Initial Environmental Examination

December 2017

TAJ: Water Resources Management in the Pyanj River Basin Project (Additional Financing)

Prepared by Agency for Hydrometeorology, Committee of Environment Protection, Government of Tajikistan for the Asian Development Bank.

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ABBREVIATIONS

ADB	Asian Development Bank
ALRI	Agency for Land Reclamation and Irrigation
AP	Affected Person
CEP	Committee for Environmental Protection
CIS	Chubek Irrigation System
CL	Cultivated Land
DDEP	District Department of Environmental Protection
EA	Executing Agency
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EMoP	Environment Monitoring Plan
EMP	Environment Management Plan
EU	European Union
FA	Farmers Association
FY	Fiscal Year
GAP	Gender Action Plan
GBAP	Gorno-Badakhshan Province
GIP	Good International Practice
GoT	Government of Tajikistan
GRM	Grievance Redress Mechanism
I&D	Irrigation and Drainage
IA	Implementing Agency
IEE	Initial Environmental Examination
IWRM	Integrated Water Resources Management
JFPR	Japan Fund for Poverty Reduction
JICA	Japan International Cooperation Agency
LARAP	Land Acquisition and Resettlement Action Plan
LIC	Loan Implementation Consultant
MEWR	Ministry of Energy and Water Resources
MLRWR	Ministry of Land Reclamation and Water Resources
MoH	Ministry of Health
NGO	Nongovernment organization
O&M	Operation and Maintenance
OSH	Occupational Safety and Health
PCR	Physical Cultural Resource

PEE	Public Ecological Expertise
PMO	Project Management Office
PPCU	Project Public Complaints Unit
PPE	Personal Protective Equipment
PPTA	Project Preparatory Technical Assistance
PRB	Pyanj River Basin
PRBC	Pyanj River Basin Council
PRBMP	Pyanj River Basin Management Plan
PRBO	Pyanj River Basin Organization
REA	Rapid Environmental Assessment
RURA	Region Under Republic Administration
SEE	State Ecological Expertise
SPS	Safeguard Policy Statement
TJS	Tajikistan Somoni
WRM	Water Resources Management
WUAs	Water Users Associations

WEIGHTS AND MEASURES

Ha	hectare
Km	kilometer
km²	square kilometer
m^3	cubic meter
m^3	cubic meter
m^3/s	cubic meter per second
mg/l	milligrams per liter
Ppm	parts per million

NOTES

(i) The fiscal year (FY) of the Government of Tajikistan and its agencies ends on 31 December.

(ii) In this report, "$" refers to US dollars.

EXECUTIVE SUMMARY

1. **The Project objective**. Objective of additional works proposed in frame of "Water Resources Management in Pyanj River Basin Project is improvement and strengthening of water use management capacities via construction Hydromet Infrastructure under additional financing.

2. **Project Outputs.** The proposed additional financing component of Hydromet includes three outputs: (i) Water resources and disaster risks in PRB better managed using early warning and flood forecasting; (ii) Modernized and climate-proofed CIS WRM and Hydromet infrastructure fully operational; and (iii) Management capacity, water use and monitoring skills improved at farm and institutional level.

3. **Environmental Study**. This Initial Environmental Examination (IEE) was developed for proposed works in frame of additional financing.

4. **Location**. The project will be implemented in urban area of Dushanbe, district Sino.

5. **Project category.** In accordance with the Bank's safeguard policies, the project category is B.

6. **Environmental Impacts and Environmental Management Plan**. Expected construction-phase impacts are of a routine nature. During construction/reconstruction activities the main negative impacts are generated during construction phase and relate to soil erosion, soil and water pollution through waste generation, air pollution, acoustic and aesthetics and asbestos issues. *Management:* Inclusion of subproject environmental management plan construction-phase measures in bidding documents and requirement for contractors' environmental management plan, and construction supervision of measures implementation and performance.

7. **Impacts of operation-phase routine building operation**. *Management:* Depending on potential impacts, environmental management measures will be devised in collaboration with and implemented by Hydromet site administrators.

8. **Conclusion**. Project residual adverse impacts are not expected to be significant, after the implementation of feasible environmental management measures.

I. INTRODUCTION

1.1. Purpose of the report

1. This Initial Environmental Examination (IEE) is part of the process of compliance with the ADB ADB's Safeguard Policy Statement and prepared for the Water Resources Management in Pyanj River Basin Project - component on Hydromet Infrastructure construction under additional financing.

