Tajikistan **2)** Estimated population growth of the Republic of Tajikistan Implementation of envisaged policies with direct impact on GHG emissions reduction.
C	**Estimated impact on GHG emissions and/or non-GHG indicators; methodologies used to estimate impacts, including the baseline scenario and other assumptions; uncertainty of estimated impacts (evaluation or description); information on potential interactions with other policies/actions**	For the sectoral estimations, the following parameters are critical for estimating the baseline scenario and the potential mitigation impact of the foreseen policies and measures: **1)** Sectoral GDP growth per year (until 2030) **2)** Sector share contribution to the GDP (in percent) **3)** GDP per capita **4)** GHG emissions inventory **5)** Emission factors. other relevant criteria that affect the expected performance of the sector.
D	**If applicable, information on the way the Party takes into account existing methods and guidance under the Convention to assess anthropogenic emissions and removals, in accordance with Article 4, paragraph 14, of the Paris Agreement;**	Please refer to Section 5 (a) above.
E	**IPCC methodologies and metrics used for estimating anthropogenic GHG emissions and removals;**	The following global warming potential (GWP) indicators are used in compliance with decision 24/CP.19: ● CO_2: 1 ● CH_4: 25 ● N_2O: 298
F	**Sector-, category- or activity-specific assumptions, methodologies and approaches consistent with the IPCC Guidance, as appropriate, including:**	
F.1	**Approach to emissions and subsequent removals from natural disturbances on managed lands;**	Please refer to Section 5 (a) above.
6.	**HOW THE PARTY'S PREPARATION OF ITS NATIONALLY DETERMINED CONTRIBUTION HAS BEEN INFORMED BY THE OUTCOMES OF THE GLOBAL STOCKTAKE, IN ACCORDANCE WITH ARTICLE 4 PARAGRAPH 9, OF THE PARIS AGREEMENT**	
	According to Article 14.2 of the Paris Agreement, the Conference serving as the Meeting of the Parties to the Agreement (CMA) shall undertake its first global stocktake in 2023 and every 5 years thereafter unless otherwise decided by the CMA. It is expected that the reduction commitments of the updated NDC of the Republic of Tajikistan will be considered in the Global Stocktake Report to be published in 2023. Subsequent revisions of Tajikistan's NDC will be informed by the outcomes of the global stocktake in accordance with article 4 Paragraph 9 of the Paris Agreement.	

A	**How the Party considers that its nationally determined contribution is fair and ambitious in the light of its national circumstances**	
A.1	The Republic of Tajikistan considers that its Updated NDC is fair and ambitious as its reducing 30 to 40% of its GHG emissions in 1990 as unconditional target. Whereas the conditional target reaches a GHG emission reduction between 40 to 50% of the base year. The last represents a tremendous effort of the Republic of Tajikistan in order to keep its GHG emissions far below of its peak emissions occurred in 1990. Moreover, the Republic of Tajikistan presents one of the lowest per capita emissions of Central Asia, which expects to be around 1.9 to 2.2 tCO_2eq per capita by 2030 as unconditional target and around 1.5 to 1.9 2 tCO_2eq per capita by 2030 as conditional target. Finally, for the Republic of Tajikistan is paramount to continue with its development as it is considered a lower middle income country and requires a strong support by the international community in order to achieve its SDGs.	
B.	**Fairness considerations, including reflecting on equity**	
	The updated NDC of the Republic of Tajikistan goes in line with the GHG emissions trajectories towards 2050 and onwards that correspond to keeping global warming in line with the global long-term goal of the Paris Agreement. Furthermore, the Republic of Tajikistan is a non-Annex I Party of the UNFCCC and it is applying the "common but differentiated responsibilities". Thus, the Republic of Tajikistan is contributing by far more than its initial responsibilities assumed to the Convention.	
C.	**How the Party has addressed Article 4, paragraph 3, of the Paris Agreement**	
	The Republic of Tajikistan takes into account Article 4 paragraph 3 of the Paris Agreement and will submit each subsequent Nationally Determined Contribution with higher ambition and progress towards emission reductions. In the current Update of its initial NDC the Republic of Tajikistan has shown an enhance in its mitigation ambition pushing forward its initial mitigation contribution up to reducing up to 30% of its GHG emissions of 1990 by 2030. To support the limited national resources and technical capacity available to combat climate change through the implementation of the NDC, the Republic of Tajikistan anticipates access to multilateral and bilateral support will be required, including from the Green Climate Fund and other multilateral and bilateral development agencies.	
D.	**How the Party has addressed Article 4, paragraph 6, of the Paris Agreement**	
	Not applicable as the Republic of Tajikistan is not a Least Developed Country nor Small Island Developing State.	
7.	**HOW THE NATIONALLY DETERMINED CONTRIBUTION CONTRIBUTES TOWARDS ACHIEVING THE OBJECTIVE OF THE CONVENTION AS SET OUT IN ITS ARTICLE 2**	
A.	**How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2**	
	The NDC of the Republic of Tajikistan is fully committed to ambitious national and global climate action to achieve the aims within the Article 2 of the Convention, "aimed at stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system, and to building resilience to the impacts of climate change".	
A.1	**Comparison of the contribution to multiple indicators related to achieving the objective of the Convention as set out in Article 2. Factors that Parties may want to consider**	Not applicable

3. ADAPTATION CONTRIBUTION

3.1.National circumstances, institutional arrangements and legal framework

The Republic of Tajikistan aims to tackle the socio-economic impacts of climate change on vulnerable members of the society, agricultural productivity and water availability, and other sectors by increasing the resilience of different communities in the Republic of Tajikistan, as well as decreasing vulnerability capacity of different stakeholders in the country.

The Republic of Tajikistan has a regulatory and institutional framework for implementing adaptive measures aimed at solving problems related to climate change. Many state bodies and institutions are implementing programs related to adaptation to climate change and all of them are accountable to the Government of the Republic of Tajikistan.

General guidance for coordinating activities on climate change adaptation of sectoral ministries and departments is led by the Committee for Environmental Protection (CEP) under the Government of the Republic of Tajikistan.

In accordance with the governmental decree, the Committee is responsible for the implementation of the National Strategy for Adaptation to Climate Change of the Republic of Tajikistan for the period until 2030. Moreover, the CEP is also the National Designated Authority (NDA) to the Green Climate Fund (GCF).

3.2.Implementation of adaptive measures within the framework of strategies and plans

It should be noted that after the signing of the Paris Agreement and the submission of the first NDC, a number of strategic documents, programs and concepts were adopted, which directly or indirectly affects the adaptive measures aimed at reducing the impact of climate change.

The **National Development Strategy of the Republic of Tajikistan until 2030** (NDS 2030), adopted in 2016, outlines the general directions of economic development, the implementing measures that can help to reduce the impact of climate change, which include: i) the use of non-traditional (renewable) energy sources; ii) the minimization of the negative impact of the transportation on the environment and human health; iii) fostering the development of "green employment", expanding the environmental entrepreneurship and the environmental services market with the support of the state.

The **National Strategy for Adaptation to Climate Change of the Republic of Tajikistan for the period up to 2030** (NSACC 2030), adopted by the Government of the Republic of Tajikistan on October 2, 2019, became a strategic document to achieve the goals stated in the Paris Agreement. This strategy summarizes the information needed to identify risks, threats and adaptive measures related to climate change. The Government of the Republic of Tajikistan has prioritized four sectors that are both climate sensitive and development priorities: i) energy; ii) water; iii) transport; and iv) agriculture. The strategy outlines adaptive measures in key sectors of the economy, and suggests mechanisms and sources of financing.

In the **Medium-Term Development Program of the Republic of Tajikistan for 2016-2020** (MDP 2016-2020), the main measures to reduce the impact of climate change consist of expanding access to natural resources and their rational use, creating legal protection mechanisms, providing financial support and meeting the needs for new technologies,

developing a green economy and preventing the risks of climate change. Development of renewable energy sources, modernization of all types of transport, construction of 6 hydroelectric power plants with a capacity of 700 kWh, reconstruction of 700 km of highways.

In the **Medium-Term Development Program of the Republic of Tajikistan for 2021-2025** (MDP 2021-2025), adopted by the Government of the Republic of Tajikistan on April 30, 2021, under Decree No. 168, a special section is devoted to environmental protection, climate change and natural disasters. The adoption of NSACC strengthens the mechanisms for deploying capacity building processes on climate change adaptation of employees of authorized bodies and civil servants. Furthermore, the development of gender-sensitive indicators for climate change were noted as adaptive measures. Within the framework of this program, sectoral measures for adaptation to climate change have been formulated.

The issues of adaptation measures related to climate change after the submission of the first NDC were also reflected in sectoral programs, strategies and plans.

In the framework of adaptation measures, the **Agricultural Reform Program (2012-2020)** implies development and implementation of new agricultural technologies (for example, drought-resistant crops), research, setting up a support system for the development of livestock and meeting the needs of farms in better breeds and pastures, improved structure of sown areas for fodder crops.

In the framework of adaptation measures, the **Comprehensive Program for the Development of Livestock in the Republic of Tajikistan for 2018-2022**, considered as one of adaptation measures, imples selection and improved breeding, cultivation technology and feeding rates, as well as increased productivity of pastures.

In the framework of adaptation measures, the **Program for the Development of Pastures for 2016-2020** envisages to increase the stocks of pasture fodder, promotes an increase in the number of highly productive livestock, preparing land for sowing seeds, improving the condition of grazing lands, repairing and building roads and bridges, improving the condition of 1500 hectares of pastures, importing and producing grass seeds, and repairing livestock routes.

The Program for Reforming the Water Sector of the Republic of Tajikistan for 2016-2025 envisages the development of a long-term basin plan for the use and protection of water resources in 5 river basins, the development of seasonal and annual plans for the distribution and management of water resources in river basins, the restoration of irrigation infrastructure and improvement of conditions for its maintenance and operation, the introduction of new water-saving technologies.

In the framework of adaptation measures, the **National Strategy of the Republic of Tajikistan on Disaster Risk Reduction for 2019-2030** ensures access of all stakeholders to information on disaster risk, integrating disaster risk management into development processes, and improving mechanisms for disaster preparedness and response.

In the framework of mitigation and adaptation measures, the **Strategy for the Development of Industry in the Republic of Tajikistan until 2030** implies the introduction of new technologies related to reducing emissions of harmful substances into the atmosphere, saving raw materials and energy resources.

According to the State Target Program for the Development of the Transport Complex of the Republic of Tajikistan until 2025, the life cycle of the transport infrastructure will be increased, which will make it more resilient to climate change. The main goal of this action is to bring the transport infrastructure in line with international environmental standards. Specific activities include improving pavement, increasing traffic capacity, building bypass roads in settlements, applying paints, plastics and protecting metals from corrosion, and creating roadside protection belts. This measure is integrated into numerous road construction and reconstruction projects that are being implemented and planned in the country.

The **Draft Strategy for the Development of Forestry for the period 2016–2030** defines priorities for the development of national forestry which includes realization of institutional, legal and financial reforms; and development of the forestry management framework. The goal of the Forest Strategy is sustainable development of the sector by ensuring a balance of ecological, economic and social functions. While the Action Plan for the implementation of the Forestry Sector Strategy lists detailed activities along with specific targets, due to issues with investment, budget and capacity, most activities have not been started and targets remain challenged to be attained.

3.3.National risks, impacts and vulnerability to climate change

Tajikistan's high dependence on climate-sensitive sectors of the economy is a factor that increases the country's vulnerability to climate change and extreme weather events.

According to preliminary forecasts, the average annual temperature in the country will increase between 0.2 °C and 0.4 °C, by 2030 and the average annual rainfall will decrease by 5% by 2050.

As a result of consultations with key ministries and government departments, NSACC 2030 identifies the following sectors as the most susceptible to climate change: energy, water resources, agriculture and transport.

The main risks and impacts of climate change on the main sectors of the economy were identified and ranked based on the analysis of NDS 2030, NSACC 2030, the Medium-Term Development program for 2016-2020, the Draft Medium-Term Development program for 2021-2025, sectoral strategies and programs, consultations with representatives of academia, civil society, employees of relevant ministries and departments, and development partners.

The highest goal of the long-term development of the Republic of Tajikistan is to improve the living standards of the country's population on the basis of ensuring sustainable economic development. To achieve it, NDS 2030 defines the following strategic development goals for the next 15 years: a) ensuring energy security and efficient use of electricity; b) breaking the communication deadlock and transforming the country into a transit country; c) ensuring food security and access of the population to quality food; d) expansion of productive employment.

Energy production and transmission in the Republic of Tajikistan is susceptible to climate change and related extreme weather events. Due to the interconnectedness of energy and water systems, changes in rainfall, increased risk of drought, reduced snow cover and varying snowmelt times can adversely affect energy production and delivery.

Agriculture. Another priority sector, covering a significant part of the population of the Republic of Tajikistan and providing livelihoods, income and employment, is affected by climate change. Climate-related droughts, declining rain fed agriculture, declining yields and production, as well as crop failures and loss of livestock can have a detrimental effect on dehkan farms.

Climate change is expected to have major impacts **on forests,** especially those important to produce non-timber forest products such as walnuts, pistachio fruits and berries. The changes in precipitation, temperature will likely lead to reduced forest productivity and increased natural hazard risk such as forest fire. These trends are also resulting in a changing regional distribution of forests (and narrowing production zones for alpine species), as well as an increasing incidence of pest and disease.

Climate change can also directly affect the **transport sector** through inefficient infrastructure. Highways, which comprise more than 90% of passenger and freight traffic, may be affected by more frequent or intense flooding. Increased rainfall and flooding can accelerate the degradation of road infrastructure.

Taking into account risk indicators, climate change impacts and existing adaptive potential in the country, the most vulnerable regions to climate change in the Republic of Tajikistan were identified. Where the most vulnerable area is the central mountainous regions of the Republic of Tajikistan, followed by the populated southern mountains and lowland regions of the country (Khatlon region) and by the northern slopes of Zeravhsan and Turkestan (Sughd region)[1].

In order to sign up to the SDGs and the Sendai Framework for Disaster Risk Reduction, based on the goals and objectives of the National Strategy for Disaster Risk Reduction for 2019-2030 and information received from the Committee on Emergency Situation and Civil Defence, the main types of risks and losses from natural disasters related to climate change were identified. The main types of natural disaster risks causing the greatest damage are: high water and flooding, landslides, mudflows, avalanches and drought.

3.4.National adaptation priorities, strategies, policies, plans, goals and actions

To overcome the current and future serious economic and social consequences of climate change in the Republic of Tajikistan, it is necessary to encourage an implementation of effective adaptive measures and avoid maladaptation, across the priority sectors of the economy. In order to mitigate the effects of climate change, a number of strategic documents, programs and approaches have been adopted to address the implementation of adaptive measures.

The National Development Strategy until 2030 (NDS 2030) defines the general directions of economic development, which, if implemented, can contributes to reduce the climate change through the implementation of necessary adaptive measures which aims to use more renewable energy sources, minimize the impact of the transport sector on the environment and foster the development of "green employment".

[1] Mustaeva, Nailya, et al. *Tajikistan: Country situation assessment*. PRISE working paper. http://prise. odi. org/wp-content/uploads/2015/08/Tajikistan_Country_Situa tion_Assessment. pdf, 2015.

The National Strategy for Adaptation to Climate Change in the Republic of Tajikistan until 2030 (NSACC 2030), adopted by the Government in 2019, is a consolidated strategic document reflecting measures to adapt to the climate change in the Republic of Tajikistan.

During the national consultations on NSACC, four sectors were identified as adaptation priorities, taking into account both vulnerability to climate change and development priorities. Those are: (1) energy, (2) water resources, (3) transport and (4) agriculture. Seven cross-cutting areas were also included: (1) health, (2) education, (3) gender, (4) youth, (5) migration, (6) environment, and (7) emergencies.

Based on the targets formulated in NDS 2030 framework, the NSACC takes into account the provisions of other fundamental documents, namely the Medium-Term Development program for 2021-2025, the preliminary results of the Fourth National Communication of the Republic of Tajikistan under the UNFCCC (2021), sectoral programs and strategies, research carried out by development partners, as well as consultations with specialists from key ministries and departments, and defines long-term adaptive measures to be implemented in the key sectors of the economy. Those sectors are: (1) energy, (2) water resources, (3) agriculture and forestry, (4) transport and infrastructure, (5) industry and construction, as well as cross-sectoral sectors of the economy, which are: i) education, ii) health, iii) migration, iv) environmental protection, and iv) gender.

Development partners have greatly contributed to the Republic of Tajikistan in the identification of adaptive measures at sectoral level in the process of updating its NDC.

The United Nations Development Programme (UNDP) carried out an analysis of the sectors of industry and construction, as well as transport as part of the enhance of its initial NDCs reduction of GHG emissions in accordance with the UNFC. Special sections of these reports are devoted to policy and adaptation measures in the industrial, construction and transport sectors, which are also included in the climate change priorities.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ, German Society for International Cooperation) conducted an analysis of the land use sector and an in-depth analysis of the agricultural sector for the NDC revision in the Republic of Tajikistan. Based on the analyses, the identified risks, and their impact, the report develops specific adaptation measures.

The World Bank analyzed the forestry sector, its potential contribution to mitigation and adaptation and prepared a report on “Forestry Sector Analysis for NDC Revision and Updating in the Republic of Tajikistan”.

The Food and Agriculture Organization of the United Nations (FAO) has prepared an analytical report *Irrigation and climate change in the Republic of Tajikistan. State and Trends of Water Resources*. Based on a comprehensive analysis of the irrigation system and existing problems, a list of adaptation measures was submitted and then included in the general plan to update NDCs for the water sector.

Based on the general analysis of the information received, the following adaptation measures have been formulated for the key sectors of the economy:

Key adaptation measures in **the energy sector** include:

- development of short-term impact models and effective adaptation options for extreme weather conditions such as droughts;
- raising the level of qualifications of sector specialists in methods of assessing climate risks and vulnerability;
- taking measures to ensure the security of the infrastructure;
- revision of maintenance procedures and measures to improve the safety of transmission and distribution networks from weather events;
- development of networks of small hydroelectric power plants and widespread development of other renewable energy sources in the remote mountainous and rural regions of the country;
- strengthening hydropower potential and increasing the reliability factor taking into account the effects of climate change (increase in maximum floods or decrease in runoff).

A list of adaptation measures for the **use of water resources** is envisaged, addressing the problem of water scarcity in the future and therefore

- increasing the efficiency of water use, recycling, processing and demand management;
- strengthening the capacity of Water Users Association (WUAs);
- stricter regulation of wastewater treatment and discharge, providing backup systems for storage water resources management;
- improvement of groundwater management;
- widespread application of the principles of integrated water resources management (IWRM);
- rehabilitation of irrigation systems and drainages to improve reclamation of saline lands and wetlands;
- use of effective irrigation methods (drip irrigation);
- improvement of the water flow forecasting system;
- development of national measures for adaptation and resilience to climate change in the water sector.

Tajikistan's **agriculture** is very vulnerable to climate change. Without substantial adaptation measures, food and nutrition security, poverty eradication and sustainable development may be adversely affected. Adaptation measures are of priority both for crop production (including cereals and leguminous crops, technical crops, vegetables and horticulture and viticulture) and livestock sub-sectors. Agricultural adaptation measures contribute to national policy objectives for agriculture, food and nutrition security, gender, disaster risk reduction, industrial development, and biodiversity conservation (e.g., National Biodiversity Strategy and Action Plan under the CBD), and thus contribute to multiple SDGs, the Sendai Framework and commitments under the CBD and the UNCCD. Giving high priority to agricultural adaptation enhances the NDC by maximizing synergies with other key development objectives.

- Introduction of "green" technologies and "green" infrastructure in agro-industrial production
- Improvement of livestock breeding,
- Development of agroforestry and conservation agriculture,
- Crop rotation, intercropping and crop diversity (resilience to droughts and pests),
- Enhancement of seeds,
- Promoting soil protection and integrated pest management,
- Improved management of irrigation and drainage systems,
- Improved pasture management,

- Raising awareness and increasing access to climate change information for rural populations, farmers and agricultural enterprisers.

In forestry, adaptation measures (many of which also have strong mitigation benefits) include reforestation/afforestation, natural and active/assisted regeneration, forest protection from cutting, grazing, fire, pests etc., improved and sustainable management of existing forest, improved pasture productivity, promoting crosscutting actions: integrated land management, improving the regulatory framework, strengthening law enforcement, developing a sustainable financing system, conducting inventory and monitoring, and investing in science and innovation.

List of adaptation measures in the **transport** sector**:**

- improving the protection and long-term maintenance of transport infrastructure;
- updating national building codes for the construction of bridges;
- providing support to improve infrastructure and access roads in the country, in particular in hazardous and vulnerable areas;
- adapting rail, road, air and all modes of transport, including non-traditional and special modes of transport, to the requirements under international standards;
- promoting the implementation of incentives and regulations for fuel-efficient vehicles.

List of adaptation measures in the **industry and construction** sector**:**

- equipping large enterprises with modern energy-saving and digital technologies;
- a national industrial sector that embraces the environmental protection and creation of a green economy; introduction of rational consumption and production patterns; greening of industry;
- development of sustainable infrastructure based on the implementation of green investment projects;
- creation of early warning systems for the adoption of protective measures and prevention of damage and loss of infrastructure.

Adaptation measures in cross-sectoral areas:

- creating an enabling environment for the introduction of new technologies for climate change mitigation and disaster risk management;
- taking gender-sensitive measures to enhance planning;
- management and communication of risks related to climate change; construction of new recreational zones within cities and around them when adjusting master plans;
- developing curricula for secondary schools, secondary vocational and higher educational institutions, including issues of climate change mitigation, adaptation and early warning of natural disasters;
- strengthening mechanisms to organize a regular professional training of the employees of authorized bodies and government officials on climate change adaptation and governance;
- arranging media campaigns on climate change and disaster risk management.

3.5. Cooperation of the Republic of Tajikistan to strengthen adaptation measures at the national, international and regional levels

In recent years, the Republic of Tajikistan has been actively involved in strengthening adaptive measures, both at the international and regional levels.

The Republic of Tajikistan was nominated to participate in the Pilot Program for Climate Resilience (PPCR) in January 2009. Funding for PPCR was provided by multilateral development banks (MDBs). Within the framework of the MDBs, six PPCR projects were approved and implemented for a total amount of more than USD 150 million. PPCR Secretariat and Coordination Mechanism have been established to coordinate and monitor PPCR projects.

The successful implementation of the PPCR has facilitated the Republic of Tajikistan in cooperation with the Green Climate Fund (GCF). According to GCF's procedures, the Committee of Environmental Protection (CEP) was appointed by a governmental decree as a National Designated Authority (NDA) under GCF. A coordination mechanism has been created for a successful cooperation with GCF. Thanks to the successful work of NDA and the technical working group, as well as an active support of Accredited Entities (AEs) under GCF in the Republic of Tajikistan, GCF has approved five projects aimed at adaptive measures, which makes a total of more than USD 100 million. Those projects focus on ensuring food security, increasing resilience of the energy sector, improving services of the hydrometeorology system, raising climate financing for small businesses and working out the National Adaptation Plan.

The Republic of Tajikistan did not cooperate much with the Adaptation Fund before, but in 2020, with UNDP assistance, it obtained a grant of almost USD 10 million to implement the project *Integrated landscape approach to increasing the climate resilience of small farmers and pastoralists*.

The Republic of Tajikistan also maintains bilateral cooperation on adaptation to climate change with the World Bank (WB), Asian Development Bank (ADB), European Bank for Reconstruction and Development (EBRD), IB, Global Environment Facility (GEF), International Fund for Agricultural Development (IFAD), UK Department for International Development (DFID), GIZ.