2. The Project is classified as an ADB Environmental Category B project. Category B projects require environmental assessment in the form of an Initial Environmental Examination (IEE).

3. The IEE provides a road map to environmental measures needed to prevent and/or mitigate negative environmental impacts associated with the development project. The IEE provides a detailed description of the direct and indirect environmental impacts associated with the proposed additional finance component of the project during key periods of work.

4.The IEE:

- Describes the extent, duration and severity of the impacts;
- Analyzes all potential impacts, both positive and negative;
- Formulates the mitigation actions and monitoring programme
- Develops the project Environmental Management Plan (EMP).

1.2. Identification of the Project and Project Proponent

5. The National Agency of Hydrometeorology of Tajikistan (Hydromet) of the Government of Republic of Tajikistan (GoT) is the project proponent, which is the executing and implementing agency. The proposed Project assessed by this IEE falls under the "Water Resources Management in Pyanj River Basin Project – Additional Financing." The additional financing component covers Hydromet Infrastructure construction in Tajikistan. Project funding consists of an ADB grant funding of US$10.0 million. The ADB project number is 47181-003.

1.3. The Nature, Size, Location and Importance of the Project

6. While the Water Resources Management in the Pyanj River Basin (PRB) Project deals with improved institutional and physical water resources management (WRM) capacities in the PRB of the Republic of Tajikistan by establishing a PRB organization, council, and Joint PRB committee, modernizing and climate-proofing the Chubek Irrigation System (CIS), and improving farm and water use management capacities, the additional financing deals with institutional transformation of the Agency of Hydrometeorology.

7. The proposed additional financing component of Hydromet includes three outputs: (i) Water resources and disaster risks in PRB better managed using early warning and flood forecasting; (ii) Modernized and climate-proofed CIS WRM and Hydromet infrastructure fully operational; and (iii) Management capacity, water use and monitoring skills improved at farm and institutional level. The physical components are related to output (ii) and comprise the following:

a. Completion of building of the main office of the Agency of Hydrometeorology (Building 1);
b. Building supplementary buildings comprising laboratory, auditorium and exhibition space (Buildings 2, 3, and 4); and
c. Building of 2 residential buildings (Buildings 5 and 6).

8. The importance of this Project (Hydromet Institutional Transformation) lies in the need to strengthen and make accurate and timely severe weather alerts and flood forecasts in the front-end

side of the Water Resources Management in the Pyanj River Basin (PRB) Project area. Water resource management and Irrigation are critical for the development of Tajikistan's agriculture sector, food security, and economic advancement. Tajikistan is considered highly vulnerable to the adverse effects of climate change, and typically ranks highest among Central Asian countries in international climate change vulnerability ratings. Key areas, such as the Pyanj River basin, already suffer from routine damage caused by natural disasters including flooding, mudslides, and drought. Vulnerability to such hazards is increased even under the current climate conditions due to limited monitoring, analysis, forecasting and warning.

9. Climate change may compound existing food security issues and impact heavily upon those dependent on agriculture. In addition, hazards such as flooding may become more frequent and extreme under a future climate given rapid melting of snow and ice, and more intense rainfall events. Improvements in disaster risk management are required in terms of timely and accurate warnings, improved understanding of climate change impacts, adaptation, and the adoption of suitable resilience measures. Timely, accurate and locally high resolution (locally relevant) weather forecasts, severe weather alerts and flood forecasts are critical; these fall within the mandate of Hydromet and building Hydromet's institutional and technical capacity will contribute to disaster risk reduction and strengthened disaster management strategies.

1.4. IEE Boundaries

10. In 2016, an IEE was developed for the Water Resources Management in Pyanj River Basin Project[1] which would improve institutional and physical water resources management (WRM) capacities in the PRB of the Republic of Tajikistan by: (i) establishing a PRB organization, council, and Joint PRB committee, and developing a PRB management plan; (ii) modernizing and climate-proofing the Chubek Irrigation System (CIS); and (iii) improving farm and water use management capacities. The CIS is located within Khatlon Viloyat (province) in southwestern Tajikistan. The impact of the proposed Project will be increased farm incomes in the CIS, and the outcome will be increased agricultural water productivity.

11. For purposes of establishing the environmental conditions, the overview of local data is followed by the description at the project level if data is available. This IEE covers the entire site of Hydromet campus, located in Sino district of Dushanbe. For purposes of this impact assessment, an envelope of 37287 m^2 of the project territory over is identified as the primary impact area ("Project Area"). This distance takes into account the common impacts associated with construction site works such as noise, dust and emissions.

1.5. Methodology Applied

12. The IEE follows the policy principles outlined in the ADB Safeguard Policy Statement 2009, Environment Safeguards, Good Practice Sourcebook, Draft Working Document[2] and Framework Laws on the Environment Protection of the Government of Tajikistan (No. 208, 2011). The experiences of other studies in preparing IEE documentation for building sector have also been reviewed. This IEE was prepared based on field investigation, review of secondary data and information acquired from the Agency of Hydrometeorology of Tajikistan.

[1] file:///C:/Users/Malika/Documents/LAPTOP2008/ADB%20Safeguards%20Project%202014/Water%20sector/47181-002-ieeab.pdf

[2] https://www.adb.org/sites/default/files/institutional-document/33739/files/environment-safeguards-good-practices-sourcebook-draft.pdf

13. This report covers the description of existing environmental conditions at the construction site in the campus of Agency of Hydrometeorology, assessment of environmental impact of the project infrastructure components, recommended mitigation measures and environmental monitoring. The scope of the IEE covers the natural and human environment, their interaction and any induced change brought about by the proposed interventions. The environmental impact was considered for activities during pre-construction, construction and operation phases of the Project.

1.6. Constraints and Limitations

14. Given the available time and resources few constraints or limitations were found to be applicable to this report. The Project is classified as a Category B project and as such, at this stage of the Project, no items such as air quality data, water quality data, etc. were deemed warranted for analysis. The IEE study was adequate to identify potential environmental impacts and suitable types of mitigation measures, monitoring, and future stakeholder engagement arrangements. During implementation, details of mitigation, monitoring, and engagement activities will need to be developed and incorporated into Project activities as needed to achieve acceptable residual impacts

1.7. Category of Project

15. Based on the existing ADB Environmental Safeguards Policy (2009), this Project falls under ADB's project Category B.

1.8. Structure of the Report

16. This report consists of the following sections:

I. Introduction – The section in hand provides the introductory information and a detailed description of the legal and policy framework within which the Project will operate during the design, construction and operational phases of the Project.

II. Legal, Policy and Administrative Framework - This section presents an overview of the policy/legislative framework as well as the environmental assessment guidelines of Tajikistan that apply to the proposed project. The section also identifies relevant Asian Development Bank Safeguard Policies that will apply.

III. Description of the Project

IV. Description of the Environment – This section of the report discusses the local environmental baseline conditions. This section is divided into subsections relating to physical environment, ecological environment, economic conditions and socio-cultural characteristics of the project area.

V. Screening of Potential Environmental Impacts and Mitigation Measures – this section outlines the potential environmental impacts and proposes mitigation measures to manage the impacts.

VI Environmental Management Plan & Institutional Requirements – This section provides the EMP for the design, construction and operational phases of the Project.

VII: Public Consultation, Information Disclosure & Grievance Mechanism – it provides a summary of all of the stakeholder consultation activities undertaken. A grievance mechanism for project affected persons is also provided along with information regarding the disclosure process.

VIII: Conclusions and Recommendations – The final section of the report provides the report conclusions and any necessary recommendations.

II. LEGAL, POLICY AND ADMINISTRATIVE FRAMEWORK

2.1. General

17. This section presents an overview of the policy/legislative framework as well as the environmental assessment guidelines of Tajikistan that apply to the proposed project. The section also identifies relevant Asian Development Bank Safeguard Policies that will apply. The project will be required to comply with all relevant national and international environmental and social policies / guidelines.

2.2. Country Policies and Administrative Framework

International Agreements and Tajikistan's Legal System

18. Under Tajikistan's unified (monist) legal system, international agreements and treaties once ratified or acceded to by the Government, have the same force as national legislation.[3]

International Environmental Conventions

19. Tajikistan is a party to the following international environmental conventions:

- Aarhus Convention, 2001
- The United Nations Framework Convention on Climate Change, 1998
- Kyoto Protocol, 1997
- Montreal Protocol on Substances that Deplete the Ozone Layer, 1989
- Vienna Convention for the Protection of the Ozone Layer, 1988.