The Republic of Tajikistan takes part in cooperation with the countries of Central Asia within the framework of the International Fund for Saving the Aral Sea (IFAS), the Regional Environmental Centre for Central Asia (CAREC) (Almaty), the Regional Mountain Centre for Central Asia (Bishkek) and the Regional Centre for Combating Drought (Tashkent). The Republic of Tajikistan is also implementing the Climate Adaptation and Mitigation Program for Aral Sea Basin (CAMP4ASB) Project funded by the GCF and administered by the World Bank.

The Republic of Tajikistan participates in the World Bank Resilient Landscapes in Central Asia and Afghanistan Program (RESILAND CA+ Program), which was developed in 2019 to provide a regional framework for landscape restoration with the aim to increase the resilience of regional landscapes in Central Asia. This umbrella program finances analysis, and advisory on topics related to landscape restoration and supports investment projects in Central Asia countries, one of which is the Tajikistan Resilient Landscapes Restoration Project (under preparation). The Project is developed alongside RESILAND CA+ projects in Uzbekistan, Kyrgyz Republic, and potentially Afghanistan, glued together by a regional platform for high-level dialog on landscape restoration.

3.6. Promoting adaptation measures to climate change which are consistent with international frameworks and conventions

The Sustainable Development Goals until 2030 (SDGs 2030). Analysis of the multi-sectoral SDGs made it possible to draw up Tajikistan's profile in this respect and to align the country' goals of development strategies and programs, including those related to the adaptive measures to climate change, with the SDGs.

Sixteen of the seventeen SDGs are related to the development country's goals and priorities. However, the Republic of Tajikistan cannot meet all SDGs in an equal way: some adaptive measures to climate change require a boost in implementation speed. Besides, out of the numerous contemplated measures to accelerate the work to achieve the SDGs related to adaptation to climate change, it is necessary to choose those that meet the sustainable development objectives of the Republic of Tajikistan. Thus, five strategic programs and strategies, including NDS 2030, NSACC 2030, the program for Reforming the Water Sector of Tajikistan for 2016-2025, MDP for 2021-2025, the program of Agrarian Reform of the Republic of Tajikistan for 2012-2020, contain adaptation measures corresponding to the SDGs, especially Goals 2, 5, 6, 7, 8, 9, 13 and 15.

Sendai Framework for Disaster Risk Reduction 2015-2030. In accordance with the new approaches of the world community to the problems associated with the risk of natural disasters, including those increased by climate change, set out in the Sendai Framework and the SDGs 2030, the Republic of Tajikistan adopted the Updated National Disaster Risk Reduction Strategy for 2019-2030 on December 19, 2018. Specific adaptation measures aimed at reducing natural disasters are proposed in NDS 2030, NSRDR 2030, NSACC 2030, and MDP 2021-2025.

Convention on Biological Diversity. In 2016, in order to fulfil the obligations of the Republic of Tajikistan under the Convention on Biological Diversity (Article 26) and based on the decision of the Conference of the Parties 10 (COP 10), the National Strategy and Action Plan for the Conservation of Biodiversity of the Republic of Tajikistan until 2020 was formulated. *Environment: Climate Change and Disaster Risk Management* section of MDP 2021-2025 defines the increased resilience of ecosystems and existing biodiversity to climate change as one of the key objectives.

United Nations Convention to Combat Desertification - UNCCD. The National Action program to Combat Desertification takes into account the following factors: 1) process of desertification, 2) high mountains, 3) natural disasters, 4) land, pasture degradation, 5) soil drainage, 6) the development of erosion processes in the zone of rainfed agriculture and irrigated lands, and 7) the deterioration and loss of biodiversity.

Astana Resolution. In 2018, the Republic of Tajikistan along with five other Caucasus and Central Asian countries signed the Astana Resolution to restore about 2.7 million hectares of degraded forest landscapes. The Republic of Tajikistan specifically committed to restore 66,000 ha of degraded forest landscapes from 2018-2030[2].

[2] UNECE. 2018. Ministerial Roundtable on Forest Landscape Restoration in Caucasus and Central Asia. Summary Report

3.7. Obstacles, challenges and gaps in the implementation of adaptive measures.

The existing obstacles, problems and gaps associated with the implementation of adaptive measures are mostly reflected in the strategic strategies and programs of the Republic of Tajikistan.

NDS 2030 displays the obstacles, problems and gaps associated with the implementation of adaptive measures at national as well as sectoral level. The strategy outlines general problems related to adaptation measures. In particular, it is stressed that environmental problems and vulnerabilities remain significant, especially in the context of climate change mitigation and adaptation.

In NSACC 2030, the main obstacles, problems and gaps to implement adaptive measures include legal, institutional obstacles and shortcomings in the technical capacities available in the country.

The section *Environment: Climate Change and Disaster Risk Management* of MDP 2021-2025 also contains a list of the main problems, tasks and goals related to the implementation of adaptive measures, including those at the sectoral level.

Based on the analysis of strategic documents, the main obstacles, problems and gaps in the implementation of adaptation measures include insufficiencies in funding, capacity building and introduction of new technologies.

Insufficient funding: lack of funding for long-term development plans and effective allocation of resources, both on the side of donors and the state. There is no clear mechanism for tracking financial resources aimed at adaptation and mitigation activities, both from development partners, as well as from the private sector, and the contribution of the government. In order to solve this problem, the development of indicators is required to determine the contribution of development partners, the private sector and the government. Monitoring procedures should include procedures for budgeting national and subnational funding sources. In the Republic of Tajikistan, there are practically no market mechanisms for attracting financial resources on climate change issues (renewable energy market certificates, emission trading mechanisms, environmental insurance).

Obstacles and challenges to capacity building and the introduction of new technologies: the relatively low level of public awareness of the problems of climate change, as well as the benefits of adaptation among professionals. Until now, there is practically no system of consolidated monitoring and evaluation of the introduction of new technologies and capacity building. Analysis of available technological solutions in the Republic of Tajikistan within the framework of development partnership projects shows that they cover only the agricultural and water sectors (irrigation technologies, namely technologies for water saving and processing agricultural products), as well as housing conditions of the population, while the transport sector and disaster risk management technologies are not included in this list. However, some of the proposed technology solutions are related to climate change mitigation and focus on poverty reduction rather than climate change adaptation policies. Therefore, there is a need to find a balance. Problem solving, capacity building and introduction of new technologies must be implemented simultaneously. Currently, there is practically no database in the Republic of Tajikistan on traditional methods of adaptation to climate change.

3.8. Gender aspects of climate change

The Government of the Republic of Tajikistan has approved a number of strategies and plans to address gender equality and climate change adaptation.

Following the ratification of the Convention on the Elimination of All Forms of Discrimination against Women in 1993, the Government of the Republic of Tajikistan approved a number of legal and regulatory documents that may indirectly affect the resilience of women and girls to the risks of climate change: Family Code of the Republic of Tajikistan (dated November 13, 1998); Decree of the President of the Republic of Tajikistan "On measures to improve the status of women in society" (December 1999); the fundamental Law of the Republic of Tajikistan "On State Guarantees of Equality of Men and Women and Equal Opportunities for the Employment", adopted on December 15, 2004; State program "Main axes of state policy to ensure equal rights and opportunities for women and men in the Republic of Tajikistan for 2001-2010."

The National Strategy for Enhancing the Role of Women in the Republic of Tajikistan for 2011-2020 defines goals for women's economic empowerment, including opportunities of training new skills and specialties. The strategy proposes a number of measures that can reduce the impact of climate change on women and increase their adaptive capacity.

The gender aspects of climate change are included in NDS 2030 (2016). The strategy builds on the commitment of the Government of the Republic of Tajikistan to achieve the SDGs, including SDG 5 (Gender Equality). The strategy emphasizes the need to address gender equality and climate change, in particular in the context of rural areas, in order to ensure sustainable development.

NSACC 2030 describes how the Republic of Tajikistan can invest in building resilience to climate change, taking into account the multifaceted issues of gender, youth and other vulnerable groups. The strategy recognizes the vulnerability of women involved in agriculture.

MDP 2021-2025 reveals specific goals and indicators related to the gender aspect of climate change. For example, one of the gender goals is to increase women's awareness of the risks of climate change from around 15% now to 35% in 2025. In order to make regulatory documents comply with international standards, the goal is to develop gender-sensitive indicators on climate change and disaster risk management by 2022. Gender-sensitive indicators are also included in such sectors of the economy as agriculture, water supply and energy, social protection, education and health.

In order to discuss the issues of the relationship between gender and climate change, a common level of understanding of gender inequality is clearly needed. In the Republic of Tajikistan, as shown by the results of surveys, there are two key factors that create the context for current efforts to achieve gender equality: on one hand, traditions and gender stereotypes on the role of women in family and society, and on the other hand, a large number of female-headed households due to large-scale male labor migration.

Based on the results of the review and in order to promote a link between gender and climate change in the Republic of Tajikistan, the following measures are planned:

- Raising awareness and improving understanding of the connection between gender and climate change in the development context;

- Promotion of nexus of gender and climate change in planning, budgeting and practice;
- Strengthening the capacity and providing opportunities for women's active participation in sustainable socio-economic development, taking into account the climate change;

4. ENHANCED TRANSPARENCY FRAMEWORK (ETF)

The main act on the collection, processing and analysis of statistical data in the Republic of Tajikistan is the law "On State Statistics of the Republic of Tajikistan". There are other normative regulations providing complementary detailed information.

Conducting an inventory of GHG is the responsibility of the Republic of Tajikistan in accordance with its responsibilities under the UNFCCC. The formulation of the GHG inventory in the Republic of Tajikistan is based on the IPCC international methodology. The inventory is carried out when drafting National Communications and BURs, and involves a working group to arrange the inventory procedures and monitor GHG emissions.

The main body currently responsible for the GHG inventory in the Republic of Tajikistan is the National Agency for Hydrometeorology (Hydromet) of the Committee for Environmental Protection under the Government of the Republic of Tajikistan. The Agency for Statistics under the President of the Republic of Tajikistan plays a key role in collecting information on GHG emissions. All information from key ministries and departments is transferred to the Agency for Statistics under the Law on State Statistics. Among other duties, the experts of the Agency for Statistics, together with other key ministries and departments, participate in the preparation of National Communications.

GHG emissions and removals for the BUR covering the 2004-2014 inventories were estimated using the Tier 1 and Tier 2 methodologies of the 2006 IPCC Guidelines. The Tier 2 methodology of the 2006 IPCC Guidelines was used for the solid waste disposal category in the waste sector while the Tier 1 methodology of the 2006 IPCC Guidelines was used for all other categories and subcategories in all sectors. Three previous National Communications on GHG Inventories used the 1996 IPCC Guidelines. In the course of formulation of the enhanced NDCs, the GHG Inventory of 1990-2005 was recalculated using the 2006 IPCC Guidelines.

The Government of the Republic of Tajikistan has outlined the following stages in order to improve the current Measurement, Reporting and Verification (MRV) system and a transition to ETF:

The first stage will take place in 2020-2025. and its main goal will be to improve the current methodological and institutional framework for the implementation of the MRV system with the involvement of key sectors of the economy.

The second stage will take place between 2025-2030 and its main goal will be the adoption of regulatory framework which aims to improve the MRV system of GHG;

The third stage will start in 2030. It is expected that the obligation to submit reports on GHG emissions will be extended to all entities whose emissions surpass 50 thousand tons of CO_2-eq per year.

As evidenced from the above information, the Republic of Tajikistan has a potential and willingness to enhance transparency for the reporting and review of information on the country's emissions, mitigation and adaptation efforts, and support received. Additionally, it explores the dynamic process of updating NDCs and provides input to the global database on successive five-year cycles.

Nevertheless, the Republic of Tajikistan seeks for the enhancement of the capability to build adequate reporting capacities while complying with the reporting set under the ETF. As part of the ETF transformation, the initial MRV system should be further integrated into streamlined data management systems, gain technical capacity, improved analytical capabilities and active coordination amongst all the stakeholders. Even though certain efforts have been made to build a national MRV system, and there are some intentions to develop it through policies and strategies, the MRV is currently scattered and needs a sustainable National GHG Inventory Management System to integrate modules like “Finance”, “Capacity building”, “Technology transfer” and “Contribution of private sector”. The development of the common platform and mechanisms will strengthen capabilities of relevant national institutions to ensure the improvement of transparency over time.

The substantial improvements should be done in the areas of new or modified laws, directives to enhance a process of transition to ETF; data management (lack of data and data quality; data collection and processing); strengthening institutional arrangements, including involvement new cross-sectoral teams (across government and between public agencies and the private sector); integration of the current scattered monitoring and reporting systems; increasing human capacity; access to technology and access to financial resources.

The Republic of Tajikistan as a participant of the PPCR has gained experience in monitoring and evaluation of adaptation measures. In 2011, the PPCR Secretariat was established to coordinate projects related to climate change, one of its goals being monitoring and evaluating PPCR activities.

The recognized system for monitoring and evaluation of adaptive measures within the framework of the national programs and strategies is currently an integral part of the Medium-Term Development programs of the Republic of Tajikistan. The existing M&E system can be fully used as a tool for tracking the progress of the adaptation measures at national, regional and sectoral level.

The M&E system of adaptive measures should be designed to track progress in achieving the goals, identify the positive experience and existing problems in the implementation of the NDS 2030, the NSACC 2030, the Medium-Term Development program for 2021-2025, the National Strategy for Disaster Reduction until 2030, the goals of the National Action Plan (NAP) of the Republic of Tajikistan for Climate Change Mitigation under the UNFCCC, the target indicators of the enhanced NDCs, the goals of the Sendai Framework for Disaster Risk Reduction for 2015–2030, and Sustainable Development Goals until 2030 (SDGs 2030).

Putting the adaptive measures into planning and practice at national and regional level requires the definition of quantitative and qualitative indicators.

Qualitative indicators of adaptation measures at national level may include:

- Level of integration of climate change adaptation measures into national plans;
- Strengthening the capacity of the government; and
- Coordination mechanisms for climate resilience

Risk indicators, impacts assessment and adaptive capacity to climate change can be used as *quantitative indicators* of climate change adaptation.

Another important part of ETF is to track the progress of implementing the commitment. In this regard, it will be necessary to develop/improve the framework for it by having more in-depth involvement of line ministries, development of an implementation plan, indicators to report tracked progress towards the achievement of its NDC, as well as related actions as defined in the national, sectoral policies, and strategies, and efforts for continuous improvement.

Tracking financial resources for adaptation and mitigation activities, both from development partners, as well as from the private sector, and government input are important elements of the M&E implementation of the updated NDCs. To solve this problem, the development of indicators is required to determine the contribution of development partners, the private sector and the government. Monitoring procedures should include procedures for budgeting national and subnational funding sources. Until now, there is practically no system of consolidated monitoring and evaluation of the introduction of new technologies and capacity building. The development of an M&E system requires the incorporation of new technologies and capacity building. This goal is currently being solved through the GCF Readiness project led by FAO. However, there is a need for improved monitoring, evaluation and learning to track progress for mitigation and adaptation in an integrated way, identify lessons and continually improve the effectiveness of policies and measures. The country will benefit from an integrated MRV system that covers both adaptation and mitigation and can help in tracking progress of both domestically and internationally supported measures, while also helping the Republic of Tajikistan to meet its international reporting obligations.

5. MEANS OF IMPLEMENTATION

5.1.Financial Needs

The Republic of Tajikistan is highly influenced by change and has relatively low adaptive capacity. Unless robust measures are taken to reduce current and future vulnerability and increase of adaptive capacity, the country is likely to experience significant economic losses, humanitarian challenges and environmental degradation. The Paris Agreement in relation to developing countries, which includes the Republic of Tajikistan, defines measures to provide specific assistance for adaptation to climate change. When predicting the calculations of possible mitigation and adaptation costs on a long-term basis in key sectors of the economy, it is necessary to proceed from the planned measures of the enhanced NDCs, NDS 2030, MDP 2021-2025, NSACC 2030, as well as other sectoral strategies and programs. To predict climate finance, the most optimal option, taking into account the impact of COVID-19 on the national economy, is the formulation of an *inertial development scenario* based on the NDS 2030 and a *crisis scenario* based on the MDP 2021-2025. In both scenarios, the average annual growth rate of the country's GDP is envisaged in the range of 4-5%. Based on the forecast calculations of the GDP growth rate (on average 5%), it is possible to forecast plausible costs of envisaged mitigation and adaptation measures. Nevertheless, it needs to be stressed that an increase in

GDP will automatically lead to an increase in GHG emissions. Thus, the growth of the investment rate in mitigation and adaptation measures should be higher than the expected GDP growth rate. In the worst-case scenario, the investment on climate change should remain at the same level of the GDP growth rate. At least 7% of Tajikistan's GDP is required for financing climate change activities throughout the decade of 2020-2030. The last implies that the overall climate finance required by 2030 could represent more than 1 billion USD per year. Furthermore, the Republic of Tajikistan expects that of the total costs for climate change, the energy and transport sector should have a 20% of the share each, followed by water supply ans sewage with 10%, and water irrigation with 15%, biodiversity and natural disasters with 15% and agriculture with 20%. Thus, the Republic of Tajikistan asks to channelise on an equitable basis the finance for funding its mitigation as well as its adaptive measures.

The following funds may become an option for setting up a climate finance mechanism for the Republic of Tajikistan. That mechanism could be supported by the Green Climate Fund, the Adaptation Fund, the GEF and other Multilateral and Bilateral Agreements, as well as other sources of funding such as private funds.

The Republic of Tajikistan use own resources for the NDC implementation, however it strongly relies on the international financial support both for mitigation and adaptation action. The impact of COVID-19 on the country’s economy had effect the domestic resources needs for the NDC implementation.

5.2.Technology Transfer

Analysis of the available technological solutions in the Republic of Tajikistan within the framework of development partner cooperation, shows that their scope of action only covers energy, agriculture and water sectors and mainly irrigation technologies for water conservation and processing of agricultural products. Furthermore, other technologies aim to improve housing conditions of the population. On the contrary, the transport sector and disaster risk management technologies are not included in the list. However, some of the proposed technological solutions are related to climate change mitigation and focus on poverty reduction rather than climate change adaptation policies.

Based on the lessons learned from the implementation of projects in the Republic of Tajikistan and from the experience of other countries, the following mechanism for introducing new technologies can be proposed:

- Bridging existing gaps in the introduction of new technologies;
- Monitoring and evaluation of the introduction of new technologies;
- Financing mechanism;
- Incentives and technology advancement;
- Sectoral coverage and knowledge sharing.

Specific measures for the introduction of new technologies include:

- Assessment of the effectiveness of the implementation of projects to adapt to climate change throughout the life cycle of projects;
- Introduction of quantitative and qualitative indicators of new technologies and their effectiveness into the monitoring system;
- Financing technologies for adaptation to climate change with the budget framework by the private sector and development partners through a multilateral development fund, co-financing or public-private partnerships;

- Lower loans rate interest for the use/purchase of climate change adaptation technologies for a long period;
- Income tax exemption for Local manufacturers and service providers if they use climate resilient technologies;
- Availability of the best practices in new technologies to all users;
- Creation of techno parks for the introduction of new technologies for adaptation to climate change;
- Encouraging regional experience in the exchange of information on new technologies, which reduces, directly or indirectly, the impact of climate change;
- Creation of a platform to share experience on new technologies at national and regional levels.

There is a need to conduct a new Technology needs assessment for the Republic of Tajikistan (the last one was conducted in 2003) to identify the needs, and the relevant efficient and cost-effective technologies.

5.3.Capacity Building

Capacity building for the introduction of new technologies primarily come from human and organizational capacity. Without the interaction of these two important aspects, it is impossible to effectively build capacity for the introduction of new technologies. In recent years, the Republic of Tajikistan has gained some experience in building both human and organizational capacity to mitigate the impact through adaptation to climate change. The PPCR is considered one of the first programs aimed at capacity building. Most of the objectives of the program focus on capacity building.

Public organizations within the TajCN Climate Network play an important role in capacity building in the Republic of Tajikistan. Non-governmental organizations of this network carry out a lot of work on capacity building on climate change issues at community level and in educational institutions.

Since the signing of the Paris Agreement and submission of the initial Tajikistan NDCs, the issue of capacity building is being reflected in strategic programs and strategies of the Republic of Tajikistan.

Capacity building issues were reflected in the strategic programs and strategies of the Republic of Tajikistan after the presentation of the first NDCs and the signing of the Paris Agreement. NSACC 2030 defines the following measures in response to specific capacity building requirements at the sectoral level:

- in the **energy** sector: providing training for energy company officials on the use and methodologies required for conducting climate risk assessments and vulnerability;
- in the **water** sector, increasing the capacity of the WUAs;
- in **agriculture**: introducing knowledge about crop diversity and plant breeding, improving farmers' access to information, best practices and new technologies, encouraging the use of drought-resistant seeds and methods of their application, as well as knowledge about plant protection against frost.

MDP 2021-2025 specific measures to build capacity in adaptation to climate change include:

- increased media coverage of climate change and disaster risk management;
- improvement of educational and methodological materials;

- introduction of innovative advanced training of civil servants on adaptation to climate change;
- defining a system of target indicators, including gender-sensitive indicators, to achieve national, sectoral and regional adaptation goals and approving methodological recommendations for assessing climate risks;
- developing sectoral and regional plans for adapting to climate change.

Systemic capacity development at the national, sectoral, regional and local level is required to improve knowledge and strengthen capacities on the impacts of climate change and the respective mitigation and adaptation measures jointly with promoting strong cooperation with the civil society, academia and the private sector.

Committee for Environmental Protection
under the Government of the Republic of Tajikistan

NDC IMPLEMENTATION PLAN OF THE REPUBLIC OF TAJIKISTAN

Dushanbe 2022

NDC Implementation Plan of Tajikistan is approved by the order of the Chairman of the Committee for Environmental Protection under the Government of the Republic of Tajikistan dated April 20, 2022, #80,

Report details

NDC Implementation Plan prepared under the UNDP project "**Climate Promise: Support to NDC Revision in Tajikistan"**

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Table of Content

1. Introduction

This document contains the implementation plan for Tajikistan's updated NDC within the project *International Expert on revision of nationally determined contributions (NDCs) of the Republic of Tajikistan to reductions in greenhouse gas emissions (GHGs) under the United Nations Framework Convention on Climate Change (UNFCCC).*

1.1. Background

In 2015, at the Conference of the Parties (COP) 21, all 195 UNFCCC participating member states and the European Union (EU) adopted the Paris Agreement under the UNFCCC. The Paris Agreement aims to further strengthen the global response to the threat of climate change and, in particular, the goal of holding the global average temperature increase to well below 2°C above pre-industrial levels (1850-1900) and pursuing to limit the temperature increase to 1.5°C above pre-industrial levels. The goals embedded in the Paris Agreement also aim to increase countries' abilities to adapt to the adverse impacts of climate change and promote low greenhouse gas (GHG) emission development pathways and calls on countries to communicate their efforts to both mitigate and adapt to climate change.

Central to the success of COP21 are the nationally determined contributions (NDCs) to achieve the long-term goals of the Paris Agreement. These set out each country's efforts to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement requires each Party to prepare, communicate and maintain successive nationally determined contributions that it intends to achieve, pursue domestic mitigation and adaptation measures with the aim of achieving the objectives of such NDCs, and regularly provide information necessary to track progress made in implementing and achieving the provisions in the NDC. The preparation of an NDC implementation plan is therefore not mandatory or required under the Paris Agreement.

However, in a time when it is crucial that all countries ensure that they meet their NDC commitments, NDC implementation plans can provide benefits to acquire international support and improved transparency. It does not directly constitute to the implementation of an NDC, but rather acts as a tool to support and ensure an effective implementation process, and can be used for a multitude of aspects such as[1]:

- Clearly identify the actions and measures to be implemented.
- Define roles and responsibilities of key agencies, ministries, and departments.
- Identify resources available and needed for implementation of the NDC.
- Specify timeframes for implementation of specific policies and measures.
- Outline expected impacts of implementation policies and measures.
- Assess the feasibility and risks of implementation policies and actions.
- Identify capacity needs for implementation and gaps in knowledge and data.
- Identify necessary regulatory and legal frameworks.
- Identify relevant stakeholders and the plan for stakeholder engagement.
- Identify coordination mechanisms.
- Specify how progress will be monitored and reports.
- Identify linkages between the policies and action implemented to achieve the NDC and the SDGs.

Therefore, NDC implementation plans define how countries' NDCs are implemented over time which will determine whether the long-term goal of the Paris Agreement is achieved. Each country will adapt the implementation of its NDC on the nature of its NDC, how the NDC was developed, and the national

[1] UNDP, UNEP, UNEP DTU & WRI (2020) Implementing Nationally Determined Contributions (NDCs). UNEP DTU Partnership Copenhagen, Denmark

circumstances of the country. It is generally described as a "living" document, with information representing the circumstances and understanding of the country at the time it is drafted and should therefore be periodically updated to ensure new information is includes as it becomes available. The successful implementation of NDCs can support countries prepare for their next NDC submission and increase ambition to achieve the Paris Agreement's goals.

1.2. Tajikistan's Updated NDC

The Republic of Tajikistan provided its updated NDC in 2021 with enhanced ambition in adaptation and mitigation efforts to support sustainable and efficient development taking into consideration climate change, environmental and socio-economic challenges. It states the country's proposed efforts covering a 10-year time-period from 2020 until 2030.

The NDC provides projections of GHG emissions in the Republic of Tajikistan until 2030 for three scenarios, namely; (i) the baseline scenario, which considers that any mitigation measure would be successfully implemented; (ii) the unconditional scenario, which considers all the existing mitigation measures that will be implemented with the country's own efforts up to 2030; and (iii) the conditional scenario, which considers additional mitigation measure to be implemented in the country that rely on adequate international financial or technical support, technology transfer, or capacity building.

The unconditional contribution of reducing GHG emissions in the Republic of Tajikistan is not to exceed 60-70% of GHG emissions of 1990, which is the reference year, by 2030, which stands at 21.32 to 24.87 Mt CO_2-eq by 2030. The conditional contribution, subject to a significant international funding and technology transfer, is not to exceed 50-60% GHG emissions as of 1990 by 2030, which stands at 17.76 to 21.32 Mt CO_2-eq by 2030. These targets cover all GHGs not controlled by the Montreal Protocol and cover the Energy, Industrial Processes and Product Use (IPPU), Agriculture, Forestry and Other Land Use (AFOLU), and Waste sectors.

The NDC furthermore includes adaptive measures across the priority sectors of the economy of the Republic of Tajikistan to overcome current and future economic and social consequences of climate change in the country. The identification of priority sectors is based on multiple key national strategies, namely, the National Development Strategy 2016-2030, the National Climate Change Adaptation Strategy 2019-2030, and the Medium-term Development Program 2016-2020. The included adaptation sectors are Energy, Water Resources, Agriculture and Forestry, Transport and Infrastructure, Industry and Construction, and Cross-Sectoral sectors which include Education, Health, Migration, Environmental Protection, and Gender. The NDC provides adaptive measures at sectoral level for each of these priority sectors.

2. Mitigation Actions by Sector

The Republic of Tajikistan developed three scenarios for formulating the projections of GHG emissions in the country until 2030, namely, the baseline scenario, the unconditional scenario, and the conditional scenario. The baseline scenario does not consider the impact of mitigation actions and represents a GHG emission scenario in which the Republic of Tajikistan will not take additional mitigation actions beyond 2020. Therefore, the mitigation actions in the unconditional scenario and conditional contributions are presented.

2.1 Unconditional Mitigation Actions

The unconditional mitigation actions considered by the Republic of Tajikistan in its NDC are all the existing mitigation measures that will be implemented up to 2030 by the Republic of Tajikistan without the requirement of additional international support. The reported mitigation potentials are not cumulative emissions, but rather reflect the annual GHG mitigation impact of the action in year 2030. Negative figures reflect increases in GHG emissions.

2.1.1. Energy

No.	U.E.1
Action Name	Regional Power Transmission Project
Sector	Energy
Description	The project will improve the regional connectivity and improve energy efficiency and overall performance in the power sector. It targets the expansion and modernization of the electricity transmission network by building two new 220 kV single-circuit transmission lines totalling 140 km of overhead line (OHL). It will also in whole or partially rehabilitate six transmission substations at Kairakkum, Asht, Geran, Rumi, Baipaza, and Regar. A third output is to put a SCADA system in place which is linked to a National Dispatch Centre in Dushanbe, and 32 priority substations across the country (capable of expansion to 204 national substations).
Leading Entity	Ministry of Energy and Water Resource of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; Strategy for the development of industry in the Republic of Tajikistan 2018-2030
Time Frame	2010-2020
Mitigation Potential by 2030	146.74 $CO_{2\text{-eq}}$
Link to SDGs	9

No.	U.E.2
Action Name	Tajikistan Green Energy Facility
Sector	Energy
Description	The project will install smart meters and introduce ASKUE (automated system for commercial metering of electricity) with the overall target of improving access to reliable power infrastructure. It will additionally enable authorities to rehabilitate the existing electricity distribution and transmission infrastructure and improve energy efficiency.
Leading Entity	Statistics Agency under the President of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; State environmental program 2009-2019; Strategy for the development of industry in the Republic of Tajikistan 2018-2030
Time Frame	2020-2024
Mitigation Potential by 2030	87.91 $CO_{2\text{-eq}}$
Link to SDGs	7, 9, 13

No.	U.E.3
Action Name	Khatlon Public Transport
Sector	Energy
Description	The project involves establishing a municipally owned passenger transport operator providing services on basic routes in Kurgan-Tyube and suburban routes from Kurgan-Tyube to the towns of Vakhsh and Sarband in order to ensure a minimum standard of public transport service and transport links. This will improve public transport services in Khatlon Oblast, where the sector is poorly regulated and lacking transparency.
Leading Entity	Ministry of Transport of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; State environmental program 2009-2019; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026

Time Frame	2017-2021
Mitigation Potential by 2030	1.30 $CO_{2\text{-eq}}$
Link to SDGs	11

No.	U.E.4
Action Name	Qairokkum HPP Climate Resilience Upgrade
Sector	Energy
Description	The project will complete rehabilitation and modernisation of the Qairokkum HPP. The project is expected to increase the installed capacity by 32 MW which, together with the 16 MW increase under the first phase (OPID 41553), will result in an increase of the existing installed capacity from 126MW to 174MW by installing new turbines. Furthermore, it will prevent unnecessary discharge of water through spillways, raise the safety level of the HPP, and strengthen the HPP's resilience to the expected impacts of climate change.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; Strategy for the development of industry in the Republic of Tajikistan 2018-2030; Long-Term Small Hydro Power Plant Construction Program 2009-2020; Water Sector Reform Program of the Republic of Tajikistan 2016-2025; Program for providing the population with clean drinking water 2017-2020; State environmental program 2009-2019; The state program for the development of new irrigated land and the restoration of land that has been abandoned from agricultural circulation in the Republic of Tajikistan 2012-2020
Time Frame	2016-2020
Mitigation Potential by 2030	7.81 $CO_{2\text{-eq}}$
Link to SDGs	7, 9, 13

No.	U.E.5

Action Name	Golovnaya 240-Megawatt Hydropower Plant Rehabilitation Project
Sector	Energy
Description	The project will increase supply of renewable energy to national and regional power systems and refurbish electric and mechanical equipment for power generation at Golovnaya Hydropower Plant (HPP) in Tajikistan, which will raise generation capacity to 252 MW from 240 MW.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; Strategy for the development of industry in the Republic of Tajikistan 2018-2030; Long-Term Small Hydro Power Plant Construction Program 2009-2020; Water Sector Reform Program of the Republic of Tajikistan 2016-2025; Program for providing the population with clean drinking water 2017-2020; State environmental program 2009-2019; The state program for the development of new irrigated land and the restoration of land that has been abandoned from agricultural circulation in the Republic of Tajikistan 2012-2020
Time Frame	2014-2022
Mitigation Potential by 2030	2.93 $CO_{2\text{-eq}}$
Link to SDGs	7, 9, 13

No.	U.E.6
Action Name	Dushanbe Public Transport
Sector	Energy
Description	The project will help the Dushanbe State Communal Unitary Trolleybus Company to rehabilitate its trolleybus infrastructure in the Dushanbe, increase energy efficiency and make the trolleybus services in the city more sustainable.
Leading Entity	Ministry of Transport of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; State environmental program 2009-

	2019; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026
Time Frame	2010-2021
Mitigation Potential by 2030	0.06 $CO_{2\text{-eq}}$
Link to SDGs	11

No.	U.E.7
Action Name	Khujand Public Transport
Sector	Energy
Description	The project will support the Khujand Trolleybus Company to improve the trolleybus infrastructure in Khujand city.
Leading Entity	Ministry of Transport of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; State environmental program 2009-2019; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026
Time Frame	2015-2021
Mitigation Potential by 2030	0.01 $CO_{2\text{-eq}}$
Link to SDGs	11

No.	U.E.8
Action Name	Rural Electrification Project
Sector	Energy
Description	The project will provide electricity access to target settlements in GBAO and Khatlon regions. It will provide 43,126 people with access to electricity by household connections (grid or off-grid).
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change

	Adaptation Strategy 2019-2030; State environmental program 2009-2019
Time Frame	2019-2025
Mitigation Potential by 2030	5.47 $CO_{2\text{-eq}}$
Link to SDGs	7, 9, 10, 11, 13

No.	U.E.9
Action Name	Long-Term Small Hydro Power Plant Construction Program
Sector	Energy
Description	The project will construct 66 small hydropower plants at small rivers with a total capacity of 80 MW. This will include the creation of an appropriate structure, the determination of needs and the generation of electricity in difficult-to-reach settlements.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; National Climate Change Adaptation Strategy 2019-2030; Strategy for the development of industry in the Republic of Tajikistan 2018-2030; Long-Term Small Hydro Power Plant Construction Program 2009-2020; Water Sector Reform Program of the Republic of Tajikistan 2016-2025; Program for providing the population with clean drinking water 2017-2020; State environmental program 2009-2019; The state program for the development of new irrigated land and the restoration of land that has been abandoned from agricultural circulation in the Republic of Tajikistan 2012-2020
Time Frame	2009-2020
Mitigation Potential by 2030	19.52 $CO_{2\text{-eq}}$
Link to SDGs	7, 9, 13

No.	U.E.10
Action Name	Sustainable Fuels
Sector	Energy
Description	The Republic of Tajikistan will incentivise the change of technologies in passenger cars from diesel/gasoline cars to other cleaner alternatives.
Leading Entity	Ministry of Transport and the Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan
Time Frame	2021-2026
Mitigation Potential by 2030	185.05 $CO_{2\text{-eq}}$
Link to SDGs	9, 12, 13

2.1.2 Industrial Processes and Product Use (IPPU)

No unconditional mitigation actions are considered for the Industrial Processes and Product Use (IPPU) sector in the NDC of the Republic of Tajikistan.

2.1.3 Agriculture, Forestry and Other Land Use (AFOLU)

No.	U.A.1
Action Name	SFA (forestry) – current targets
Sector	AFOLU
Description	This mitigation action consists of implementing the priority development objectives of the forestry sector of the Republic of Tajikistan as set out in the Forest Sector Development Strategy 2016-2030, which are based on three axis: (i) carrying out institutional, legal, and financial reform of the sector, (ii) maintaining and increasing the area and productivity of forests, and (iii) developing the

	foundations of sustainable forestry, all of which will have an important impact on climate change mitigation.
Leading Entity	Agency for Forestry under the Government of the Republic of Tajikistan
Policy/Plan Link	Forest Sector Development Strategy 2016-2030; National Development Strategy 2016-2030
Time Frame	2021-2030
Mitigation Potential by 2030	1156.00 $CO_{2\text{-eq}}$
Link to SDGs	5,8,13,15,16

No.	U.A.2
Action Name	Livestock and Pasture Development Project (IFAD)
Sector	AFOLU
Description	This action consists of improving livestock productivity and increasing soil carbon stocks by (i) improving the productive capacity of pastures through enhanced access to farming equipment, seeds and fertilizers, and veterinary services, (ii) improving breeding and mating techniques, and (iii) improving access to water and water infrastructure. Co-benefits of this action aim to increase the nutritional status and incomes of poor rural households in the Khatlon region.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	Program for Pasture Development 2016-2020; Law of Pastures of 2013; Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2011-2018
Mitigation Potential by 2030	5.47 $CO_{2\text{-eq}}$
Link to SDGs	1,2,6

No.	U.A.3
Action Name	Livestock and Pasture Development Project II (IFAD)
Sector	Agriculture
Description	This action is a continuation of the Livestock and Pasture Development Project which aimed to further expand the improvement of the nutritional status and incomed of poor rural households by enhancing livestock productivity and resilience to climate change, including the development of institutions, the enhancement of animal health, and the development of pasture management.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Pasture Development 2016-2020; Law of Pastures of 2013; Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2015-2021
Mitigation Potential by 2030	5.64 $CO_{2\text{-eq}}$
Link to SDGs	1,2,13

No.	U.A.4
Action Name	Dangara Valley Irrigation Project, Phase III
Sector	AFOLU
Description	This mitigation action reflects an increase in agricultural productivity within the Dangara District through the improvement of water resources management, irrigation infrastructure, and drainage systems.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2016-2018
Mitigation Potential by 2030	-0.02 $CO_{2\text{-eq}}$
Link to SDGs	2,6

No.	U.A.5
Action Name	Tajikistan second public employment for sustainable agriculture and water resources management project
Sector	AFOLU
Description	This mitigation action consists of increasing crop production through the rehabilitation of irrigation and drainage infrastructure and the development of improved policies and institutions for water resource management with the aim of improving food availability and food access for low-income people in poor rural areas supported by the project.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2012-2020
Mitigation Potential by 2030	2.18 $CO_{2\text{-eq}}$
Link to SDGs	2,6

No.	U.A.6
Action Name	Reconstruction of the irrigation system and improvement of its management in the Zerafshan River Basin
Sector	AFOLU
Description	This mitigation action reflects an increase in crop production in response to improved conditions and management of irrigation infrastructure in the Zarafshon river basin and adjacent districts in the Syr-Darya basin, including the strengthening of the institutional base required. This project will also contribute to the overarching objective of improving food security, for rural and low-income households.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan

Policy/Plan Link	Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2018-2020
Mitigation Potential by 2030	0.26 $CO_{2\text{-eq}}$
Link to SDGs	2,6

No.	U.A.7
Action Name	Building Climate Resilience in the Pyanj River Basin Project
Sector	AFOLU
Description	This mitigation action reflects an increase in crop production in response to efforts for increasing resilience to climate change vulnerability in the Pyanj River Basin, including flood protection, improved irrigation and drainage infrastructure, and the development of microfinance services.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2013-2019
Mitigation Potential by 2030	0.01 $CO_{2\text{-eq}}$
Link to SDGs	6,9,13

No.	U.A.8
Action Name	Improvement of Water Resources Management in Khatlon Region Project
Sector	AFOLU
Description	The objective of this action is to improve the livelihood of the rural population, through improvement of water resources management with resilience to climate change impacts that will result in an increase

	of agriculture production, the creation of new permanent and seasonal job opportunities, and enhanced access to water supplies among rural communities.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Agency for Reclamation and Irrigation under the Government of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2019-2020
Mitigation Potential by 2030	0.03 $CO_{2\text{-eq}}$
Link to SDGs	6,8,13

No.	U.A.9
Action Name	Pasture Development Program of the Republic of Tajikistan
Sector	AFOLU
Description	This mitigation action reflects an improvement in pasture productivity of the Gorno-Badakhshan Autonomous Region. The Program is aimed at increasing the stocks of pasture vegetation using modern technology by sowing seeds of natural vegetation of pastures and increasing their productivity. This Program is designed to increase livestock, meat, milk, leather and wool production in all types of households, to meet the needs of the population with environmentally friendly resources, organize new jobs, and improve the living standards of rural residents.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Pasture Development 2016-2020; Law of Pastures of 2013; Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2016-2020
Mitigation Potential by 2030	0.10 $CO_{2\text{-eq}}$
Link to SDGs	1,2

No.	U.A.10
Action Name	Horticulture and Grapevine Development Program
Sector	AFOLU
Description	The main objective this action is the erection of new orchards and vineyards, the reconstruction of old orchards and vineyards, the replacement of old low-yielding with high-yielding varieties for export, based on the construction of intensive orchards, increasing productivity by creating nurseries using new seeds and cuttings as a whole increase in fruit and grape production.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program on Development of Horticulture and Viticulture for 2016-2020; Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2016-2020
Mitigation Potential by 2030	29.88 $CO_{2\text{-eq}}$
Link to SDGs	2,15

No.	U.A.11
Action Name	Development Program for Seed Production of the Republic of Tajikistan
Sector	AFOLU
Description	This Program is oriented towards introduction of new high-yielding cotton varieties and production of high-quality cotton seeds in compliance with international norms and standards.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2016-2020
Mitigation Potential by 2030	-17.82 $CO_{2\text{-eq}}$
Link to SDGs	9,15

No.	U.A.12
Action Name	Integrated Program of Livestock Sector Development in the Republic of Tajikistan for the period of 2018-2022
Sector	AFOLU
Description	This is a cross-sectoral policy document envisaging the development of the livestock sector, which covers a range of zootechnical, biotechnological and economic measures aimed at growing, preserving and increasing the number of cattle, poultry, bees, fish, and their breeds in the country, as well as the breeding of new high-yielding breeds.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Integrated Program of Livestock Sector Development in the Republic of Tajikistan 2018-2022; Law of Pastures 2013; Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030
Time Frame	2018-2027
Mitigation Potential by 2030	-71.77 $CO_{2\text{-eq}}$
Link to SDGs	9,15

No.	U.A.13
Action Name	The state program for the development of new irrigated land and the restoration of land that has been abandoned from agricultural circulation in the Republic of Tajikistan
Sector	AFOLU
Description	The main objective of this action is to restore the abandoned land in agricultural circulation and expand the area of irrigated land in the Republic of Tajikistan in order to increase the efficiency of the country's agricultural production, provide rural people with jobs and improve food security.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; Medium-term Development Program 2016-2020; National Development Strategy 2016-2030
Time Frame	2012-2020
Mitigation Potential by 2030	38.39 $CO_{2\text{-eq}}$
Link to SDGs	8,15

2.1.4. Waste

No.	U.W.1
Action Name	Dushanbe Water Supply and Sanitation Project
Sector	Waste
Description	This action consists of the rehabilitation and expansion of climate-resilient water supply and sanitation (WSS) infrastructure (rehabilitation of the south sewage collector, benefitting 352,000 people) in selected areas of Dushanbe. Additionally, it encompasses the development of a business model for the State Unitary Enterprise Dushanbevodokanal (DVK) and the pilot test a of behaviour change and public awareness on water usage and conservation.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030
Time Frame	2018-2025
Mitigation Potential by 2030	23.41 $CO_{2\text{-eq}}$
Link to SDGs	6,11,13

No.	U.W.2
Action Name	Khujand Water Supply Improvement Programme (Phase III)
Sector	Waste
Description	This mitigation action includes the rehabilitation of Wastewater Treatment Plant (WWTP) of Khujand.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030: Medium-term Development Program 2016-2020
Time Frame	2016-2020
Mitigation Potential by 2030	15.23 $CO_{2\text{-eq}}$
Link to SDGs	6

No.	U.W.3
Action Name	Nurek Water and Wastewater Project
Sector	Waste
Description	The objective of this action is to modernize and upgrade the water and wastewater services in the city of Nurek in Tajikistan, expanding the wastewater collection system to more than 4 thousand people without previous access.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030: Medium-term Development Program 2016-2020
Time Frame	2015-2017
Mitigation Potential by 2030	0.10 $CO_{2\text{-eq}}$
Link to SDGs	6

No.	U.W.4
Action Name	Kulob Water and Wastewater Project
Sector	Waste
Description	Through this action, the water supply and wastewater services in the city of Kulob will be improved through the rehabilitation of the water network and pump stations and the rehabilitation and modernization of the wastewater treatment plant.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030
Time Frame	2020-2024
Mitigation Potential by 2030	8.02 $CO_{2\text{-eq}}$
Link to SDGs	6

No.	U.W.5
Action Name	Vahdat Solid Waste Project
Sector	Waste
Description	The objective of this mitigation action is to finance construction of a new sanitary landfill, as well as to upgrade solid waste collection and transportation systems in Vahdat.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2016-2020
Time Frame	2018-2023
Mitigation Potential by 2030	1.49 $CO_{2\text{-eq}}$
Link to SDGs	12

No.	U.W.6
Action Name	Yavan Solid Waste Sub-project
Sector	Waste
Description	The aim of this activity it to facilitate critical solid waste investments for the city of Yavan and neighbouring municipalities, including the commission of a new sanitary landfill and the upgrade of waste collection and transportation services.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2016-2020
Time Frame	2017-2021
Mitigation Potential by 2030	0.90 $CO_{2\text{-eq}}$
Link to SDGs	12

No.	U.W.7
Action Name	Kulob Solid Waste Sub-project
Sector	Waste
Description	This action is aimed at (i) rehabilitating outdated solid waste infrastructure, (ii) acquiring new solid waste management equipment, and (iii) improving financial and operational management of the municipal solid waste company of Kulob.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2016-2020
Time Frame	2016-2020
Mitigation Potential by 2030	3.71 $CO_{2\text{-eq}}$
Link to SDGs	12

No.	U.W.8
Action Name	Khujand Solid Waste Sub-project
Sector	Waste
Description	This action aims at improving waste management services and environmental standards, reducing emissions, and promoting resource re-use and recovery in Khujand. The action includes (i) construction of a modern integrated solid waste treatment facility (ii) improvement of the current city landfill, (iii) rehabilitation of waste collection points, and (iv) procurement of waste collection containers and machinery and equipment.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2016-2020
Time Frame	2015-2020
Mitigation Potential by 2030	7.04 $CO_{2\text{-eq}}$
Link to SDGs	12

No.	U.W.9
Action Name	Khorog Solid Waste Sub-Project
Sector	Waste
Description	The aim of this action is to bring substantial environmental, health and safety benefits to the City of Khorog and the surrounding communities through the rehabilitation of waste collection, transportation, and disposal services. It includes (i) rehabilitating and extending solid waste infrastructure, (ii) acquiring specialized machinery for landfill operations, and (iii) improving financial and operational management.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2016-2020
Time Frame	2015-2019
Mitigation Potential by 2030	1.55 $CO_{2\text{-eq}}$
Link to SDGs	12

No.	U.W.10
Action Name	Tursun-Zade Solid Waste Sub-Project
Sector	Waste
Description	This mitigation action involves the rehabilitation and upgrade of the existing dumpsite of the City of Tursun-Zade into a controlled landfill as well as the improvement in waste collection services and transport to the landfill.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2016-2020
Time Frame	2015-2019
Mitigation Potential by 2030	2.01 $CO_{2\text{-eq}}$
Link to SDGs	12

No.	U.W.11
Action Name	Tursun-Zade Solid Waste Sub-Project
Sector	Waste
Description	This action is aimed at (i) improving landfill sanitary/operating standards and (ii) increasing efficiency/coverage of solid waste operations in Kurgan-Tyube.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2016-2020
Time Frame	2015-2019
Mitigation Potential by 2030	4.15 $CO_{2\text{-eq}}$
Link to SDGs	12

2.2. Conditional Mitigation Actions

The implementation of the conditional mitigation actions considered by the Republic of Tajikistan in its NDC depend on the level of provided international support. The reported mitigation potentials are not cumulative emissions, but rather reflect the annual GHG mitigation impact of the action in year 2030. Negative figures reflect increases in GHG emissions.