Institutional Framework

20. Various central government organizations have roles and environmental and social responsibilities:

- The Ministry of Health – responsible for development and implementation of policy, regulations, and norms related to public health;
- Ministry of Labour, Migration, and Employment – responsible for developing and implementing policies relating to employment, labour issues, and migration practices;
- Committee of Women and Family Affairs – responsible for gender issues and realization of family orientated policy;
- Architecture and Construction Committee – responsible for technical advice in relation to water supply and sewage systems, including construction and design standards, contract standards and rules, and regulation of project and construction activities;
- Tajik Gosstandart – responsible for drinking water quality standards;
- State Statistical Committee – responsible for collecting, filing and delivering data on drinking water supply and sanitation;
- Committee for Environment Protection (CEP) – executive body responsible for environmental protection, sustainable use of resources, forestry and hydrometeorology responsible for
  - Decision-making related to environmental issues e.g. unsustainable land use, deterioration of soil fertility, excessive use of water for irrigation, flooding problems, and obsolete/banned pesticides;
  - Defining the main strategies for the protection, study, conservation and sustainable use of natural resources, and mitigation of the effects of climate change;

[3] "The monist legal system of Tajikistan puts a number of UN Conventions on human rights at the immediate disposal of policy makers as national law" (p. 202, OECD. 2009. *Reviews of national policies for education – Kazakhstan, Kyrgyz Republic, and Tajikistan: Students with special needs and those with disabilities*. http://www.oecd.org/countries/tajikistan/43851447.pdf)

- Preparing and publish biennial state-of-the-environment reports;
- Drafting laws and other regulatory documents, including environmental standards, instructions and methodologies for the use of resources;
- Issuing individual permits for the use of specific resources and withdraw these if the user violates their terms;
- Setting quotas for the hunting and collection of certain species of animals; factory emissions and the importation of ozone-depleting substances;
- Carrying out ecological assessments of planned activities;
- Defining the system of specially protected territories and maintain State cadastres of such territories, forests, factories, water bodies and hazardous waste; and
- Regulating the use and protection of waters and the issuance of permits (licenses) for special water usage.

21. Local government has some environmental responsibilities and is organized in two levels:

- **Khukumat** – municipality / local state administration. A chairperson appointed as a local representative of the President in the implementation national policy and administration of State services and regulations heads each khukumat.
- **Jamoat** - local self-government. A jamoat covers a smaller administrative area than a khukumat. The jamoat is responsible to organize community-based delivery of some basic public services. The jamoat has no budgeting authority and has a very limited independent role.

Environmental Assessment Framework

22. **Framework environment law**. The Law on Environment Protection (No. 208, 2011) states that national environmental policy should prioritize environmental actions based on scientifically proven principles and integrates nature preservation and sustainable resource use with economic development. The Law defines applicable legal principles, protected objects, and the competencies and roles of Government, local authorities, public organizations, and individuals. The Law also stipulates measures to secure public and individual rights to a safe and healthy environment, and requires a combined system of ecological expertise and environmental impact assessment to reach a decision on any activity with potential adverse environmental impacts. The Law defines environmental emergencies and ecological disasters, and prescribes the order of actions in such situations, defines the obligations of officials and enterprises to prevent occurrences and eliminate consequences, and the liabilities of the persons or organizations that damage the environment or otherwise violate the Law. The Law establishes several types of environmental enforcement: State control, ministerial control, enterprise control and public control. State control is effected by the Committee for Environment Protection, the Sanitary Inspectorate of the Ministry of Health, the Inspectorate for Industrial Safety, and the Mining Inspectorate. Public control is carried out by public organizations or trade unions and can be exercised with respect to any governmental body, enterprise, entity or individual.

23. **State ecological expertise.** The Law on Environment Protection (No. 208, 2011), the Law on State Ecological Expertise (2011) and the Procedure on Organization and Performance of Environmental Assessment (2014) stipulate that all types of economic and other activities shall be implemented in accordance with environmental standards and norms, and shall have sufficient environmental protection and mitigation measures to prevent and avoid pollution and enhance environmental quality. They define a state ecological expertise (SEE) process that examines the compliance of proposed activities and projects with the requirements of environmental legislation and standards and the ecological security of the society. SEE is a mandatory cross-sectoral process that must be scientifically justified, comprehensive, and objective. It precedes decision-making about activities that may have a negative impact on the environment. Financing of programs and projects and decisions on siting, construction, or reconstruction are allowed only after a positive SEE finding

has been issued. If these requirements are violated, the Committee for Environmental Protection and/or other duly authorized control bodies may terminate construction until necessary improvements are made. SEE for investment projects is the responsibility of the Committee for Environmental Protection (CEP) and its regional offices.