2.2.1. Energy

No.	C.E.1
Action Name	Energy Efficiency in the Residential/Commercial/Institutional Sector
Sector	Energy
Description	This mitigation action will replace coal boilers and stoves by efficient electric devises, reducing the anthracite fuel consumption in the sectors and ultimately lead to all anthracite consumption being replaced by electricity consumption by 2030.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan

Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2021-2025; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2022-2030	
Mitigation Potential by 2030	145.76 $CO_{2\text{-eq}}$	
Link to SDGs	3, 7, 12, 13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	

No.	C.E.2	
Action Name	Reduction of Electricity Consumption in Aluminium Production	
Sector	Energy	
Description	This mitigation action will reduce the electricity consumption within the aluminium production which will reduce the consumed energy. Through an improvement in the recycling and sorting of material, 50% of secondary production will be the primary catalyst of energy intensity improvements as primary production is approximately ten times more energy intensive than secondary production.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; Strategy for the development of industry in the Republic of Tajikistan 2018-2030	
Time Frame	2022-2030	
Mitigation Potential by 2030	241.26 $CO_{2\text{-eq}}$	
Link to SDGs	9, 12	
Type of Support Required	Finance	✓
	Research and Development	✓

	Promoting Pilot Projects	✓
	Capacity Building	

No.	C.E.3	
Action Name	Additional Renewable Generation Capacity	
Sector	Energy	
Description	This mitigation action will involve the construction of the Rogun Hydropower Plant on the upper reaches of the Vakhsh River in the Pamir mountain ranges. It will increase the renewable electricity capacity by 3,600MW, with an output capacity of 13.1bn kWh, accounting for half of the country's electrical installed capacity.	
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2016-2020; Medium-term development program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; Strategy for the development of industry in the Republic of Tajikistan 2018-2030; Long-Term Small Hydro Power Plant Construction Program 2009-2020; Water Sector Reform Program of the Republic of Tajikistan 2016-2025; Program for providing the population with clean drinking water 2017-2020; State environmental program 2009-2019; The state program for the development of new irrigated land and the restoration of land that has been abandoned from agricultural circulation in the Republic of Tajikistan 2012-2020	
Time Frame	2014-2026	
Mitigation Potential by 2030	878.55 $CO_{2\text{-eq}}$	
Link to SDGs	7, 9, 13	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

2.2.2. Industrial Processes and Product Use (IPPU)

No.	C.I.1	
Action Name	GHG Emission Reduction in Cement Production	
Sector	IPPU	
Description	This mitigation action will introduce the application of the 'dry-mix process' for the production of cement in the Republic of Tajikistan. This new more ecological method of cement production allows to reconstruct new methods of protection against dust and GHG emissions.	
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term development program 2102-2025; National Climate Change Adaptation Strategy 2019-2030; Strategy for the development of industry in the Republic of Tajikistan 2018-2030	
Time Frame	2022-2030	
Mitigation Potential by 2030	509.62 $CO_{2\text{-eq}}$	
Link to SDGs	9	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	

2.2.3. Agriculture, Forestry and Other Land Use (AFOLU)

No.	C.A.1
Action Name	Increase of current SFA Targets by 75%
Sector	AFOLU
Description	This mitigation action consists of increasing by 75% the priority development targets of the forestry sector of the Republic of Tajikistan as set out in the Forest Sector Development Strategy 2016-2030, which are based on three axis: (i) carrying out institutional, legal, and

	financial reform of the sector, (ii) maintaining and increasing the area and productivity of forests, and (iii) developing the foundations of sustainable forestry, all of which will have an important impact on climate change mitigation.	
Leading Entity	Agency of Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Development Strategy 2016-2030	
Time Frame	2021-2030	
Mitigation Potential by 2030	2022.30 $CO_{2\text{-eq}}$	
Link to SDGs	5,8,13,15,16	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

No.	C.A.2	
Action Name	Integrated pest management	
Sector	AFOLU	
Description	This action consists of implementing integrated pest management strategies in Tajikistan.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030	
Time Frame	2026-2030	
Mitigation Potential by 2030	-5.35 $CO_{2\text{-eq}}$	
Link to SDGs	9,15	
Type of Support Required	Finance	✓
	Research and Development	✓

	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	C.A.3	
Action Name	Replication of Livestock and Pasture Development Projects	
Sector	AFOLU	
Description	This action represents a replication of the Livestock and Pasture Development Projects (Phase I and Phase II) in two locations over a 5-year period on an area of 180,000 ha, starting from 2023.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	Program for pasture Development 2016-2020; Law of Pastures of 2013; Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030	
Time Frame	2023-2028	
Mitigation Potential by 2030	9.69 $CO_{2\text{-eq}}$	
Link to SDGs	1,2,6,13	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

No.	C.A.4
Action Name	Rice cultivation management
Sector	AFOLU
Description	This mitigation action consists of promoting rice cultivars with low exudation rates to reduce methane emissions by (i) improving water management in the off-season to avoid avoiding water logging, (ii) adjusting the timing of organic residue additions, (iii) composting the residues before incorporation, and (iv) producing biogas for use as fuel

	for energy production. In addition, emissions can be reduced by increasing rice production to enhance soil organic carbon stocks,	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Agency of Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030	
Time Frame	2023-2030	
Mitigation Potential by 2030	7.18 $CO_{2\text{-eq}}$	
Link to SDGs	9,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	C.A.5
Action Name	Continuation of the Integrated Program of Livestock Sector Development in the Republic of Tajikistan
Sector	Agriculture
Description	This action consists of continuing and expand the comprehensive livestock development program beyond its completion date and impact area. The mitigation component reflects enhanced agricultural production by improving the quality, productivity, and integrated management and regulation of pastures.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Integrated Program of Livestock Sector Development in the Republic of Tajikistan for the period of 2018-2022; Law of Pastures 2013; Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030
Time Frame	2028-2030
Mitigation Potential by 2030	-153.74 $CO_{2\text{-eq}}$

Link to SDGs	9,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	

No.	C.A.6
Action Name	Improved agronomic practices through the continuation of the Development Program for Seed Production of the Republic of Tajikistan
Sector	AFOLU
Description	This action aims at continuing the Development Program for Seed Production of the Republic of Tajikistan to further enhance agronomic practices through the introduction of high-yielding crop varieties.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030
Time Frame	2021-2030
Mitigation Potential by 2030	-22.27 $CO_{2\text{-eq}}$
Link to SDGs	15

Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	C.A.7
Action Name	Minimal or no tillage/residue management

Sector	AFOLU	
Description	This action encompasses the application of advanced weed control methods and farm machinery to cultivate crops with minimal tillage (reduced tillage) or without tillage (no-till). Carbon dioxide emissions thus reduced by (i) promoting soil carbon gain, (ii) reducing fossil fuel consumption in agricultural lands, (iii) and slowing organic matter decomposition rates.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030	
Time Frame	2026-2030	
Mitigation Potential by 2030	9.42 $CO_{2\text{-eq}}$	
Link to SDGs	15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	C.A.8
Action Name	Improved cattle diets
Sector	AFOLU
Description	This mitigation action consists of adjusting the diets of ruminants including protein content reduction and fat supplementation to reduce GHG emissions. Increasing the fat content in ruminant diets reduces methane emissions from enteric fermentation via biological processes in the digestive system. Improved diets can be applied to 20% of the dairy and beef cattle produced through artificial insemination in 2030.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030
Time Frame	2025-2030

Mitigation Potential by 2030	145.89 $CO_{2\text{-eq}}$	
Link to SDGs	9,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	

No.	C.A.9	
Action Name	Agroforestry program	
Sector	AFOLU	
Description	This mitigation action is associated to the improving agroforestry and/or silvopastoral systems by planting shrubs and trees in pastures and agricultural land. Agriculture sector stakeholders gave high priority to agroforestry measures, including alley cropping, silvopastoral systems and agroforestry on slopes. Experts recommend a 27% increase in the agroforestry area.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030	
Time Frame	2023-2030	
Mitigation Potential by 2030	229.28 $CO_{2\text{-eq}}$	
Link to SDGs	13,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	C.A.10

Action Name	Irrigation improvement	
Sector	AFOLU	
Description	This mitigation action involves the improvement of irrigation practices and infrastructure in 40% of irrigated land.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030	
Time Frame	2023-2030	
Mitigation Potential by 2030	2.85 $CO_{2\text{-eq}}$	
Link to SDGs	6	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	C.A.11
Action Name	Increase multiple cropping
Sector	AFOLU
Description	This action consists of increasing the cropping index through crop rotations and intercropping. While stakeholders have prioritized crop rotations and intercropping as adaptation measures, intercropping and crop rotations can both increase resilience of cropping systems and improve soil carbon to reduce emissions from the agriculture sector.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030
Time Frame	2025-2030
Mitigation Potential by 2030	-19.18 $CO_{2\text{-eq}}$

Link to SDGs	9,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	C.A.12	
Action Name	Enhancing removals by creating new fruit orchards and vineyards through the continuation of horticulture and vineyard programme	
Sector	AFOLU	
Description	This mitigation action is associated to the plantation of new fruit orchards and vineyards, in addition to those referred in the Horticulture and Viticulture Development Program in the Republic of Tajikistan for 2016 – 2020.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	Program on Development of Horticulture and Viticulture for 2016-2020; Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030	
Time Frame	2021-2030	
Mitigation Potential by 2030	68.38 $CO_{2\text{-eq}}$	
Link to SDGs	2,15	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

2.2.4. Waste

No conditional mitigation actions are considered for the Waste sector in the NDC of the Republic of Tajikistan.

3. Adaptation Actions by Sector

The Republic of Tajikistan identified priority sectors for adaptation actions according to key national strategies, sectoral programs and strategies, research carried out by development partners, as well as consultations with specialists from key ministries and departments. This resulted in the identification of 7 key adaptation sectors, namely, Energy, Water Resources, Agriculture, Forestry, Transport and Infrastructure, Industry and Construction, and Cross-Sectoral, which includes Education, Health, Migration, Environmental Protection, and Gender. For each of these sectors, the NDC defines long-term adaptive measures to be implemented in the 10-year period up to 2030.

3.1.1. Energy

No.	A.E.1	
Action Name	Improved Resiliency of Energy Resources	
Sector	Energy	
Description	This action will develop short-term climate change impact models and develop effective adaptation options for the identified extreme weather conditions that will affect the Republic of Tajikistan, such as droughts.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2025	
Link to SDGs	7, 9, 13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.E.2	
Action Name	Improved Capacity of Climate Risks and Vulnerabilities	
Sector	Energy	
Description	This action will develop capacity building activities to raise the level of qualifications of energy sector specialist in methods of assessing climate risks and vulnerabilities.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2030	
Link to SDGs	5, 13, 16	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.E.3	
Action Name	Promotion of Climate-Resilient Infrastructure	
Sector	Energy	
Description	This action will promote the design of climate-resilient infrastructure in the energy sector and to ensure measures are being taken to maintain the security of the infrastructure.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2030	
Link to SDGs	7, 9, 13	
	Finance	✓

Type of Support Required	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.E.4	
Action Name	Improved Maintenance Procedures and Measures	
Sector	Energy	
Description	This action will revise the maintenance procedures and measures for the energy sector to improve the safety of transmission and distribution networks from climate change induced extreme weather events.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2023	
Link to SDGs	7, 13, 16	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.E.5
Action Name	Improved Energy Security in Remote Mountainous and Rural Regions
Sector	Energy
Description	This action will develop networks of small hydroelectric power plants and widespread development of other renewable energy sources in the remote mountainous and rural regions of the Republic of Tajikistan to ensure renewable energy for all.

Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2030	
Link to SDGs	7, 9, 11	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.E.6	
Action Name	Strengthening the Climate Resilience of Hydropower Plants	
Sector	Energy	
Description	This action will strengthen the hydropower potential and increase the reliability factor of hydropower plants in the Republic of Tajikistan by taking into account the climate change induced extreme weather events into the design and operations of the plants.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2030	
Link to SDGs	7, 9, 13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	✓

3.1.2. Water Resources

No.	A.WR.1	
Action Name	Decreasing water demand	
Sector	Water Resources	
Description	This action aims to decrease water demand through water efficient technologies and practices, water recycling, improved water processes, and demand management.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2030	
Link to SDGs	6,12	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.WR.2
Action Name	Strengthening the capacity of Water Users Associations
Sector	Water Resources
Description	Water User Associations are a community-based water management organisation. This action consists of increasing the Water User Associations´ access to knowledge and resources for improving the sustainable allocation and conveyance of irrigation water through canals and other delivery works, including scheduling, maintenance activities, fee collection, and dispute resolution. It also includes the promotion of women and youth participation in the associations.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030
Time Frame	2021-2025
Link to SDGs	5,6,16

Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.WR.3	
Action Name	Improved wastewater treatment and discharge	
Sector	Water Resources	
Description	This action includes the introduction of stricter regulation of wastewater treatment and discharge and providing backup systems for storage water resources management.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2020-2025	
Link to SDGs	6,11	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	✓
	Capacity Building	

No.	A.WR.4
Action Name	Improved groundwater management
Sector	Water Resources
Description	This action includes the strengthening of groundwater quality and quantity monitoring mechanisms, as well as institutional, regulatory, and legal reforms required for improved groundwater management in light of climate change.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan

Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2023-2028	
Link to SDGs	6	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.WR.5	
Action Name	Widespread application of the principles of integrated water resources management	
Sector	Water Resources	
Description	This action includes the mainstreaming of integrated water resources management principles into local, regional, and national policy development plans across all sectors.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2025	
Link to SDGs	6,11,12	
Type of Support Required	Finance	
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.WR.6	
Action Name	Reclamation of saline lands and wetlands	
Sector	Water Resources	
Description	This action includes the rehabilitation of irrigation systems and drainages to improve reclamation of saline lands and wetlands.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2025	
Link to SDGs	6,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.WR.7
Action Name	Widespread use of efficient irrigation methods
Sector	Water Resources
Description	This action includes the widespread adoption of efficient irrigation methods in agricultural lands, including the promotion of drip irrigation systems. The aim is to ensure sustainable functioning of maintenance and operation system for irrigation and drainage infrastructure, as a basis for sustainable irrigated agriculture and food security, employment of rural population and poverty reduction on the ground.
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan and Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030
Time Frame	2021-2030
Link to SDGs	1,2,6,8

Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

No.	A.WR.8	
Action Name	Improvement of the water flow forecasting system	
Sector	Water Resources	
Description	This action includes (i) improving the coverage and accuracy of the water flow forecasting system, (ii) increasing the delivery of timely and updated information to farmers and rural communities, and (iii) incorporating the effects of climate change into the water flow forecasting system.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2021-2026	
Link to SDGs	6,13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.WR.9
Action Name	Development of national measures for adaptation and resilience to climate change in the water sector
Sector	Water Resources
Description	This action includes (i) conducting vulnerability studies in the water sector and (ii) developing targeted adaptation measures in response to

	the vulnerability studies that capture the risks among different regions and vulnerable groups.	
Leading Entity	Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2023	
Link to SDGs	6,9,13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	✓

3.1.3. Agriculture

No.	A.A.1	
Action Name	Introduction of "green" technologies and "green" infrastructure in agro-industrial production	
Sector	Agriculture	
Description	This adaptation action consists of increasing the resilience against climate change in agricultural areas through the introduction of "green" technologies and "green" infrastructure, including flood prevention methods, enhanced irrigation, and drainage in sight of water scarcity and excess, protective infrastructure, enhanced crop varieties, and efficient technologies, among others, all of which help build food security in sight of climate change in the Republic of Tajikistan.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2020-2030	
Link to SDGs	2,9,13	
Type of Support Required	Finance	✓
	Research and Development	✓

	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.A.2	
Improvement of livestock breeding	Improvement of livestock breeding	
Sector	Agriculture	
Description	This adaptation action consists of enhancing the genetic resources of livestock to promote the breeding of stronger and more resilient breeds.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	9,13,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	

No.	A.A.3
Improvement of livestock breeding	Development of agroforestry and conservation agriculture
Sector	Agriculture
Description	This adaptation action consists of promoting sustainable and integrated agroforestry practices that aim to promote conservation of lands by adopting targeted practices in response to vulnerabilities to climate change with the aim of increasing the resilience of the agriculture sector.

Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Agency of Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2023-2030	
Link to SDGs	13,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.A.4	
Improvement of livestock breeding	Crop rotation, intercropping and crop diversity	
Sector	Agriculture	
Description	This adaptation action focuses on building the resilience to droughts and pests through the adoption of crop rotation and intercropping practices while promoting crop diversity in favour of efficient and resilient crop varieties.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2025-2030	
Link to SDGs	9,13,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.A.5	
Improvement of livestock breeding	Enhancement of seeds	
Sector	Agriculture	
Description	This adaptation action consists of developing enhanced seed varieties that are resilient to unfavourable growing conditions resulting from climate change in close collaboration with research institutions, as well as the promotion of their use in agricultural lands.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	13,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.A.6
Improvement of livestock breeding	Promotion of soil protection and integrated pest management
Sector	Agriculture
Description	This adaptation action aims to promote favourable growing conditions in sight of climate change through soil protection and integrated pest management practices to minimise loss and damage associated with climate change.
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030
Time Frame	2026-2030
Link to SDGs	9,13,15

Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.A.7	
Improvement of livestock breeding	Improved management of irrigation and drainage systems	
Sector	Agriculture	
Description	This adaptation action aims to increase resilience against intensified droughts and floods anticipated from climate change through the investment in advanced irrigation and drainage systems.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	Program for Reform of Agriculture 2012-2020; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	6,13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.A.8
Improvement of livestock breeding	Improved pasture management
Sector	Agriculture
Description	This adaptation action envisages integrated pasture management techniques, including improved regulation and enforcement to

	minimize land degradation in favour of preservation of natural resources against loss and damage exacerbated by climate change.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan and Ministry of Energy and Water Resources of the Republic of Tajikistan	
Policy/Plan Link	Program for Pasture Development 2016-2020; Law of Pastures of 2013; Program for Reform of Agriculture 2012-2020; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	1,2,6,13	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

No.	A.A.9	
Improvement of livestock breeding	Provision of agriculture climate change information	
Sector	Agriculture	
Description	This adaptation action consists of raising awareness and increasing access to climate change information for rural populations, farmers, and agricultural enterprisers.	
Leading Entity	Ministry of Agriculture of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2020-2030	
Link to SDGs	5,10,16	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

3.1.4. Forestry

No.	A.F.1	
Action Name	Improvement of the regulatory, finance and legal framework for sustainable forest management	
Sector	Forestry	
Description	This action consists of (i) promoting the development of the economy by attracting entrepreneurs to the forestry sector and improving the efficiency of forestry through the creation of a sustainable financing system for the forestry sector, (ii) strengthening the participation of civil society, in particular women, in matters of forest policy at the national and local level, and (iii) strengthening law enforcement on forest-related management practices.	
Leading Entity	Agency for Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	5,16	
Type of Support Required	Finance	
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.F.2
Action Name	Development and implementation of a Joint Forest Management Approach
Sector	Forestry
Description	This action consists of improving the well-being of the local population by involving them in forest management and provision of forest products based on sustainable use of forests.

Leading Entity	Agency for Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	15	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.F.3	
Action Name	Accounting and monitoring forest management and its resilience against climate change	
Sector	Forestry	
Description	This action consists of creating and strengthening a monitoring, reporting, and verification (MRV) system for forest health.	
Leading Entity	Agency for Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	13,15	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.F.4	
Action Name	Improving the quality and quantity of provided ecosystem services in conditions of climate change.	
Sector	Forestry	
Description	This action includes (i) the conservation of forest biodiversity, and (ii) the restoration and conservation of forests.	
Leading Entity	Agency for Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	13,15	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	

No.	A.F.5
Action Name	Maintaining and increasing the area and productivity of forests
Sector	Forestry
Description	This action includes reforestation/afforestation, natural/assisted regeneration, and integrated land management with a special emphasis on anti-erosion, recreational and protected forests.
Leading Entity	Agency for Forestry under the Government of the Republic of Tajikistan
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030
Time Frame	2020-2030
Link to SDGs	8,15

Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	✓
	Capacity Building	

No.	A.F.6	
Action Name	Increased protection of vulnerable forests and forests which provide ecosystem services to vulnerable populations	
Sector	Forestry	
Description	This action includes (i) expanding the coverage of protected forests and (ii) increasing the monitoring and enforcement of forest protection practices.	
Leading Entity	Agency for Forestry under the Government of the Republic of Tajikistan	
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	15	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.F.7
Action Name	Research and innovation in sustainable forest practices
Sector	Forestry
Description	This action includes strengthening the Forest Research Institute´s access to resources and establishing contracts with other international

	research and education institutions for expanding the scope of research in priority sustainable forestry research areas.	
Leading Entity	Forest Research Institute under the Government of the Republic of Tajikistan	
Policy/Plan Link	Forest Sector Development Strategy for 2016-2030; National Climate Change Adaptation Strategy 2019-2030; National Development Strategy 2016-2030	
Time Frame	2020-2030	
Link to SDGs	9,17	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	

3.1.5. Transport and Infrastructure

No.	A.T.1	
Action Name	Improve the Climate-Resiliency of Transport Infrastructure	
Sector	Transport	
Description	This action will improve the protection and long-term maintenance of transport infrastructure from climate change induced extreme weather events.	
Leading Entity	Ministry of Transport of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026	
Time Frame	2021-2030	
Link to SDGs	9, 11, 13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	

No.	A.T.2	
Action Name	Updating the National Building Codes for the Construction of Bridges	
Sector	Transport	
Description	This action will update the national building codes for the construction of bridges in the Republic of Tajikistan to ensure they are built according to international standards and resilient to the effects of climate change.	
Leading Entity	Ministry of Transport of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026	
Time Frame	2021-2023	
Link to SDGs	9, 13	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.T.3
Action Name	Improved Accessibility to Road Infrastructure
Sector	Transport
Description	This action will improve the road infrastructure and the access to roads in the Republic of Tajikistan, in particular in hazardous and vulnerable areas.
Leading Entity	Ministry of Transport of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; State Target Program for the

	Development of the Transport Complex of the Republic of Tajikistan 2012-2026	
Time Frame	2021-2030	
Link to SDGs	9, 11	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

No.	A.T.4	
Action Name	Implementation of International Safety Standards	
Sector	Transport	
Description	This action will ensure the implementation of international safety standards and adapt rail, road, air and all other modes of transport, including non-traditional and special modes of transport, to the requirements under these international standards.	
Leading Entity	Ministry of Transport of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026	
Time Frame	2021-2030	
Link to SDGs	9, 11, 17	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.T.5

Action Name	Introduction of Fuel-Efficient Vehicles	
Sector	Transport	
Description	This action will promote the implementation of incentives and regulations for fuel-efficient vehicles in the Republic of Tajikistan.	
Leading Entity	Ministry of Transport of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026	
Time Frame	2021-2025	
Link to SDGs	17	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	

3.1.6. Industry and Construction

No.	A.IC.1
Action Name	Introduction of Energy-Saving and Digital Technologies
Sector	Industry and Construction
Description	This action will equip large enterprises in the Republic of Tajikistan with modern energy-saving and digital technologies to improve their energy efficiency.
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; Strategy for the Development of Industry in the Republic of Tajikistan 2018-2030
Time Frame	2021-2030
Link to SDGs	9, 12

Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	

No.	A.IC.2	
Action Name	Increasing Innovative and Sustainable Industries	
Sector	Industry and Construction	
Description	This action will increase the innovativeness and sustainability of the industrial sector in the Republic of Tajikistan that embraces the environmental protection and creation of a green economy, introduces rational consumption and production patterns, and improves greening of the industry.	
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; Strategy for the Development of Industry in the Republic of Tajikistan 2018-2030	
Time Frame	2021-2030	
Link to SDGs	9, 12, 17	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	✓

No.	A.IC.3
Action Name	Development of Sustainable Infrastructure
Sector	Industry and Construction
Description	This action will develop sustainable infrastructure in the industrial sector based on the implementation of green investment projects.

Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; Strategy for the Development of Industry in the Republic of Tajikistan 2018-2030	
Time Frame	2021-2030	
Link to SDGs	9, 12, 17	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	✓
	Capacity Building	

No.	A.IC.4	
Action Name	Creation of Early Warning Systems	
Sector	Industry and Construction	
Description	This action will create early warning systems for the industrial sector which will provide protective measures and prevention mechanisms of damage and loss of infrastructure from climate change induced extreme weather events.	
Leading Entity	Ministry of Industry and New Technologies of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; Medium-term Development Program 2021-2025; National Climate Change Adaptation Strategy 2019-2030; Strategy for the Development of Industry in the Republic of Tajikistan 2018-2030	
Time Frame	2021-2023	
Link to SDGs	9, 13	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	✓

3.1.7. Cross-Sectoral

No.	A.CS.1	
Action Name	Creating an enabling environment for the introduction of new climate change technologies	
Sector	Cross-Sectoral	
Description	This actions consists of creating an enabling financial environment to facilitate development, access, and use of enhanced technologies of climate change adaptation and disaster risk management. This action includes (i) conducting technology needs assessments for climate change actions, (ii) developing de-risking mechanisms, and (iii) developing international agreements for technology transfer.	
Leading Entity	Committee on Environmental Protection under the Government of the Republic of Tajikistan and Ministry of Finance of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030	
Time Frame	2021-2030	
Link to SDGs	9,17	
Type of Support Required	Finance	✓
	Research and Development	✓
	Promoting Pilot Projects	
	Capacity Building	

No.	A.CS.2
Action Name	Taking gender-sensitive measures to enhance planning
Sector	Cross-Sectoral
Description	This action consists of mainstreaming gender concerns into integrated climate change planning processes. This includes engaging and consulting women´s groups, empowering women in decision-making and leadership roles as it pertains to climate change, collecting disaggregated data on climate change impacts on women, and taking targeted gender-sensitive measures within adaptation actions, all while

	seeking inclusion and empowerment of women in to enhance climate change adaptation efforts in the Republic of Tajikistan.	
Leading Entity	Committee on Environmental Protection under the Government of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030; Mid-term Development Programme 2021-2025	
Time Frame	2021-2030	
Link to SDGs	5	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.CS.3	
Action Name	Enhancing climate change education	
Sector	Cross-Sectoral	
Description	This action consists of developing curricula for secondary schools, secondary vocational institutions, and higher educational institutions to encompass issues of climate change mitigation, adaptation, disaster risk management, and early warning mechanisms.	
Leading Entity	Ministry of Education of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030; Mid-term Development Programme 2021-2025	
Time Frame	2021-2025	
Link to SDGs	4	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.CS.4	
Action Name	Awareness campaigns on climate change and disaster risk management	
Sector	Cross-Sectoral	
Description	This action consists of arranging media campaigns to raise awareness on the risks related to climate change as well as possible disaster risk management strategies. The aim of this action is to provide the population of the Republic of Tajikistan with sufficient knowledge to undertake the necessary measures to reduce loss and damage arising from climate change-related hydrometeorological events. Efficient management and communication mechanisms must therefore be established to successfully launch these awareness-raising campaigns.	
Leading Entity	Committee on Environmental Protection under the Government of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030; Mid-term Development Programme 2021-2025	
Time Frame	2021-2030	
Link to SDGs	4	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.CS.5
Action Name	Adjust master plans in response to climate change
Sector	Cross-Sectoral
Description	This action consists of enhancing inter-sectoral coordination and dialogue to develop integrated master plans that are in synergy with each other for enhanced action against climate change.
Leading Entity	Committee on Environmental Protection under the Government of the Republic of Tajikistan

Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030; Mid-term Development Programme 2021-2025	
Time Frame	2021-2025	
Link to SDGs	16	
Type of Support Required	Finance	
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

No.	A.CS.6	
Action Name	Strengthen the technical capacity of government entities on climate change adaptation and governance	
Sector	Cross-Sectoral	
Description	This action consists of strengthening mechanisms to organize regular professional training of the employees of authorised bodies and government officials on climate change adaptation. The aim is to fortify the knowledge base at various government levels for enhanced fact-based and targeted climate action.	
Leading Entity	Committee on Environmental Protection under the Government of the Republic of Tajikistan	
Policy/Plan Link	National Development Strategy 2016-2030; National Climate Change Adaptation Strategy 2019-2030; Mid-term Development Programme 2021-2025	
Time Frame	2021-2030	
Link to SDGs	4,8,16	
Type of Support Required	Finance	✓
	Research and Development	
	Promoting Pilot Projects	
	Capacity Building	✓

4. NDC Implementation Roadmap

The NDC Implementation Roadmap 2020-2030 of the Republic of Tajikistan sets out a clear pathway for the execution of concrete mitigation and adaptation actions leading to emission reductions and increased resilience against climate change over time to ensure the attainment of international climate change commitments of the country. It is envisaged to provide guidance for key stakeholders on the activities necessary to achieve the NDC targets by the envisaged deadlines. The aim is to establish a favourable environment within the Republic of Tajikistan necessary for the timely and effective execution of the NDC.

This roadmap is considered a living document representing the current state of knowledge within the Government of the Republic of Tajikistan on GHG emissions trends and feasible mitigation actions, climate change impacts/vulnerability and feasible adaptation actions, as well as the capacity building, technology, and finance needs, all of which will contribute to meeting the targets set out in the country´s NDC. The Republic of Tajikistan reserves the right to periodically update the NDC Implementation Roadmap 2020-2030, as may be needed, to ensure validity, transparency, and accuracy over time. Moreover, while the commitments stated in the NDC are valid until December 31, 2030, the Republic of Tajikistan will revise target indicators in its second NDC to be submitted in 2025, which, will consequently require the update of the NDC Implementation Roadmap as necessary to reflect potential changes in the target indicators.

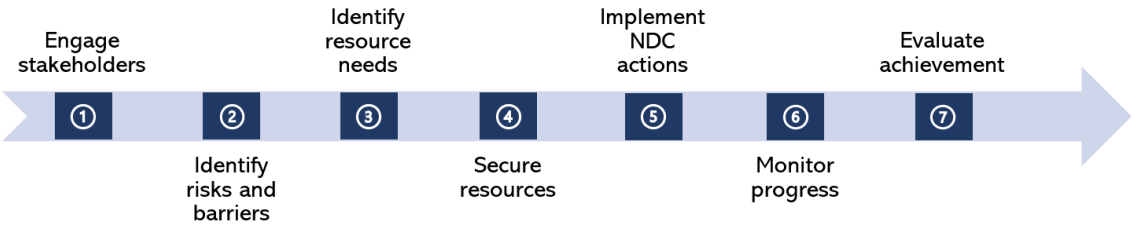
The NDC Implementation Roadmap 2020-205 encompasses a total of 34 unconditional and 16 conditional mitigation actions spanning across the Energy, IPPU, AFOLU, and Waste sectors as follows:

Mitigation Action	Energy	IPPU	AFOLU	Waste
Unconditional	10	0	13	11
Conditional	3	1	12	0

A total of 40 adaptation actions are encompassed within the roadmap across the energy, water resources, agriculture, forestry, transport, and industry and construction sectors plus 6 cross-sectoral actions as follows:

Energy	Water Resources	Agriculture	Forestry	Transport	Industry and Construction	Cross-Sectoral
6	9	9	7	5	4	6

For each of the 80 NDC actions, it is necessary to establish the enabling conditions within the Republic of Tajikistan for effective NDC implementation. To do so, each NDC action shall be implemented in the following 7 steps:



1. **Engage stakeholders:** Identify responsible implementing entities, beneficiaries, and other stakeholders for each NDC action, including government entities, research institutions, academia, civil society, private enterprises, women´s groups, youth, and vulnerable groups.

2. **Identify risks and barriers for implementation:** Conduct risk evaluations and gap analysis to identify the principal barriers for implementation of each NDC action and develop a barrier management strategy and a de-risking plan.

3. **Identify resources needed for implementation**: Quantify the amount of resources needed to implement each NDC action, including capacity building, technology transfer, and finance.

4. **Secure resources:** Identify potential sources to supply capacity building, technology and finance needs for the implementation of each NDC action, including domestic, international, public, and private sources. For domestic sources: Secure public budget allocation for NDC implementation, develop public-private agreements, incentivise domestic private investment, and develop national climate finance mechanisms such as national climate funds, tariffs, or green bonds. For international sources: Develop project pipeline and funding proposals, strengthen the national framework to meet direct access requirements to international climate funds, increase private sector engagement and investment, develop, and implement de-risking mechanisms to enhance international climate investment in the Republic of Tajikistan.

5. **Implement NDC actions:** Develop specific implementation plans for each NDC action, identifying all tasks to be completed within each action, responsible entities, set targets, and milestones. Mobilize resources and the relevant stakeholders to launch the implementation of each NDC action.

6. **Monitor progress:** Track the progress made in attaining the targets for each NDC action, identifying if each action is on track, ahead of schedule, or behind schedule in attaining the set targets by the envisioned deadlines. For actions behind schedule, identify priority areas that require further resources to ensure effective and timely implementation.

7. **Evaluate implementation:** Once each NDC action has been completed, evaluate the implementation progress and extract lessons learned within a framework of continuous improvement.

4.1. Time Plan for Implementation

The NDC implementation period covers a time span of 10 years from 2020 to 2030. In order to ensure the efficient allocation of limited human and financial resources to maximize the transformational change brought by the NDC, it is of fundamental importance that these mitigation and adaptation actions be implemented in a gradual manner depending on their priority.

The following set of tables present the envisioned implementation time spans for all 80 NDC actions. These proposed time spans have been developed in accordance with the *GHG Forecasting in Key Sectors and Impact Assessment of Climate Change Mitigation Policies and Measures* conducted for the development of the Fourth national Communication of the Republic of Tajikistan[2], in conjunction with the sectoral assessments conducted for the update of the NDC in 2021, namely:

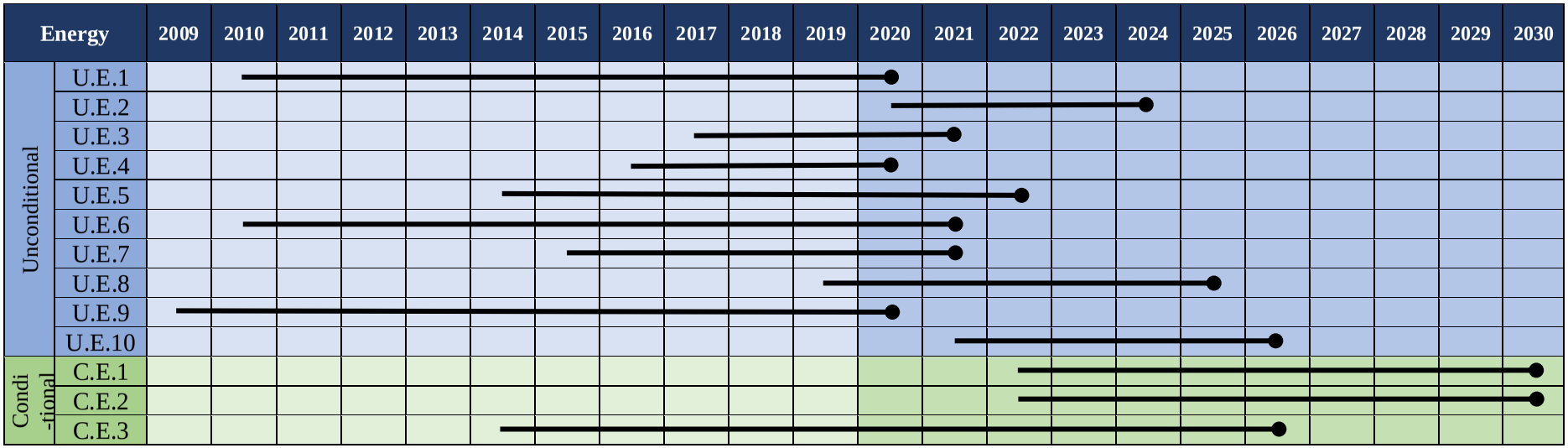
- **Industry and Construction Sectoral Analysis:** *Analysis of Industry and Construction Sector*. Revision of nationally determined contributions (NDCs) of the Republic of Tajikistan to reductions in greenhouse gas emissions (GHGs) under the United Nations Framework Convention on Climate Change (UNFCCC). UNDP, 2021.
- **Agriculture Sectoral Analysis:** *Analysis of the agricultural sector for the NDC revision in Tajikistan*. UNIQUE forestry and land use GmbH. GiZ, 2021.
- **Forestry Sectoral Analysis:** *Forestry Sectoral Assessment.* Revision of nationally determined contributions (NDCs) of the Republic of Tajikistan to reductions in greenhouse gas emissions (GHGs) under the United Nations Framework Convention on Climate Change (UNFCCC). World Bank, 2021.
- **Energy Sectoral Analysis:** *Support the Government of Tajikistan in developing a revised, more ambitious NDC – Progress Report.* EU Global Technical Assistance Facility on Sustainable Energy. GiZ, 2021.
- **Transport and Infrastructure Sectoral Analysis:** *Analysis of Transport and Infrastructure Sector*. Revision of nationally determined contributions (NDCs) of the Republic of Tajikistan to reductions in greenhouse gas emissions (GHGs) under the United Nations Framework Convention on Climate Change (UNFCCC). UNDP, 2021.

Some unconditional mitigation actions included under the NDC have already been completed before the 2020-2030 implementation period. While these actions have already been completed, they inflict significant GHG emissions reductions ongoing into the future and are thus a critical contributor to attaining the Republic of Tajikistan's mitigation components. As such, they have been included under the NDC Implementation Roadmap 2020-2030 and their on-going monitoring will be of fundamental importance to track the country´s achievement of NDC targets.

[2] *Projections of GHG emissions to 2030 in Tajikistan.* GHG Forecasting in Key Sectors and Impact Assessment of Climate Change Mitigation Policies and Measures. Technical Report. UNDP, 2020.

4.1.1. Mitigation Actions

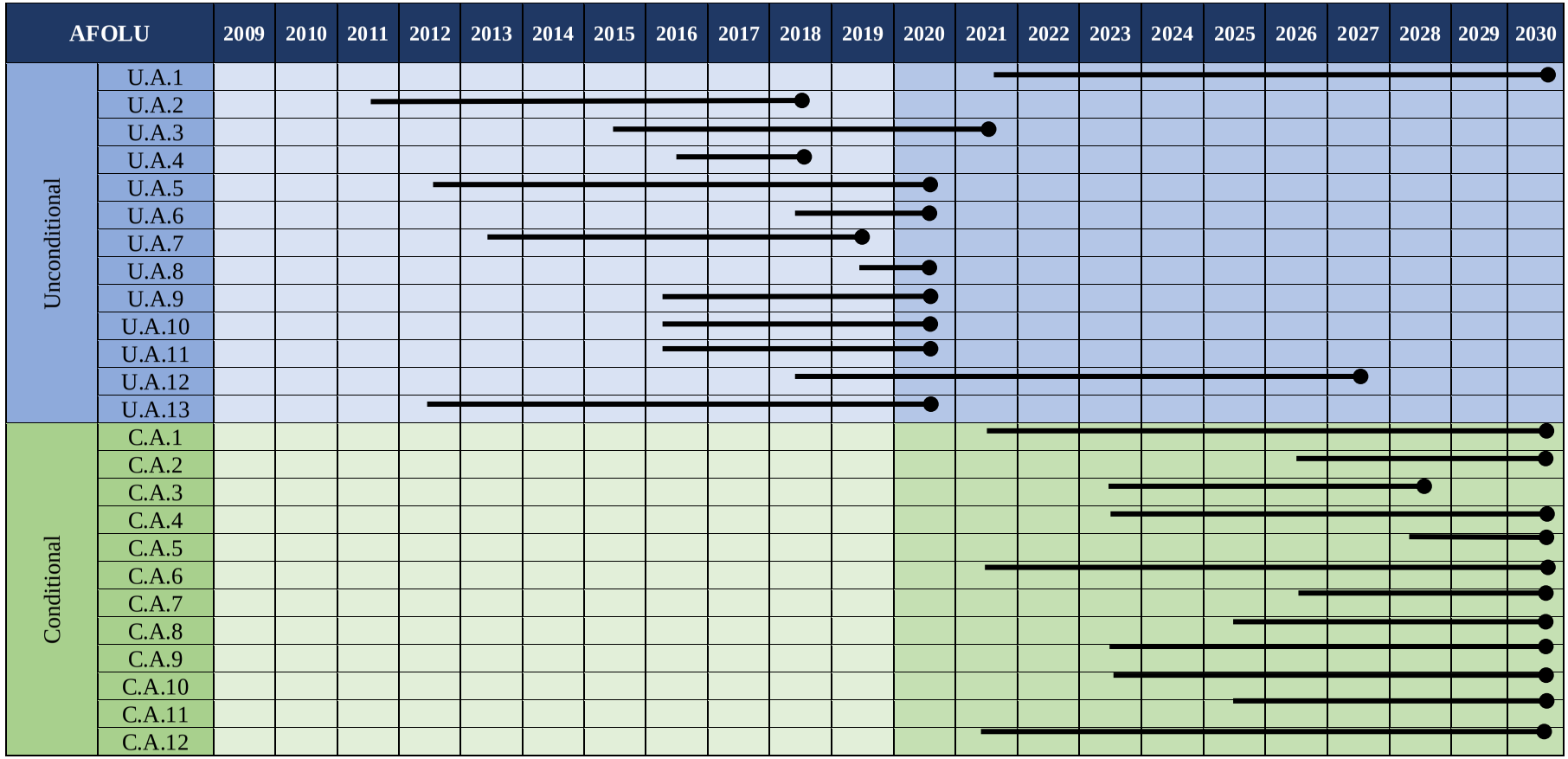
4.1.1.1. Energy



4.1.1.2. IPPU

IPPU		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Condi-tional	C.I.1																						

4.1.1.3. AFOLU


AFOLU
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2029
2030
Unconditional
U.A.1
U.A.2
U.A.3
U.A.4
U.A.5
U.A.6
U.A.7
U.A.8
U.A.9
U.A.10
U.A.11
U.A.12
U.A.13
Conditional
C.A.1
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C.A.3
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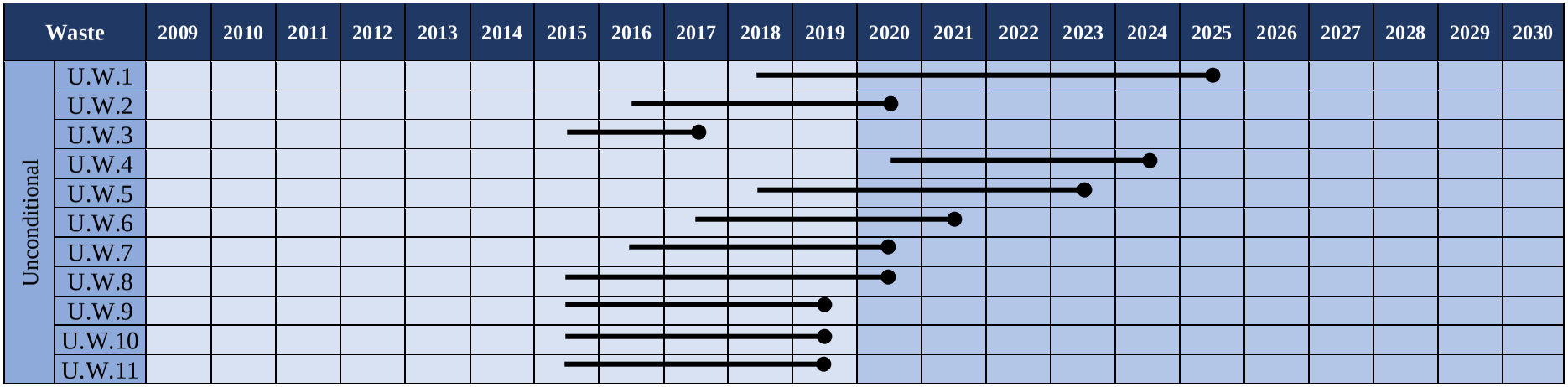
C.A.8
C.A.9
C.A.10
C.A.11
C.A.12

4.1.1.4. Waste


Waste
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U.W.2
U.W.3
U.W.4
U.W.5
U.W.6
U.W.7
U.W.8
U.W.9
U.W.10
U.W.11

4.1.2. Adaptation Actions

4.1.2.1. Energy

Energy		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Adaptation	A.E.1																						
	A.E.2																						
	A.E.3																						
	A.E.4																						
	A.E.5																						
	A.E.6																						

4.1.2.2. Water Resources

Water Resources		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Adaptation	A.WR.1																						
	A.WR.2																						
	A.WR.3																						
	A.WR.4																						
	A.WR.5																						
	A.WR.6																						
	A.WR.7																						
	A.WR.8																						
	A.WR.9																						

4.1.2.3. Agriculture

Agriculture		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Adaptation	A.A.1																						
	A.A.2																						
	A.A.3																						
	A.A.4																						
	A.A.5																						
	A.A.6																						
	A.A.7																						
	A.A.8																						
	A.A.9																						

4.1.2.4. Forestry

Forestry		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Adaptation	A.F.1																						
	A.F.2																						
	A.F.3																						
	A.F.4																						
	A.F.5																						
	A.F.6																						
	A.F.7																						

4.1.2.5. Transport and Infrastructure

Transport		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Adaptation	A.T.1																						
	A.T.2																						
	A.T.3																						
	A.T.4																						
	A.T.5																						

4.1.2.6. Industry and Construction

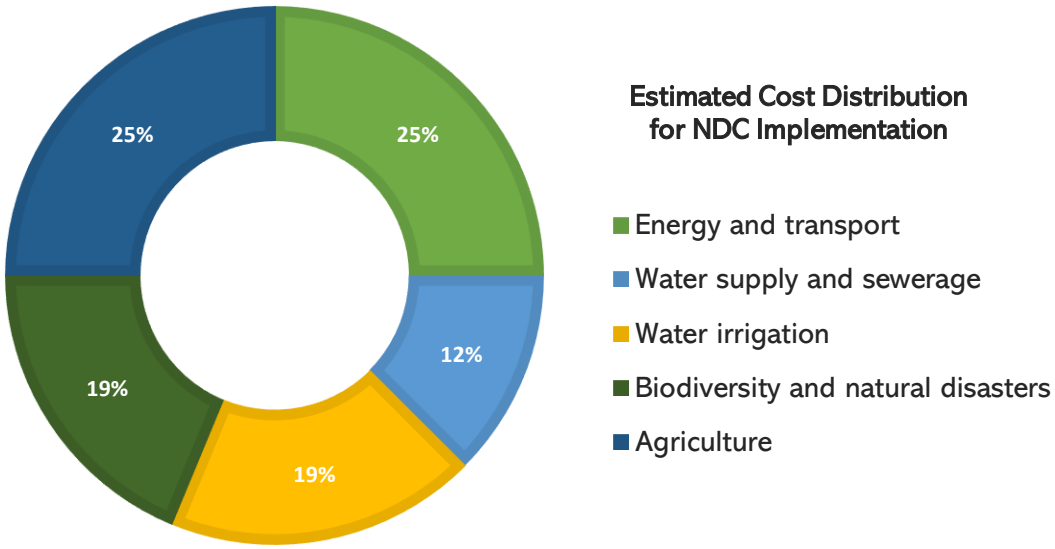
Industry and Construction		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Adaptation	A.IC.1																						
	A.IC.2																						
	A.IC.3																						
	A.IC.4																						

4.1.2.7. Cross-Sectoral

Cross-Sectoral		2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Adaptation	A.CS.1																						
	A.CS.2																						
	A.CS.3																						
	A.CS.4																						
	A.CS.5																						
	A.CS.6																						

4.2. Climate Finance for Implementation

Finance is critical for the implementation of the mitigation and adaptation actions set out in the Republic of Tajikistan´s NDC. It is estimated that at least 7% of the Republic of Tajikistan´s GDP will be required for financing all conditional and unconditional climate change actions envisioned under the NDC Implementation Plan throughout the implementation period 2020-2030, equivalent to approximately more than 1 billion USD per year distributed over the following key areas as shown below:[3]



It has been estimated that the average annual growth rate of the country´s GDP could range 4-5% over the decade 2020-2030. The growth in investment rate on NDC actions should be higher than the expected GDP growth rate to ensure the attainment of NDC targets.[4] It is therefore of critical importance to secure and channelise finance on an equitable bases to support the implementation of the NDC mitigation and adaptation actions.