24. **Projects requiring SEE.** SEE is required for the following types of projects:

i. draft state programs, pre-planning, pre-project, and design documentation for economic development;
ii. regional and sectoral development programs;
iii. spatial and urban planning, development, and design;
iv. environmental programs and projects;
v. construction and reconstruction of various types of facilities irrespective of their ownership;
vi. draft environmental quality standards and other normative, technology, and methodological documentation that regulates economic activities; and
vii. existing enterprises and economic entities, etc.

25. **EA administrative framework.** The Law on Environmental Protection states that SEE is to be conducted by the State Committee for Environment. A small unit in the ministry is entrusted with guiding and managing both EIA and SEE.

26. **EIA studies.** Preparation of the Environmental Impact Assessment (EIA) study is a responsibility of the project proponent. EIAs are to analyze the short- and long-term environmental, genetic, economic, and demographic impacts and consequences of projects, and must meet the standards of other sectors and environmental media line agencies (sanitary-epidemiological, geological, water, etc.).

27. **Environmental clearance.** The Committee of Environment Protection is the authority responsible for state review of EAs and environmental clearance of civil works.

28. **Occupational/Workplace Health and Safety:** Relevant national laws include:

- Labor Code, 12 May 1997
- Law on Protection of Labor No 517, 19 May 2009 / 1 August 2012
- Law on Industrial Safety at Hazardous Facilities No. 14, 28 February 2004 / 2008
- Law on Occupational Safety, December 24, 1991, amended 1998 and 2007
- Law on Public Sanitation and Epidemiology Welfare, No 1010, 22 July 2013
- Law on Health Protection of the Population, No 420, 15 May 1997 / 22 July 2013

29. Worker health and safety standards are agreed among trade unions, employer associations – who are responsible to implement the measures – and the Ministry of Health Care and Social Protection (MHCSP) – who are responsible for supervision and enforcement.

30. Relevant international agreements ratified by Tajikistan are:

- Occupational Safety and Health Convention, 1981
- Working Environment (Air Pollution, Noise and Vibration) Convention, 1977

Asbestos

31. Tajikistan's sole regulation on asbestos – the regional multi-state agreement Interstate Standard GOST 12871-93 signed by Tajikistan – regulates interstate trade and transport of chrysotile asbestos. Asbestos-containing products are legally available e.g. pipes and corrugated roofing material are

being imported from Russia and China and the Dushanbe cement factory resumed production of corrugated asbestos-cement sheets in September 2013.[4]

Waste Management

32. Environmental permits are issued and monitored by state or Hukumat regulatory authorities depending on an enterprise's level of impact. CEP, the State level regulator, is responsible for high-impact enterprises and the appropriate department of the Hukumat level is responsible for middle- and low-impact enterprises.

33. All companies that store or transport more than 100 tons per annum of dangerous waste require a special license. In accordance with the Law of the RT "On Licensing the Activities Related to Hazardous Waste Management," household waste is considered hazardous and thus all companies are, in principle, required to acquire a license.

34. Companies or organizations involved in waste management activities including municipalities need to apply for a permit, with permit applications involving 100m^3 of waste or more being made to CEP. Permit applications involving less than 100m^3 are made to the local/municipal Committee on Environmental Protection.

35. After submission of the application, the appropriate authority coordinates with the relevant Sanitary and Epidemiological Inspectorate and the Fire Prevention Agency, depending on the level, and checks all relevant aspects of the application.

36. Within one month of submission, an approval is issued and the applicant is provided with a license. In an annex to the license the technical requirements will be listed. The license fee goes directly to the state budget.

37. Municipal departments for environmental protection are authorized to levy certain environmental fees based on pollution emissions to air and water and solid waste generation. The fee income is used, in part, to fund local and central government administration but also as a fund for environmental protection

Other Environmental Laws

38. Other environmental laws include:

- Law on Environmental Expertise No 818, 16 April 2012
- Law on Protection of Atmospheric Air No 915, 28 December 2012
- Law on Environmental Monitoring No 707, 25 March 2011
- Law on Environmental Information No 705, 25 March 2011
- Law on Routine Inspections Of Operating Facilities No 194, 28 July 2006
- Law on Waste Of Production And Consumption, No 109, 25 July 2005