The Republic of Tajikistan will use its own resources for NDC implementation, particularly to fund unconditional mitigation actions. However, the availability of domestic sources has undergone significant impact from the COVID-19 pandemic. Furthermore, the implementation of adaptation actions and conditional mitigation actions is strongly reliant on international climate finance support.

Under this context, it is strongly recommended that within the first two years of NDC implementation (2020-2022), the Republic of Tajikistan develop an NDC Climate Finance Strategy to ensure climate finance can be effectively identified, mobilized, assessed, and scaled up to contribute to achieving climate change targets under the NDC.

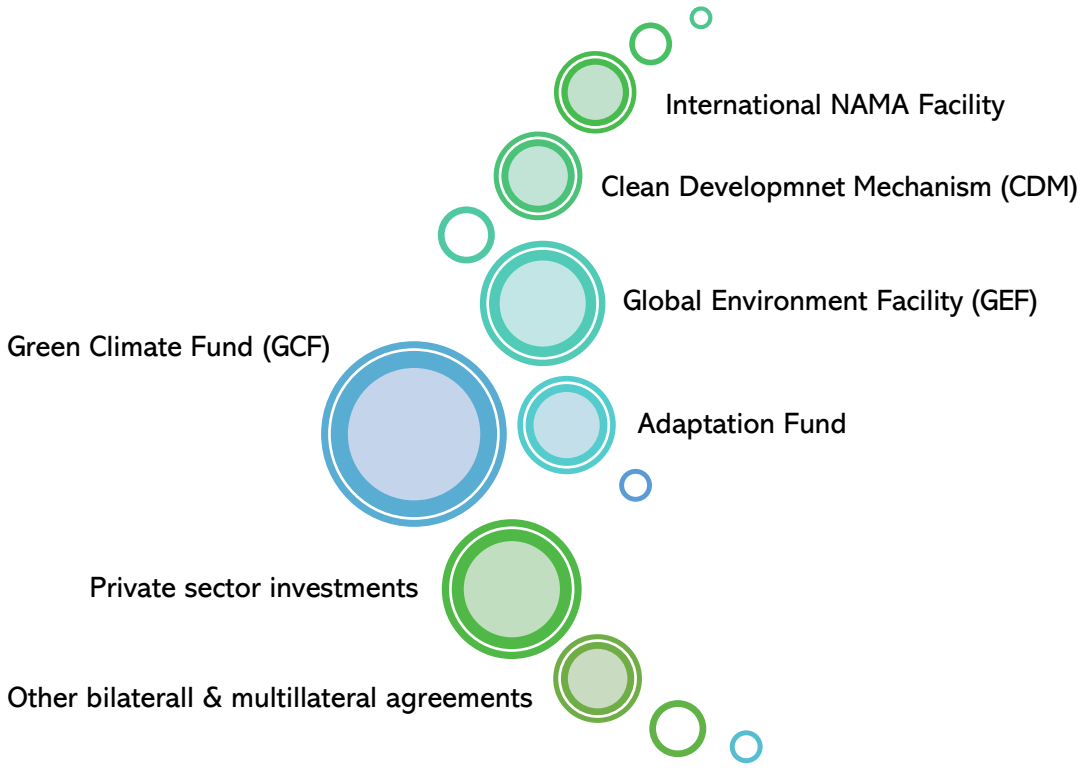
The objective of developing an NDC Climate Finance Strategy is to:

- ❖ Compile costing analysis for the implementation of each NDC action.

[3] The Updated NDC of the Republic of Tajikistan. Republic of Tajikistan. 2021.
[4] The Updated NDC of the Republic of Tajikistan. Republic of Tajikistan. 2021.

- ❖ Identify sources of climate finance, including domestic, international, public, and private sources.
- ❖ Assess the current climate finance landscape in the Republic of Tajikistan and build a favourable and enabling environment for investment in climate change.
- ❖ Develop appropriate climate finance mechanisms building on existing structures and financial flows in the country, such as national green bonds, national climate funds, tariffs, green bonds, etc.
- ❖ Mainstream climate change into national budgeting processes.
- ❖ Develop a country climate investment plan.
- ❖ Develop de-risking mechanisms to promote investment for the international community and the private sector.
- ❖ Secure direct access to international climate funds for national and subnational institutions, including funds such as the Green Climate Fund, the Adaptation Fund, the Global Environment Fund and the European Commission Directorate-General for International Cooperation and Development.
- ❖ Design and implement a climate finance MRV system.
- ❖ Strengthen institutional arrangements, capacity, coordination, and collaboration to enable effective mobilization and monitoring of climate finance for NDC implementation.

Potential international funding sources for NDC Implementation include:



4.3. Technology Needs for Implementation

The application of climate technologies is necessary on a large scale and on an accelerated time period in order to attain the Republic of Tajikistan's NDC adaptation and mitigation targets. The implementation of NDC actions will require significant amount of technology development and, consequently, support for acquiring and applying these technologies. The type of technology support includes:

- Technology transfer.
- Research and innovation for developing new and innovative climate technology.
- Finance for acquiring, maintaining, and operating climate technology.
- Training and capacity building for the use of climate technology.
- Support for overcoming other technology gasps

One of the first steps for NDC Implementation is to understand the current climate technologies available in the Republic of Tajikistan and the technologies needed for NDC implementation. This can be achieved by undertaking a Technology Needs Assessment (TNA) for the NDC. A TNA is an in-depth study that maps out the country´s sustainable development priorities, identifies and prioritises the specific technologies needed to attain them, identifies the barriers hindering deployment and diffusion of the prioritised technologies, and proposes measures to overcome these barriers. The outcome of the TNA is the development of a Technology Action Plan (TAP). The TAP is a concrete plan that establishes the actions needed for acquiring the necessary technologies for carrying out the country´s sustainable development priorities as well as the skills required to use them. The TAP identifies the actions, timing, resources, and responsible entities for fulfilling the country´s technology needs.

The last TNA of the Republic of Tajikistan is outdated, as it was conducted in 2003. It is therefore strongly recommended that within the first two years of NDC implementation (2020-2022), the Republic of Tajikistan conduct an NDC Technology Needs Assessment and develop an NDC Technology Action Plan. The TNA and TAP for the NDC should identify the technology needs for each NDC mitigation and adaptation action and develop a concrete roadmap including a specific set of measures, timing, resources, and responsible entities for fulfilling these needs. Finance needed under the NDC Technology Action Plan should be incorporated within the NDC Climate Finance Strategy as mentioned in Section 4.2 of the present document.

Possible measures to be incorporated in the NDC Technology Action Plan include:

- Development of quantitative and qualitative indicators for climate technologies and their inclusion into the NDC monitoring mechanism.
- Development of a multilateral development fund, co-financing or public-private partnerships to finance climate technologies for NDC implementation.
- Introduction of lower loan interest rates to promote the acquisition of climate technology for NDC implantation.
- Introduction of income tax exemptions for local manufacturers and service providers using climate resilient technologies.
- Dissemination of knowledge and best practices on climate technology among all users.
- Creation of techno parks for the introduction of new technologies for NDC implementation.
- Promotion of regional information exchange on climate technologies.
- Creation of a platform to share experience on new technologies at national and regional levels.[5]

[5] The Updated NDC of the Republic of Tajikistan. Republic of Tajikistan. 2021.

4.4. Capacity Building for Implementation

Effective NDC Implementation requires the sufficient knowledge, skills, and awareness to execute all mitigation and adaptation actions. Furthermore, strengthened institutional frameworks and effective communication streams are key for coordinated and streamlined NDC implementation. Systemic capacity development at the national, sectoral, regional, and local level is required to improve knowledge and strengthen capacities on the impacts of climate change and the respective mitigation and adaptation measures jointly with promoting strong cooperation with the civil society, academia, and the private sector.

The NDC of the Republic of Tajikistan encompasses a series of specific sectoral capacity building actions for mitigation and adaptation. Concerning adaptation, the NDC also includes five cross-sectoral capacity building actions, as set out under the Medium-Term Development Program 2021-2025:

- Increased media coverage of climate change and disaster risk management.
- Improvement of educational and methodological materials.
- Introduction of innovative advanced training of civil servants on adaptation to climate change.
- Defining a system of target indicators, including gender-sensitive indicators, to achieve national, sectoral, and regional adaptation goals and approving methodological recommendations for assessing climate risks.
- Developing sectoral and regional plans for adapting to climate change.

In addition to specific capacity-building actions, the implementation of the NDC will also require support for increasing the national capacity to execute certain adaptation and mitigation actions. Under the NDC Implementation Roadmap, an assessment was conducted on the type of support required to implement the adaptation actions and the conditional mitigation actions, including capacity building support. The following table illustrates the actions identified that will require capacity building in order to be implemented:

Action Type	Sector	Actions Requiring Capacity Building
Conditional Mitigation	Energy	None
	IPPU	None
	AFOLU	C.A.2., C.A.4., C.A.6., C.A.7., C.A.9., C.A.10., C.A.11.
Adaptation	Energy	A.E.1., A.E.2., A.E.3., A.E.4., A.E.5., A.E.6.
	Water Resources	A.WR.1., A.WR.2., A. WR.4., A.WR.5., A.WR.6., A.WR.8., AWR.9.
	Agriculture	A.A.1., A.A.3., A.A.4., A.A.5., A.A.6., A.A.7., A.A.9.
	Forestry	A.F.1., A.F.2., A.F.3., A.F.6.
	Transport and Infrastructure	A.TI.2., A.TI.4
	Industry and Construction	A.IC.2., A.IC.4.

It is suggested that within the first two years of NDC implementation (2020-2022), the Republic of Tajikistan develop an NDC Capacity Building Action Plan to deliver the necessary knowledge, skills, communication streams, and institutional strengthening required for effective NDC implementation. The NDC Capacity Building Action Plan should enlist a series of capacity building activities with an estimated timeframe, resources required, and entities responsible for implementation.

In addition to abovementioned priority areas the specific actions have been prioritized to be implemented in the Republic of Tajikistan under NDC Capacity Building Action Plan that will be revised and expanded while the document will be developed:

1. Creation of favorable conditions for the introduction of new technologies in the field of climate change in collaboration with the Ministry of Finance of the Republic of Tajikistan
    - Development of a list of climate technologies for the purpose of exemption from customs duties and taxes;
    - Provision of concessional loans for the introduction of new technologies related to climate change;
    - Establishment of procedures for monitoring and oversight of climate finance flows, from internal and external sources. Including budget labeling procedures for all sources of national and subnational funding sources;
    - Development of a system for monitoring and evaluation to introduce the new technologies and capacity building.
2. Adoption of gender-sensitive measures to improve planning system
    - Development of gender-sensitive indicators for climate change;
    - Development of measures for women's access to new technologies;
    - Increasing the capacity of women on climate change issues.
3. Conduction of climate change awareness and disaster risk management campaigns
4. Adjustment of master plans in response to climate change
    - Inclusion of tasks in the field of climate change and environmental protection in the regulations of key ministries and departments;
    - Inclusion of issues of climate change, environmental protection and disaster risk reduction in all planned national and sectoral Strategies and programs of key sectors of the economy in accordance with the Medium-Term Development Program of the Republic of Tajikistan for 2021-2025;
    - Establishment of the National Platform on Climate Change in order to improve the coordination mechanism on climate change issues on the example of the National Platform of the Republic of Tajikistan on Disaster Risk Reduction;
    - Inclusion of an assessment of the most vulnerable sectors, taking into account the identification of risks, impacts and adaptive potential in the development of programs for the socio-economic development of regions, districts and cities.
5. Strengthening the technical capacity of government agencies in the field of climate change adaptation and management
    - Development of programs, modules and information materials to increase the level of capacity of government agencies to adapt to climate change;
    - Development of programs and training materials on climate change issues at the Academy of Public Administration under the President of the Republic of Tajikistan.

5. Alignment with the Sustainable Development Goals

The 2030 Agenda for Sustainable Development is a plan of action for peace and prosperity for people and the planet. It was adopted by all United Nations Member States in 2015 and stimulates action for the 15-year period until 2030. At the heart of the 2030 Agenda for Sustainable Development are the 17 Sustainable Development Goals (SDGs) and the corresponding 169 targets and over 230 indicators. The SDGs recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth, while tackling climate change and working to preserve the global oceans and forests. The goals and targets address and incorporate the three dimensions of sustainable development, namely, the environment, economics, and society.

The Republic of Tajikistan is translating the 2030 Agenda for Sustainable Development into its national and subnational development plans and processes. As many of the policies and actions in the NDC not only advance SDG 13 on climate action but many of the other targets of the SDGs and objectives of the 2030 Agenda for Sustainable Development, it provides an avenue for the country to adopt an aligned and integrated approach for the implementation of their NDC and the SDGs that optimises mutual benefits. Aligning the implementation of the two agendas will ensure policy integration and coherence, will prevent duplication of information, and will support a shift from short-term, project-based implementation towards long-term decision-making.

Furthermore, achieving alignment will not just result in the realisation of the objectives of the Paris Agreement and the 2030 Agenda for Sustainable Development, but will additionally enable the national and subnational Government of Tajikistan, civil society, and the private sector in the country to maximise international and domestic resources toward priorities that achieve both agendas. There is a growing trend by multilateral and development institutions to link the use of their funds to SDG impacts and the alignment of NDC actions to SDGs will therefore allow for greater access for the Republic of Tajikistan to financial resources, capacity building, and technology support.

The Republic of Tajikistan has therefore set out the goal to progress towards implementing the Sustainable Development Goals (SDGs) at national level by mainstreaming the focus of the Agenda 2030 into the updated NDC. This is underlined in the main objective of the NDC to support the sustainable and efficient development taking into consideration climate change, environmental and socio-economic challenges. The country will set out a pathway for an integrated and aligned implementation of the country’s NDC and the SDGs into national and sectoral plans, with sixteen of the seventeen SDGs being related to the development country's goals and priorities. The following set of tables provide an overview of the mitigation and adaptation actions considered in the NDC, and their alignment with the corresponding SDGs.

5.1. Mitigation Actions

5.1.1. Energy

Energy	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
U.E.1									✓								
U.E.2							✓		✓				✓				
U.E.3											✓						
U.E.4							✓		✓				✓				
U.E.5							✓		✓				✓				
U.E.6											✓						
U.E.7											✓						
U.E.8							✓		✓	✓	✓		✓				
U.E.9							✓		✓				✓				
U.E.10									✓			✓	✓				
C.E.1			✓				✓					✓	✓				
C.E.2									✓			✓					
C.E.3							✓		✓				✓				

5.1.2. IPPU

5.1.3. AFOLU

AFOLU	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
U.A.1					✓			✓					✓		✓	✓	
U.A.2	✓	✓				✓											
U.A.3	✓	✓											✓				
U.A.4		✓				✓											
U.A.5		✓				✓											
U.A.6		✓				✓											
U.A.7						✓			✓				✓				
U.A.8						✓		✓					✓				
U.A.9	✓	✓															
U.A.10		✓													✓		
U.A.11									✓						✓		
U.A.12									✓						✓		
U.A.13								✓							✓		
C.A.1					✓			✓					✓		✓	✓	
C.A.2									✓						✓		
C.A.3	✓	✓				✓							✓				
C.A.4									✓						✓		

AFOLU	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
C.A.5									✓						✓		
C.A.6															✓		
C.A.7															✓		
C.A.8									✓						✓		
C.A.9													✓		✓		
C.A.10						✓											
C.A.11									✓						✓		
C.A.12		✓													✓		

5.1.4. Waste

Waste	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
U.W.1						✓					✓		✓				
U.W.2						✓											
U.W.3						✓											
U.W.4						✓											
U.W.5												✓					
U.W.6												✓					
U.W.7												✓					
U.W.8												✓					
U.W.9												✓					
U.W.10												✓					
U.W.11												✓					

5.2. Adaptation Actions

5.2.1. Energy

Energy	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
A.E.1							✓		✓				✓				
A.E.2					✓								✓			✓	
A.E.3							✓		✓				✓				
A.E.4							✓						✓			✓	
A.E.5							✓		✓		✓						
A.E.6							✓		✓				✓				

5.2.2. Water Resources

Water Resources	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
A.WR.1						✓						✓					
A.WR.2					✓	✓										✓	
A.WR.3						✓					✓						
A.WR.4						✓											
A.WR.5						✓					✓	✓					
A.WR.6						✓									✓		
A.WR.7	✓	✓				✓		✓									
A.WR.8						✓							✓				
A.WR.9						✓			✓				✓				

5.2.3. Agriculture

Agriculture	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
A.A.1		✓							✓				✓				
A.A.2									✓				✓		✓		
A.A.3													✓		✓		
A.A.4									✓				✓		✓		
A.A.5													✓		✓		
A.A.6									✓				✓		✓		
A.A.7						✓							✓				
A.A.8	✓	✓				✓							✓				
A.A.9					✓					✓						✓	

5.2.4. Forestry

Forestry	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
A.F.1					✓											✓	
A.F.2															✓		
A.F.3													✓		✓		
A.F.4													✓		✓		
A.F.5								✓							✓		
A.F.6															✓		
A.F.7									✓								✓

5.2.5. Transport and Infrastructure

Transport	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
A.T.1									✓		✓		✓				
A.T.2									✓				✓				
A.T.3									✓		✓						
A.T.4									✓		✓						✓
A.T.5																	✓

5.2.6. Industry and Construction

Industry and Construction	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
A.IC.1									✓			✓					
A.IC.2									✓			✓					✓
A.IC.3									✓			✓					✓
A.IC.4									✓				✓				

5.2.7. Cross-Sectoral

Cross-Sectoral	Sustainable Development Goal (SDG)																
	1 NO POVERTY	2 ZERO HUNGER	3 GOOD HEALTH AND WELL-BEING	4 QUALITY EDUCATION	5 GENDER EQUALITY	6 CLEAN WATER AND SANITATION	7 AFFORDABLE AND CLEAN ENERGY	8 DECENT WORK AND ECONOMIC GROWTH	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	10 REDUCED INEQUALITIES	11 SUSTAINABLE CITIES AND COMMUNITIES	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	13 CLIMATE ACTION	14 LIFE BELOW WATER	15 LIFE ON LAND	16 PEACE, JUSTICE AND STRONG INSTITUTIONS	17 PARTNERSHIPS FOR THE GOALS
A.CS.1									✓								✓
A.CS.2					✓												
A.CS.3				✓													
A.CS.4				✓													
A.CS.5																✓	
A.CS.6				✓				✓								✓	

6. Governance Structure for Implementation

The Republic of Tajikistan has created a clear policy and institutional framework aimed at addressing climate change issues, which is critical considering the cross-sectoral challenges of climate change mitigation and adaptation and the crosscutting nature of NDC implementation. The Republic of Tajikistan therefore employ's these existing policy and institutional arrangements for the NDC implementation.

6.1. Policy Framework

The country acknowledges that no single policy instrument is adequate to ensure the implementation of climate change related international obligations, or the multiple mitigation and adaptation actions envisaged in the Republic of Tajikistan's NDC. It requires a coherent structure, with policies supporting the cross-sectoral aspects and consisting of clear policy directives, which will provide direction for entities in the Republic of Tajikistan. The Government of Tajikistan has therefore adopted multiple laws and bylaws in the field of environment and developed several programs and action plans.

The following table present the linkages between the considered mitigation and adaptation actions in the country's NDC, and the respective national and sectoral policies of the Republic of Tajikistan. This showcases the cross-sectoral aspect of the NDC actions, and the crosscutting nature of the national policies in the country.

Policy	Link to action
National Development Strategy 2016-2030	Linked to all adaptation and mitigation actions.
Medium-Term Development Program 2016-2020	U.E.1, U.E.2, U.E.3, U.E.4, U.E.5, U.E.6, U.E.7, U.E.8, U.E.9, U.A.2, U.A.3, U.A.4, U.A.5, U.A.6, U.A.7, U.A.8, U.A.9, U.A.10, U.A.11, U.A.13, U.W.2, U.W.3, U.W.5, U.W.6, U.W.7, U.W.8, U.W.9, U.W.10, U.W.11, C.E.3
Medium-Term Development Program 2021-2025	C.E.1, C.E.2, C.E.3, C.I.1, A.E.1, A.E.2, A.E.3, A.E.4, A.E.5, A.E.6, A.T.1, A.T.2, A.T.3, A.T.4, A.T.5, A.IC.1, A.IC.2, A.IC.3, A.IC.4, A.CS.2, A.CS.3, A.CS.4, A.CS.5, A.CS.6
National Climate Change Adaptation Strategy 2019-2030	U.E.1, U.E.2, U.E.3, U.E.4, U.E.5, U.E.6, U.E.7, U.E.8, U.E.9, C.E.1, C.E.2, C.E.3, C.I.1, A.E.1, A.E.2, A.E.3, A.E.4, A.E.5, A.E.6, A.WR.1, A.WR.2, A.WR.3, A.WR.4, A.WR.5, A.WR.6, A.WR.7, A.WR.8, A.WR.9, A.A.1, A.A.2, A.A.3, A.A.4, A.A.5, A.A.6, A.A.7, A.A.8, A.A.9, A.F.1, A.F.2, A.F.3, A.F.4, A.F.5, A.F.6, A.F.7, A.T.1, A.T.2, A.T.3, A.T.4, A.T.5, A.IC.1, A.IC.2,

	A.IC.3, A.IC.4, A.CS.1, A.CS.2, A.CS.3, A.CS.4, A.CS.5, A.CS.6
Strategy for the Development of Industry in the Republic of Tajikistan 2018-2030	U.E.1, U.E.2, U.E.4, U.E.5, U.E.9, C.E.2, C.E.3, C.I.1, A.IC.1, A.IC.2, A.IC.3, A.IC.4
State Environmental Program 2009-2019	U.E.2, U.E.3, U.E.4, U.E.5, U.E.6, U.E.7, U.E.8, U.E.9, C.E.3
State Target Program for the Development of the Transport Complex of the Republic of Tajikistan 2012-2026	U.E.3, U.E.6, U.E.7, U.E.10, A.T.1, A.T.2, A.T.3, A.T.4, A.T.5
Long-Term Small Hydro Power Plant Construction Program 2009-2020	U.E.4, U.E.5, U.E.9, C.E.3
Water Sector Reform Program of the Republic of Tajikistan 2016-2025	U.E.4, U.E.5, U.E.9, C.E.3
Program for Providing the Population with Clean Drinking Water 2017-2020	U.E.4, U.E.5, U.E.9, C.E.3
The State Program for the Development of New Irrigated Land and the Restoration of Land that has been Abandoned from Agricultural Circulation in the Republic of Tajikistan 2012-2020	U.E.4, U.E.5, U.E.9, C.E.3
Forest Sector Development Strategy 2016-2030	U.A.1, C.A.1, A.F.1, A.F.2, A.F.3, A.F.4, A.F.5, A.F.6, A.F.7
Program for Pasture Development 2016-2020	U.A.2, U.A.3, U.A.9, C.A.3, A.A.8
Program for Reform of Agriculture 2012-2020	U.A.2, U.A.3, U.A.4, U.A.5, U.A.6, U.A.7, U.A.8, U.A.9, U.A.10, U.A.11, U.A.12, U.A.13, C.A.2, C.A.3, C.A.4, C.A.5, C.A.6, C.A.7, C.A.8, C.A.9, C.A.10, C.A.11, C.A.12, A.WR.7, A.A.2, A.A.3, A.A.4, A.A.5, A.A.6, A.A.7, A.A.8
Integrated Program of Livestock Sector Development in the Republic of Tajikistan 2018-2022	U.A.12, C.A.5
Program on Development of Horticulture and Viticulture for 2016-2020	U.A.10, C.A.12

6.2. Institutional Framework

The Republic of Tajikistan has conducted a mapping of the existing institutions and ministries relevant to the NDC implementation, with their corresponding current roles and responsibilities, which resulted in a list of leading entities responsible for the implementation of the Republic of Tajikistan's NDC.

However, the country emphasises that the NDC implementation plan is a "living" document, which represents the current state of knowledge within the Government of the Republic of Tajikistan. The Republic of Tajikistan will therefore periodically update the leading entities responsible for the NDC implementation according to changes in the national governance structure of the country.

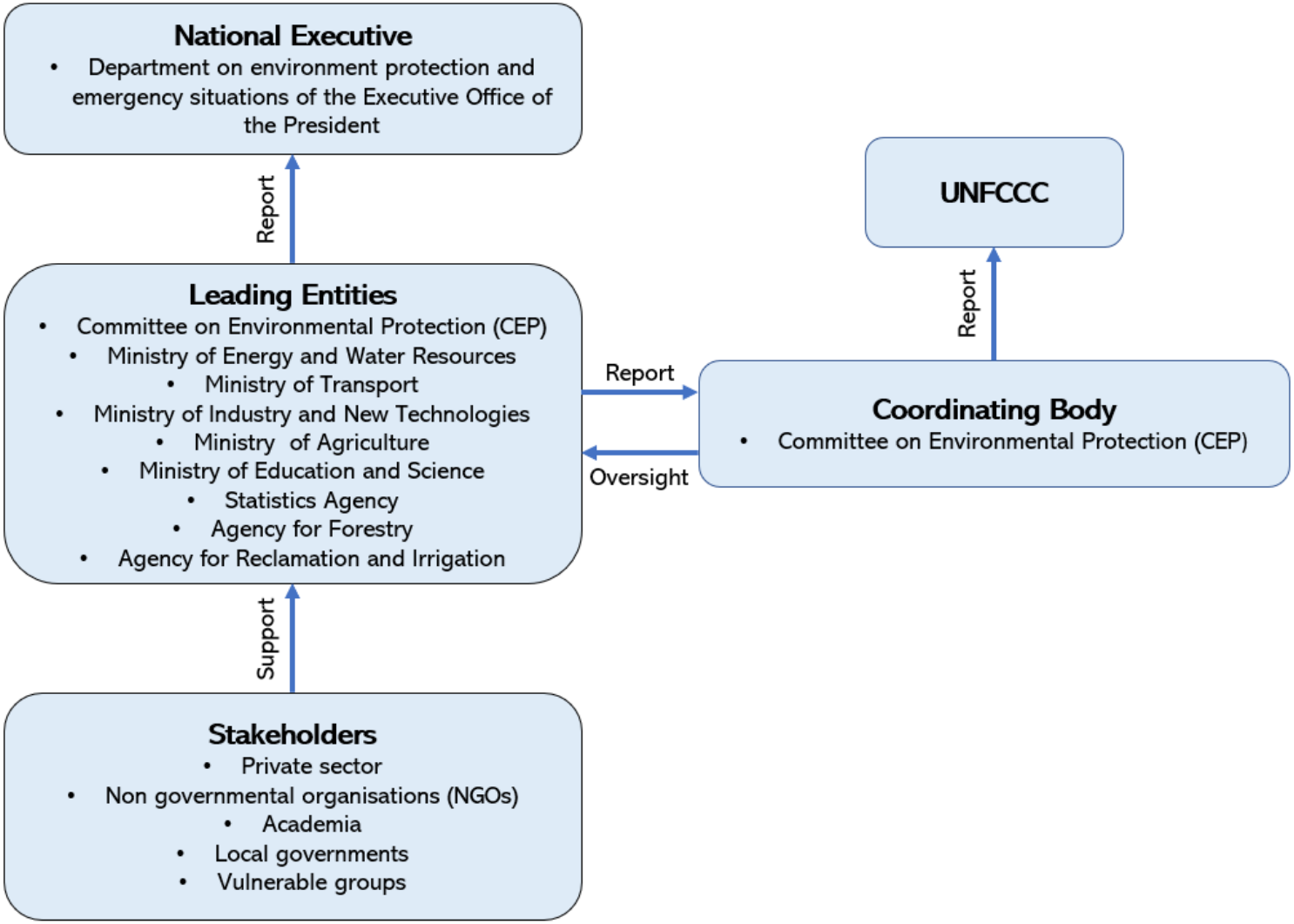
- **Committee on Environmental Protection under the Government of the Republic of Tajikistan (CEP)** is responsible for control of the use of natural resources, protection of land, minerals, forests, water, and other resources, and coordinates activities on environment protection among the government agencies. Its decisions on environmental protection are considered to be binding for all legal entities and individuals in the Republic of Tajikistan. It is also authorized to be the policy making body in the field of climate change and oversees the work of the Agency for Hydrometeorology, which is the UNFCCC focal point. In addition, it carries out professional development of the staff for the integrated implementation of the climate change concept into the national legislation on environmental protection and sub-legal regulatory acts.
- **Ministry of Energy and Water Resource of the Republic of Tajikistan** is a leading executive body authorized to implement the unified state policy and regulation in the fuel and energy sector, water resource management and development of renewable energy sources (RES). The Ministry is involved in climate change issues by performing the functions of the National Designated Authority for the purposes of the clean development mechanism under the Kyoto Protocol of the UNFCCC.
- **Ministry of Transport of the Republic of Tajikistan** is a government body that develops and coordinates the state policy, plans and state programs on transport, covering road transport, including railways, civil aviation, and the construction of roads.
- **Ministry of Industry and New Technologies of the Republic of Tajikistan** is a government body that develops and implements a unified state policy in the industry sector of the country. In terms of environment and climate change issues, the Ministry organises the development and implementation of inter-sectoral research and technical programs and innovative projects; conducts selection and control over the implementation of investment projects using modern energy-saving technologies and environmentally friendly production, carries out the reviews of industrial companies to check the compliance with the technological, environmental and other standards and government requirements.
- **Ministry of Agriculture of the Republic of Tajikistan** develops and coordinates the state policy, plans and state programs in agriculture. It also supervises the work of the Academy of agricultural science - the centre of the agrarian science in Tajikistan and closely linked with Tajik Agrarian University.
- **Ministry of Education and Science of the Republic of Tajikistan** is a central executive authority in the field of education that carries out the unified state policy and regulates regulatory framework in the field of education and science, in the field of teaching and upbringing, scientific and technical activities, guardianship and trusteeship, as well as support

and social protection of students and pupils of educational and scientific institutions. The Ministry is actively involved in the development and implementation of environmental programs at schools and universities.

- **Statistics Agency under the President of the Republic of Tajikistan** is a government body in the field of statistical policy and economic analysis. It performs its activities on collection and dissemination of statistics using the principles of an objective and comprehensive research of social, economic, and environmental processes taking place in the country, as well as registering the administrative and territorial units and settlements.
- **Agency for Forestry under the Government of the Republic of Tajikistan** is a central executive authority of the country that performs functions of policy making and implementation, legal regulation and state management of forest, forestry activities, forest resources, hunting and hunting facilities, flora and fauna, specially protected natural parks as well as operational management of the system and state control. It is actively involved in the implementation of climate change programs and projects.
- **Agency for Reclamation and Irrigation under the Government of the Republic of Tajikistan** is a central executive authority of the country that performs functions of policy making and implementation, legal regulation and state management of land development, land reclamation, land irrigation, and water hazard risk prevention,

The Committee on Environmental Protection under the Government of the Republic of Tajikistan is the government body which provides oversight of all environmental conventions to which the Republic of Tajikistan is a Party and is therefore assigned as the government unit responsible for coordinating and overseeing the implementation of the NDC and ensuring successful completion of all its components.

Furthermore, all information will also be reported to the Department on environment protection and emergency situations of the Executive Office of the President of the Republic of Tajikistan, which monitors and coordinates policies and measures of the different ministries and agencies and provides information support to public officials for adoption of the national programs and action-plans.


National Executive
• Department on environment protection and emergency situations of the Executive Office of the President
Report
Leading Entities
• Committee on Environmental Protection (CEP)
• Ministry of Energy and Water Resources
• Ministry of Transport
• Ministry of Industry and New Technologies
• Ministry of Agriculture
• Ministry of Education and Science
• Statistics Agency
• Agency for Forestry
• Agency for Reclamation and Irrigation
Support
Stakeholders
• Private sector
• Non governmental organisations (NGOs)
• Academia
• Local governments
• Vulnerable groups
Report
Oversight
UNFCCC
Report
Coordinating Body
• Committee on Environmental Protection (CEP)

6.3. Implementing Structure

The Republic of Tajikistan will establish an NDC Implementation Secretariat to further facilitate the NDC implementation. This Secretariat will support the leading entities and the Government of the Republic of Tajikistan in administrative tasks for the successful implementation of the NDC such as daily coordination, preparation of required documentation for the implementation, monitoring and reporting on the level of implementation of NDC actions, and verifying that the information generated is transparent, accurate, consistent, comparable, and complete. Furthermore, it will provide a link between the international climate funds active in Tajikistan and the support needed and received for NDC implementation.

Considering the role of the Committee on Environmental Protection (CEP) under the Government of the Republic of Tajikistan as the government unit responsible for coordinating and overseeing the implementation of the NDC and ensuring successful completion of all its components, the NDC Implementation Secretariat will be established under the CEP. In addition, the CEP is the National Designated Authority (NDA) to the Green Climate Fund (GCF), the designated authority to the Adaptation Fund, and the Operational and Political Focal Point to the Global Environmental Facility (GCF), thus ensuring that the NDC Implementation Secretariat will carry the capacities to track the support needed and received for NDC implementation, including capacity building, technology transfer, and finance. The GCF, Adaptation Fund, and GEF can subsequently also provide financial and technical support for the daily operations of the NDC Implementation Secretariat.

The institutional procedures and mechanisms of the NDC Implementation Secretariat will be further elaborated and agreed at the national level through a national consultation process involving all key stakeholders of the national governance process in the Republic of Tajikistan. This will facilitate the determination of the specific role and processes that the NDC Implementation Secretariat will fulfil throughout the ongoing realisation of the NDC of the Republic of Tajikistan.


Administration (General, HR, Legal, Special Work and Economic Sectors)
Committee on Environmental Protection (CEP)
NDC Implementation Secretariat
Department of Monitoring and Environmental Policy
Department of Planning, Accounting and Finance
Department of State Control of Use and Protection of Water Resources
Department of State Control of Use and Protection of Plant and Animal World
Department of State Control of Use and Protection of Atmospheric Air
Department of State Control of Use, Land Protection and Waste Management
Sector of International Relations
Sector of Specially Protected Natural Areas, National Natural Parks
Department of Environmental Protection of Gorno-Badakhshan Autonomous Region
Department of Environmental Protection of the Sogd Region
Department of Environmental Protection of Khatlon Region
Department of Environmental Protection of Dushanbe City

7. Monitoring, Reporting and Verification

Under the Enhanced Transparency Framework (ETF) established by Article 13 of the Paris Agreement, starting in 2024, countries will transparently report on actions taken and progress achieved in climate change mitigation and adaptation, including the support provided or received to undertake these actions.

Having ratified the Paris Agreement on 20 March 2017, the Republic of Tajikistan will need to report the necessary information to track progress made in implementing and achieving its NDC according to the Modalities, Procedures, and Guidelines (MPGs) set out in Decision 18/CMA and its Annex. This information will be presented through Biennial Transparency Reports (BTRs) to be submitted every two years starting in 2024. The main information to be included in the BTR is outlined below.

Decision 18/CMA.1: Modalities, procedures, and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement

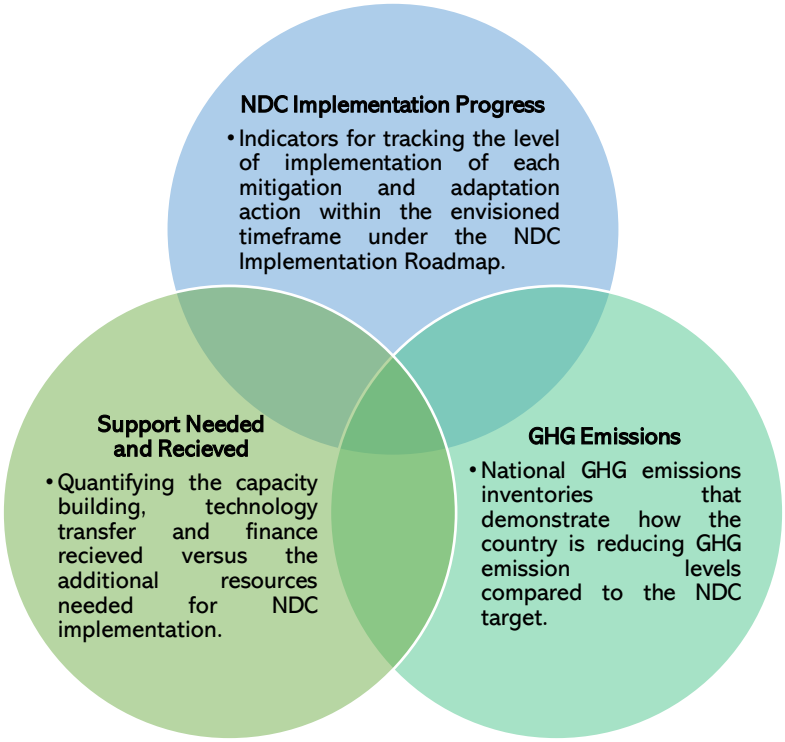
In the Biennial Transparency Report:

(a) Each Party shall provide a national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHGs).
(b) Each Party shall provide the information necessary to track progress in implementing and achieving its NDC under Article 4 of the Paris Agreement.
(c) Each Party should provide information on climate change impacts and adaptation under Article 7 of the Paris Agreement.
(d) Developed country Parties shall provide information pursuant to Article 13, paragraph 9. Other Parties that provide support should provide such information.
(e) Developing country Parties should provide information on financial, technology transfer and capacity-building support needed and received under Articles 9, 10 and 11 of the Paris Agreement.

In order to track progress towards the attainment of the national mitigation and adaptation commitments of the Republic of Tajikistan stipulated in its updated NDC, it is of fundamental importance to monitor and report on the level of implementation of NDC actions, undertaking the necessary verification steps to ensure the information generated is transparent, accurate, consistent, comparable, and complete. For this reason, the Republic of Tajikistan will establish a Monitoring, Reporting, and Verification (MRV) System for NDC Implementation. The main purpose of the NDC MRV System is to:

1. Transparently demonstrate progress made towards achieving the GHG emissions reduction targets defined in the NDC.
2. Track progress made in the implementation of mitigation actions and adaptation actions as defined in the NDC Implementation Roadmap.
3. Track the support needed and received for NDC implementation, including capacity building, technology transfer, and finance.

The three axis of the MRV system are depicted in the figure below. It is important to note that the three dimensions of the NDC MRV System are directly interlinked. For example, the support provided may have direct influence on the ability to implement mitigation actions, which consequently impacts the level of GHG emissions reductions achieved.



In addition to complying with international reporting requirements and commitments, the NDC MRV System will enable the Republic of Tajikistan to:

- Evaluate the progression of attaining the NDC targets.
- Track the level of implementation of each mitigation and adaptation action against the NDC Implementation Roadmap.
- Identify priority actions and sectors that require further support for achieving committed targets by the envisioned implementation time frames.
- Demonstrate that proper actions have been taken and adequate results delivered with the aim of building donor confidence and encouraging further provision of support for NDC Implementation.
- Strengthen existing institutional structures, responsibilities, and communication channels to ensure the coordination and active participation of all stakeholders involved in the implementation of the NDC.
- Develop high-quality, disaggregated data that will facilitate and strengthen the future update of the NDC every five years.
- Identify specific actions that require continuation into future updates of the NDC.
- Identify best practices and lessons learned in the development and tracking of future updates of the NDC.

The NDC MRV System will be built under a framework of continuous improvement promoting the principles of transparency, accuracy, completeness, consistency, and comparability. The aim of the MRV System will be to collect and report all information necessary under decision 18/CMA.1 and its Annex to comply with the Paris Agreement. It will consist of the following three components:

- **Monitoring:** The monitoring component refers to the processes of collecting, analysing, and monitoring information over time and space. This component includes standardisation of

accounting methodologies and appropriate protocols and procedures for information management processes.

- **Reporting:** The reporting component refers to the presentation of consolidated and analysed information and its submission at both national and international levels to different audiences. Among these audiences includes reporting to the UNFCCC, potential donors, national stakeholders, public in general.
- **Verification:** The verification component is a cross-sectional component that refers to the quality assurance and control of the information, calculations, and reports generated by the system.

7.1 Roadmap for Developing and Implementing the NDC MRV System

Within the first two years of the NDC Implementation Period (2020-2022), the Republic of Tajikistan should develop the NDC MRV System. The System should be gradually adopted and rolled out in phases to:

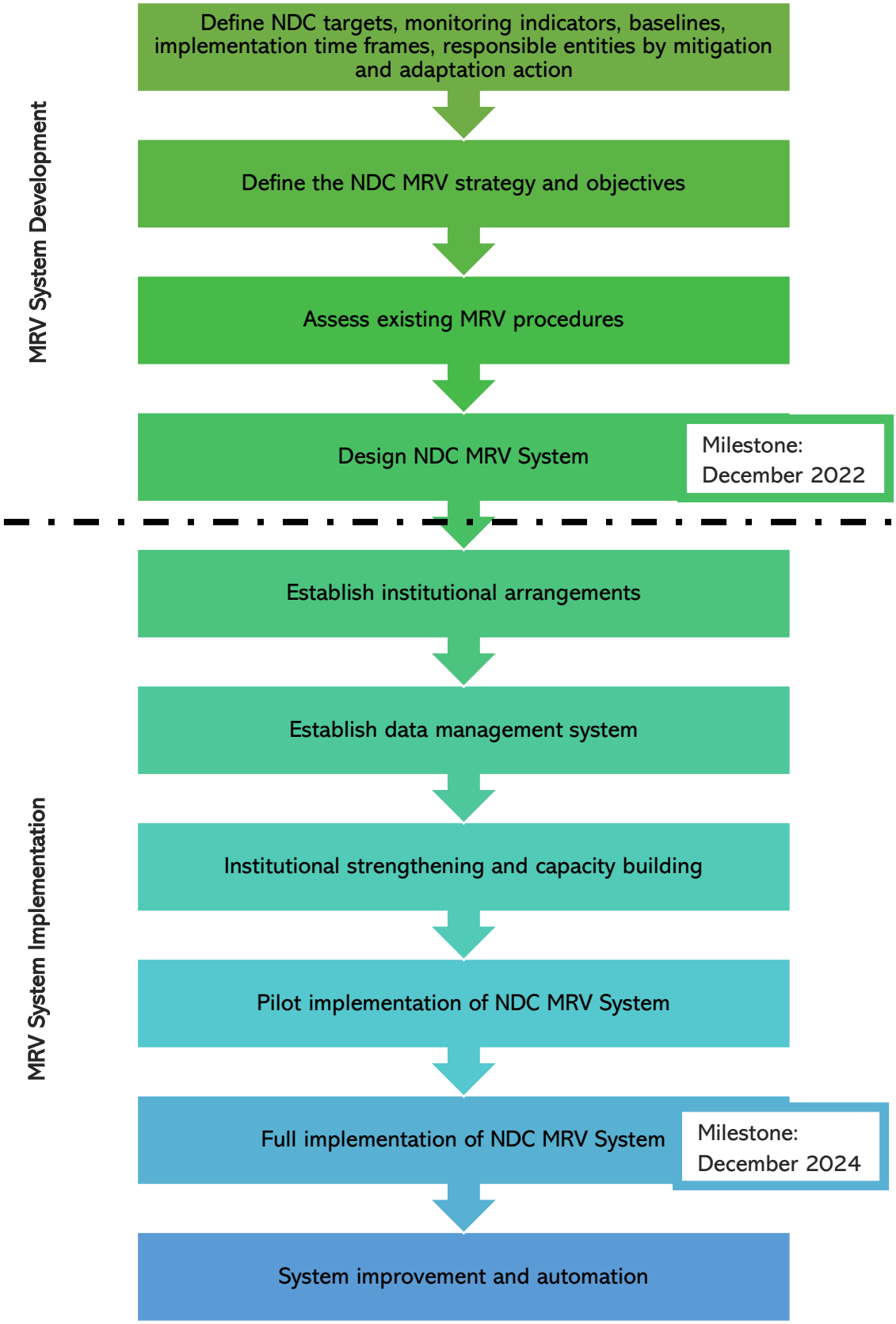
- Guarantee its proper integration within Tajikistan´s existing institutional framework.
- Maximize synergies existing national MRV processes
- Establish a framework of continuous improvement for ensuring the long-term sustainability of the system.

This section presents a roadmap for the development and implementation of the NDC MRV System. It is proposed that the NDC MRV System be fully operational by the year 2024 to ensure compliance with the Enhanced Transparency Framework requirements.

The proposed roadmap adopts a bottom-up approach for NDC MRV System development and implementation according to international best practices.[6] A total of 10 steps are proposed within a framework of continuous improvement as shown in the following page. The first step has been completed and is presented within this NDC Implementation Roadmap.

[6] Knowledge Product- "MRV in Practice", Connecting bottom-up and top-down approaches for developing national MRV systems for NDCs. Marc André Marr (Grue + Hornstrup A/S), Douglas A. Marett (Grue + Hornstrup A/S), Nikolaus Wohlgemuth (First Climate).

NDC MRV System Development and Implementation Roadmap



7.2 Monitoring Indicators

The principal instrument for tracking the implementation progress of the NDC of the Republic of Tajikistan consists of Monitoring Indicators. In compliance with the MPGs of the Enhanced Transparency Framework[7], the Republic of Tajikistan has selected a series of indicators to track the progress towards the implementation and achievement of its NDC, identifying the time frame for implementation and leading entity responsible for tracking the indicators.

The following set of tables provide the monitoring indicators that will be used to track the level of implementation for each mitigation and adaptation action of the NDC of the Republic of Tajikistan.

[7] Section III - Information necessary to track progress made in implementing and achieving nationally determined contributions under Article 4 of the Paris Agreement, Section of the Annex to Decision 18/CMA.1.

7.2.1 Unconditional Mitigation Actions

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
Energy	U.E.1	Regional Power Transmission Project	Ministry of Energy and Water Resource	2010-2020	• Degree of completion of the two new 200kV single-circuit transmission lines. • Amount of electricity in GWh transported through the new single-circuit transmission lines. • Degree of rehabilitation of the six transmission substations at Kairakkum, Asht, Geran, Rumi, Baipaza, and Regar. • Amount of electricity in GWh transported through the rehabilitated transmission substations at Kairakkum, Asht, Geran, Rumi, Baipaza, and Regar.
Energy	U.E.2	Tajikistan Green Energy Facility	Statistics Agency under the President of the Republic of Tajikistan	2020-2024	• Number of smart meters installed in households. • Number of smart meters installed in businesses. • Number ASKUE introduced in households. • Number of ASKUE introduced in businesses.
Energy	U.E.3	Khatlon Public Transport	Ministry of Transport	2017-2021	• Number of provided services on basic routes in Kurgan-Tyube and suburban routes from Kurgan-Tyube to the towns of Vakhsh and Sarband. • Number of people in Kurgan-Tyube using private means of transport. • Number of people in Kurgan-Tyube using public transport.
Energy	U.E.4	Qairokkum HPP Climate Resilience Upgrade	Ministry of Energy and Water Resource	2016-2020	• Number of new turbines installed at the Qairokkum hydropower plant. • Amount of electricity in GWh generated by the modernised Qairokkum hydropower plant.
Energy	U.E.5	Golovnaya 240-Megawatt Hydropower Plant Rehabilitation Project	Ministry of Energy and Water Resource	2014-2022	• Number of electric and mechanical equipment refurbished for power generation at the Golovnaya hydropower plant. • Amount of electricity in GWh generated by the rehabilitated Golovnava hydropower plant.
Energy	U.E.6	Dushanbe Public Transport	Ministry of Transport	2010-2021	• Number of rehabilitated power distribution infrastructures. • Number of rehabilitated power substations.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
					• Number of operational trolleybuses. • Number of people in Dushanbe using private means of transport. • Number of people in Dushanbe using public transport.
Energy	U.E.7	Khujand Public Transport	Ministry of Transport	2015-2021	• Number of rehabilitated power distribution infrastructures. • Number of rehabilitated power substations. • Number of operational trolleybuses. • Number of people in Khujand using private means of transport. • Number of people in Khujand using public transport.
Energy	U.E.8	Rural Electrification Project	Ministry of Energy and Water Resource	2019-2025	• Number of people with access to electricity by household grid connections. • Number of people with access to electricity by household off-grid connections.
Energy	U.E.9	Long-Term Small Hydro Power Plant Construction Program	Ministry of Energy and Water Resource	2009-2020	• Number of small hydropower plants constructed. • Amount of electricity in GWh generated by the constructed small hydropower plants.
Energy	U.E.10	Sustainable Fuels	Ministry of Transport; Ministry of Energy and Water Resource	2021-2026	• Number of incentivized technologies for passenger cars. • Number of diesel/gasoline cars in use in Tajikistan. • Number of electric cars sold in Tajikistan. • Number of hybrid cars sold in Tajikistan.
AFOLU	U.A.1	SFA (forestry) – current targets	Agency for Forestry	2021-2030	• Hectares of newly planted forests. • Hectares of degraded forests which is restored. • Hectares of national restoration of degraded forests. • Number of people involved in forest policy issues at national and local levels.
AFOLU	U.A.2	Livestock and Pasture Development Project (IFAD)	Ministry of Agriculture; Ministry of Energy and Water Resources	2011-2018	• Hectares of improved pastureland. • Number of provided farm equipment to households. • Number of built water points and sheds. • Number of households with access to rams. • Number of households with access to veterinary services. • Number of livestock owned per household.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
AFOLU	U.A.3	Livestock and Pasture Development Project II (IFAD)	Ministry of Agriculture	2015-2021	• Hectares of improved pastureland. • Number of households with access to veterinary services. • Number of livestock owned per household.
AFOLU	U.A.4	Dangara Valley Irrigation Project, Phase III	Ministry of Agriculture; Ministry of Energy and Water Resources	2016-2018	• Hectares of irrigated land after the implementation of the Dangara Valley Project. • Hectares of irrigated land before the implementation of the Dangara Valley Project. • Agricultural productivity in the Dangara district.
AFOLU	U.A.5	Tajikistan second public employment for sustainable agriculture and water resources management project	Ministry of Agriculture; Ministry of Energy and Water Resources	2012-2020	• Number of newly employed people through the rehabilitation of irrigation and drainage infrastructure. • Number of newly developed or improved policies and institutions for water resource management. • Crop production after the implementation of the improved irrigation and drainage infrastructure.
AFOLU	U.A.6	Reconstruction of the irrigation system and improvement of its management in the Zerafshan River Basin	Ministry of Agriculture; Ministry of Energy and Water Resources	2018-2020	• Crop production after the implementation of the improved irrigation and drainage infrastructure. • Number of rural people in the Zarafshan river basin with sufficient access to food.
AFOLU	U.A.7	Building Climate Resilience in the Pyanj River Basin Project	Ministry of Agriculture: Ministry of Energy and Water Resources	2013-2019	• Hectares of protected land from floods. • Hectares of land equipped with water irrigation systems. • Number of households with a safe water supply. • Number of households with access to microfinance services.
AFOLU	U.A.8	Improvement of Water Resources Management in Khatlon Region Project	Ministry of Agriculture; Agency for Reclamation and Irrigation	2019-2020	• Agricultural production in the Khatlon region after the implementation of the project. • Number of newly created job opportunities due to the implementation of the project. • Number of rural people with access to improved water supply.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
AFOLU	U.A.9	Pasture Development Program of the Republic of Tajikistan	Ministry of Agriculture	2016-2020	• Stocks of pasture vegetation after the implementation of the Pasture Development Programme. • Household production of livestock, meat, milk, leather and wool after the implementation of the Pasture Development Programme. • Number of newly created jobs due to the increased livestock, meat, milk, leather, and wool production.
AFOLU	U.A.10	Horticulture and Grapevine Development Program	Ministry of Agriculture	2016-2020	• Number of newly erected orchards and vineyards. • Number of reconstructed old orchards and vineyards. • Number of orchards and vineyards switched from low-yielding to high-yielding varieties. • Number of created nurseries to increase fruit and grape production.
AFOLU	U.A.11	Development Program for Seed Production of the Republic of Tajikistan	Ministry of Agriculture	2016-2020	• Number of newly used seed-growing methods. • Number of newly introduced high-yielding cotton varieties. • Number of high-quality cotton seeds produced with the new methods.
AFOLU	U.A.12	Integrated Program of Livestock Sector Development in the Republic of Tajikistan for the period of 2018-2022	Ministry of Agriculture	2018-2027	• Number of newly high-yielding breeds being bred. • Number of newly introduced modern technologies for the production of meat, milk, eggs, honey and fish. • Number of specialists trained on breeding improvements. • Number of increased pasture yield in hundredweight. • Number of created genetic species and semen of livestock. Number of newly created jobs in the livestock sector. • Number of turkeys, ducks, partridges, and quails being bred.
AFOLU	U.A.13	The state program for the development of new irrigated land and the restoration of land that has been abandoned from agricultural circulation in the Republic of Tajikistan	Ministry of Agriculture	2012-2020	• Hectares of restored abandoned land in agricultural circulation. • Hectares of expanded area of irrigated land. • Number of new jobs created by expanding the hectares of land into agricultural production.
Waste	U.W.1	Dushanbe Water Supply and Sanitation Project	Ministry of Energy and	2018-2025	• Number of pilot district metering areas in place in Dushanbe city. Kilometres of rehabilitated south sewage collector. • Number of people benefiting from the improved sewage system.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
			Water Resources		• Number of people reached with the behaviour change component on water usage and conservation and the benefits of smart meters.
Waste	U.W.2	Khujand Water Supply Improvement Programme (Phase III)	Ministry of Energy and Water Resources	2016-2020	• Litres of wastewater treated by the WWTP of Khujand after the implementation of the project.
Waste	U.W.3	Nurek Water and Wastewater Project	Ministry of Energy and Water Resources	2015-2017	• Number of modernized and upgraded water and wastewater services. • Litres of water provided by the improved water services. • Litres of wastewater treated by the upgraded wastewater services.
Waste	U.W.4	Kulob Water and Wastewater Project	Ministry of Energy and Water Resources	2020-2024	• Number of rehabilitated pump stations. • Kilometres of rehabilitated water network. • Litres of wastewater treated by the modernized wastewater treatment plant.
Waste	U.W.5	Vahdat Solid Waste Project	Ministry of Industry and New Technologies	2018-2023	• Number of upgraded solid waste collection and transportation systems. • Kilograms of waste treated by the newly constructed sanitary landfill. • Number of people taking part in the community-based stakeholder participation programme.
Waste	U.W.6	Yavan Solid Waste Sub-project	Ministry of Industry and New Technologies	2017-2021	• Number of upgraded solid waste collection and transportation systems. • Kilograms of waste treated by the newly constructed sanitary landfill. • Number of people taking part in the consultation process in form of a community-based stakeholder participation programme.
Waste	U.W.7	Kulob Solid Waste Sub-project	Ministry of Industry and New Technologies	2016-2020	• Number of upgraded solid waste collection and transportation systems. • Kilograms of waste treated by the newly constructed sanitary landfill. • Percentage of waste collected in Kulob. Number of added collection points and waste containers. • Number of rehabilitated existing collection points.
Waste	U.W.8	Khujand Solid Waste Sub-project	Ministry of Industry and New Technologies	2015-2020	• Kilograms of waste treated by the newly constructed modern integrated solid waste treatment facility. • Number of rehabilitated existing collection points. • Number of procured waste collection containers and machinery equipment.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
					• Number of introduced standards for re-use and recovery of resources.
Waste	U.W.9	Khorog Solid Waste Sub-Project	Ministry of Industry and New Technologies	2015-2019	• Number of procured constructions works for landfill remediation and extension. • Number of procured specialized machinery and vehicles for landfill operations. • Number of procured accounting and billing systems. • Kilograms of waste treated after the rehabilitation of solid waste activities. • Number of people taking part in the consultation process in form of a community-based stakeholder participation programme.
Waste	U.W.10	Tursun-Zade Solid Waste	Ministry of Industry and New Technologies	2015-2019	• Kilograms of waste treated at the rehabilitated and upgraded dumpsite of the City of Tursun-Zade into a controlled landfill. • Number of households with improved waste collection services. • Number of improved transport methods of waste to the landfill.

7.2.2 Conditional Mitigation Actions

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
Energy	C.E.1	Energy Efficiency in the Residential/Commercial/Institutional Sector	Ministry of Energy and Water Resources	2022-2030	• Number of coal boilers and stoves replaced by efficient electric devices. • Total TJ of anthracite fuel consumption replaced by electricity consumption. • Percentage of electricity consumption in the total consumption.
Energy	C.E.2	Reduction of Electricity Consumption in Aluminium Production	Ministry of Energy and Water Resources	2022-2030	• Percentage of secondary production used as the primary catalyst of energy. • MW of electricity consumed after the implementation of secondary production.
Energy	C.E.3	Additional Renewable Generation Capacity	Ministry of Industry and New Technologies	2014-2026	• MW of electricity generated by the constructed Rogun Hydropower Plant going into the national grid. • Percentage of renewable energy in the national grid.
IPPU	C.I.1	GHG Emission Reduction in Cement Production	Ministry of Industry and New Technologies	2022-2030	• Number of cement plants applying the dry-mix process for the production of cement.
AFOLU	C.A.1	Increase of current SFA Targets by 75%	Agency for Forestry	2021-2030	• Hectares of newly planted forests. • Hectares of degraded forests which is restored. • Hectares of national restoration of degraded forests. • Number of people involved in forest policy issues at national and local levels.
AFOLU	C.A.2	Integrated pest management	Ministry of Agriculture	2026-2030	• Hectares of agricultural land implementing integrated pest management strategies.
AFOLU	C.A.3	Replication of Livestock and Pasture Development Projects	Ministry of Agriculture; Ministry of Energy and	2023-2028	• Hectares of improved pastureland. • Number of provided farm equipment to households. • Number of built water points and sheds. • Number of households with access to rams. • Number of households with access to veterinary services. • Number of livestock owned per household.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
			Water Resources		
AFOLU	C.A.4	Rice cultivation management	Ministry of Agriculture; Agency of Forestry	2023-2030	• Number of days the rice straw is incorporated before cultivation.
AFOLU	C.A.5	Continuation of the Integrated Program of Livestock Sector Development in the Republic of Tajikistan	Ministry of Agriculture	2028-2030	• Percentage of the cattle population affected by the newly high-yielding breeds. • Percentage of the cattle population affected by the newly introduced modern technologies.
AFOLU	C.A.6	Improved agronomic practices through the continuation of the Development Program for Seed Production of the Republic of Tajikistan	Ministry of Agriculture	2021-2030	• Number of newly used seed-growing methods. Number of newly introduced high-yielding cotton varieties. • Number of high-quality cotton seeds produced with the new methods.
AFOLU	C.A.7	Minimal or no tillage/residue management	Ministry of Agriculture	2026-2030	• Hectares of agricultural land switched to no-till agriculture. • Hectares of agricultural land switched to conservation tillage agriculture.
AFOLU	C.A.8	Improved cattle diets through the flat supplementation in ruminant´s diets	Ministry of Agriculture	2025-2030	• Percentage of dietary fat contents of the cattle population.
AFOLU	C.A.9	Agroforestry program	Ministry of Agriculture	2023-2030	• Hectares of agricultural land planted with shrubs and trees. • Hectares of pastures planted with shrubs and trees. • Total hectares of created agroforestry and/or silvo-pastoral systems.
AFOLU	C.A.10	Irrigation improvement	Ministry of Agriculture; Ministry of Energy and Water Resources	2023-2030	• Percentage of irrigated agricultural land with improved irrigation systems

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
AFOLU	C.A.11	Increase multiple cropping	Ministry of Agriculture	2025-2030	• Hectares of agricultural land implementing intercropping techniques. • Hectares of agricultural land implementing crop rotation techniques.
AFOLU	C.A.12	Enhancing removals by creating new fruit orchards and vineyards through the continuation of horticulture and vineyard programme	Ministry of Agriculture	2021-2030	• Hectares of newly planted fruit orchards. • Hectares of newly planted vineyards. • Hectares of newly planted woody plantations.

7.2.3 Adaptation Actions

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
Energy	A.E.1	Improved Resiliency of Energy Resources	Ministry of Energy and Water Resources	2021-2025	• Number of short-term climate change impact models developed. • Number of adaptation options developed.
Energy	A.E.2	Improved Capacity of Climate Risks and Vulnerabilities	Ministry of Energy and Water Resources	2021-2030	• Degree of development of capacity building activities. • Number of capacity building activities developed. • Number of sectoral specialists partaking in capacity building activities.
Energy	A.E.3	Promotion of Climate-Resilient Infrastructure	Ministry of Energy and Water Resources	2021-2030	• Percentage of energy infrastructure incorporating climate-resiliency. • Number of policies and measures developed for climate-resilient infrastructure and improved security of infrastructure.
Energy	A.E.4	Improved Maintenance Procedures and Measures	Ministry of Energy and Water Resources	2021-2023	• Degree of revision of the maintenance procedures and measures in the energy sector.
Energy	A.E.5	Improved Energy Security in Remote Mountainous and Rural Regions	Ministry of Energy and Water Resources	2021-2030	• Number of developed networks of small hydroelectric power plants in the remote mountainous and rural regions. • Number of renewable energy projects developed in the remote mountainous and rural regions. • Percent of renewable energy delivered to the remote mountainous and rural regions of the Republic of Tajikistan.
Energy	A.E.6	Strengthening the Climate Resilience of Hydropower Plants	Ministry of Energy and Water Resources	2021-2030	• Number of hydropower plants strengthened against climate change induced weather events.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
Water Resources	A.WR.1	Decreasing water demand	Ministry of Energy and Water Resources	2021-2030	• Number of water recycling projects. • Per capita water consumption.
Water Resources	A.WR.2	Strengthening the capacity of Water Users Associations	Ministry of Energy and Water Resources	2021-2025	• Number of members of the Water Users Associations. • Percent participation of women. • Percent participation of youth.
Water Resources	A.WR.3	Improved wastewater treatment and discharge	Ministry of Energy and Water Resources	2020-2025	• Number of modernized and upgraded water and wastewater services. • Litres of water provided by the improved water services. • Litres of wastewater treated by the upgraded wastewater services.
Water Resources	A.WR.4	Improved groundwater management	Ministry of Energy and Water Resources	2023-2028	• Number and quality of groundwater aquifers.
Water Resources	A.WR.5	Widespread application of the principles of integrated water resources management	Ministry of Energy and Water Resources	2021-2025	• Number of policies featuring integrated water resources management.
Water Resources	A.WR.6	Reclamation of saline lands and wetlands	Ministry of Energy and Water Resources	2021-2025	• Number of irrigation systems rehabilitated. • Hectares of saline lands reclaimed. Hectares of wetlands reclaimed.
Water Resources	A.WR.7	Widespread use of efficient irrigation methods	Ministry of Agriculture; Ministry of Energy and	2021-2030	• Hectares of agricultural lands using drip irrigation systems.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
			Water Resources		
Water Resources	A.WR.8	Improvement of the water flow forecasting system	Ministry of Energy and Water Resources	2021-2026	• Number of farmers with access to updated water flow forecasting information.
Water Resources	A.WR.9	Development of national measures for adaptation and resilience to climate change in the water sector	Ministry of Energy and Water Resources	2021-2023	• Number of vulnerability studies conducted. • Number of water sector adaptation measures identified for the water sector.
Agriculture	A.A.1	Introduction of "green" technologies and "green" infrastructure in agro-industrial production.	Ministry of Agriculture	2020-2030	• Percent of agricultural land implementing green technologies
Agriculture	A.A.2	Improvement of livestock breeding	Ministry of Agriculture	2020-2030	• Number of newly high-yielding breeds being bred. • Number of newly introduced modern technologies to produce meat, milk, eggs, honey and fish. • Number of specialists trained on breeding improvements. • Number of increased pasture yield in hundredweight. • Number of created genetic species and semen of livestock.
Agriculture	A.A.3	Development of agroforestry and conservation agriculture	Ministry of Agriculture and Agency of Forestry	2023-2030	• Hectares of agricultural land planted with shrubs and trees. • Hectares of pastures planted with shrubs and trees. • Total hectares of created agroforestry and/or silvo-pastoral systems.
Agriculture	A.A.4	Crop rotation, intercropping and crop diversity	Ministry of Agriculture	2025-2030	• Hectares of agricultural land implementing intercropping techniques. • Hectares of agricultural land implementing crop rotation techniques.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
		(resilience to droughts and pests)			
Agriculture	A.A.5	Enhancement of seeds	Ministry of Agriculture	2020-2030	• Number of newly used seed-growing methods. • Number of newly introduced high-yielding cotton varieties. • Number of high-quality cotton seeds produced with the new methods.
Agriculture	A.A.6	Promotion of soil protection and integrated pest management	Ministry of Agriculture	2026-2030	• Hectares of agricultural land implementing integrated pest management strategies.
Agriculture	A.A.7	Improved management of irrigation and drainage systems	Ministry of Agriculture; Ministry of Energy and Water Resources	2020-2030	• Hectares of irrigated land. • Percentage of irrigated agricultural land with improved irrigation systems.
Agriculture	A.A.8	Improved pasture management	Ministry of Agriculture; Ministry of Energy and Water Resources	2020-2030	• Hectares of improved pastureland. Number of provided farm equipment to households. • Number of built water points and sheds. • Number of households with access to rams. • Number of households with access to veterinary services. • Number of livestock owned per household.
Agriculture	A.A.9	Provision of agriculture climate change information	Ministry of Agriculture	2020-2030	• Number of awareness-raising campaigns held in rural and agricultural regions. • Percentage of rural population with access to updated climate change information. • Percentage of farmers with access to updated climate change information.
Forestry	A.F.1	Improvement of the regulatory, finance and legal framework	Agency for Forestry	2020-2030	• Number of supervisory boards at the national and local levels with involved civil society, in particular women. • Numbered of registered entrepreneurs involved in the forestry sector.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
		for sustainable forest management.			
Forestry	A.F.2	Development and implementation of a Joint Forest Management Approach	Agency for Forestry	2020-2030	• Number of households involved in the forestry sector.
Forestry	A.F.3	Accounting and monitoring forest management and its resilience against climate change	Agency for Forestry	2020-2030	• Number of new forests adapted to the terrain in conditions of Climate Change.
Forestry	A.F.4	Improving the quality and quantity of provided ecosystem services in conditions of climate change.	Agency for Forestry	2020-2030	• Number and size of stable populations of key plant and animal species in forests.
Forestry	A.F.5	Maintaining and increasing the area and productivity of forests	Agency for Forestry	2020-2030	• Productivity of forests. Profitability of forests. • Hectares of newly planted forests.
Forestry	A.F.6	Increased protection of vulnerable forests and forests which provide ecosystem services to vulnerable populations	Agency for Forestry	2020-2030	• Number of protected forests.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
Forestry	A.F.7	Research and innovation in sustainable forest practices	Forest Research Institute	2020-2030	• Number of cooperation agreements and partnerships established with international research institutes.
Transport	A.T.1	Improve the Climate-Resiliency of Transport Infrastructure	Ministry of Transport	2021-2030	• Percent of transport infrastructure adapted for improved protection and long-term maintenance.
Transport	A.T.2	Updating the National Building Codes for the Construction of Bridges	Ministry of Transport	2021-2023	• Number of national building codes updated.
Transport	A.T.3	Improved Accessibility to Road Infrastructure	Ministry of Transport	2021-2030	• Degree of the population of Tajikistan with access to roads. • Km of new road infrastructure developed. • Km of road infrastructure improved and rapaired.
Transport	A.T.4	Implementation of International Safety Standards	Ministry of Transport	2021-2030	• Number of international safety standards implemented. • Degree of rail, road, air and all other modes of transport adapted to the requirements of the international standards.
Transport	A.T.5	Introduction of Fuel-Efficient Vehicles	Ministry of Transport	2021-2025	• Number of incentives and regulations developed for fuel-efficient vehicles.
Industry and Construction	A.IC.1	Introduction of Energy-Saving and Digital Technologies	Ministry of Industry and New Technologies	2021-2030	• Number of large enterprises equipped with modern energy-saving and digital technologies.
Industry and Construction	A.IC.2	Increasing Innovative and Sustainable Industries	Ministry of Industry and New Technologies	2021-2030	• Degree of the industrial sector incorporating innovativeness and sustainability practices.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
Industry and Construction	A.IC.3	Development of Sustainable Infrastructure	Ministry of Industry and New Technologies	2021-2030	• Number of green investment projects implemented. • Degree of sustainable infrastructure in the industrial sector.
Industry and Construction	A.IC.4	Creation of Early Warning Systems	Ministry of Industry and New Technologies	2021-2023	• Number of early warning systems created for the industrial sector.
Cross-Sectoral	A.CS.1	Creating an enabling environment for the introduction of new climate change technologies	Committee on Environmental Protection	2021-2030	• Number of international agreements signed for technology transfer. • Number of technology needs assessment conducted. Presence of de-risking instruments.
Cross-Sectoral	A.CS.2	Taking gender-sensitive measures to enhance planning	Committee on Environmental Protection	2021-2030	• Number of women´s groups consulted in climate change planning processes. • Percent participation rate of women in climate change awareness campaigns. • Number of climate change actions with gender mainstreaming components.
Cross-Sectoral	A.CS.3	Enhancing climate change education	Ministry of Education	2021-2025	• Number of secondary schools teaching climate change concepts. • Number of secondary vocational institutions teaching climate change concepts. • Number of higher educational institutions teaching climate change concepts.
Cross-Sectoral	A.CS.4	Awareness campaigns on climate change and disaster risk management	Committee on Environmental Protection	2021-2030	• Number of people with access to updated information of climate change risks. • Number of people with access to updated information on disaster risk management.

Sector	No.	Action Name	Leading Entity	Time Frame	Indicator
Cross-Sectoral	A.CS.5	Adjust master plans in response to climate change	Committee on Environmental Protection	2021-2025	• Number of master plans adjusted.
Cross-Sectoral	A.CS.6	Strengthen the technical capacity of government entities on climate change adaptation and governance	Committee on Environmental Protection	2021-2030	• Number of government entities with regular professional training programs on climate change adaptation and governance.