[4] Barki Tojik. 2013. Initial environmental examination, Golovnaya 240 Megawatt Hydropower Plant Rehabilitation Project, Tajikistan. http://www.adb.org/sites/default/files/project-document/78683/46418-001-taj-iee-01.pdf

Environment Protection Licenses, Permits, Standards, Enforcement, and Compliance

39. Generally speaking, regulatory powers related to environmental protection are held by ministries and their subordinate departments with an interest in hazardous activities, water use, emissions/discharges to air and water, and handling and disposal of waste and toxic chemicals.[5]

40. A number of legal acts establish liability for violations of environmental laws and assign enforcement responsibility to various State bodies. In particular, the 1998 Code of Administrative Violations establishes administrative liability for organizations, their officers and individuals for a range of violations, from the careless treatment of land to violation of the rules for water use or water protection, or failure to comply with a State ecological expertise. The most common administrative sanction is a fine of up to 10 minimal monthly salaries for individuals, and up to 15 minimal salaries to officers of organizations. The 1998 Criminal Code covers crimes against ecological safety and the environment, such as violations of ecological safety at work, poaching, and spoiling land, and violation of rules for the protection and use of underground resources. The maximum fine is up to 2000 minimal monthly salaries and the maximum sentence is up to eight years in prison. EA enforcement and compliance are the main responsibility of Environmental Inspectors of the Committee for Environment.

Environmental Standards

41. Environmental standards for emissions to the atmosphere, ambient air, water quality and discharges to water, and drinking water standards, plus selected GOST (Russian: ГОСТ) technical standards are shown in the Annex 1.[6] (SNiP mean Technical Standards - a building code, a set of rules that specify the minimum standards for constructed objects such as buildings and non-building structures. SanPiN are sanitary rules and norms (standards)).

42. Environmental quality standards in Tajikistan ensure both MPC (maximum permissible concentration) and MPE (maximum permissible (or allowable) emissions). The maximum permissible concentration (MPC) is approved by law hygienic standard. Under MPC refers to a concentration of chemical elements and their compounds in the environment, which in everyday impact for a long time on the human body does not lead to pathological changes or diseases established modern research methods in any time of life of present and future generations.

43. The SPS states that pollution prevention and control technologies and practices consistent with international good practice will be applied during project design, implementation, and operation. as reflected in internationally recognized standards such as the World Bank Group's *EHS Guidelines.* When national regulations differ from these levels and measures, the borrower will apply more stringent ones.

[5] For a detailed description, see for example: Tajikistan Ministry of Transport. 2013. *Initial Environmental Examination, [ADB] Improved Maternal and Child Health Through Connectivity Project [Tajikistan]*. http://adb.org/projects/documents/improved-maternal-and-child-health-through-connectivity-iee

[6] These are standards maintained by the Euro-Asian Council for Standardization, Metrology and Certification (EASC), a regional standards organization operating under the auspices of the Commonwealth of Independent States (CIS).

Legislative Framework for Public Consultation

44. **Aarhus Convention.** International agreements ratified by or to which Tajikistan has acceded have the same force as national legislation, thus Tajikistan's legislative framework for public consultation includes the provisions of the Aarhus Convention.[7,8] The Convention has three pillars:

- *Access to environmental information*: Individuals have a right to information on the state of the environment, human health issues, and environmental policies and measures.
- *Public participation in environmental decision making*: Individuals have a right to participate decisions that may have environmental impacts, such as decisions related to planning and environmental licensing. Government agencies responsible for decisions are required to disclose information to the public, including information on participation. Submitted comments must be considered in the decision-making process. *Access to justice in environmental matters*: Individuals and environmental non-governmental organizations may seek reviews of decisions made that may affect the environment. Review procedures must be fair, equitable, timely and not prohibitively expensive, and provide adequate, effective remedies.[9]

45**. National legislation.** The Law on Environment Protection proclaims the right of citizens to live in a favorable environment and to be protected from negative environmental impacts (Article 12); and to have the right to environmental information and to participate in developing, adopting, and implementing decisions related to environmental impacts (Article 13), including through public discussion of drafts of environmentally important decisions and public ecological reviews. Public representative bodies must take into consideration citizens' comments and suggestions. Citizens have the right to conduct a Public Environmental Expertise (Article 7).

2.3. ADB Environmental Assessment Categories

46. ADB classifies projects by the significance of their potential environmental impacts. A project's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the project's area of influence. Each proposed project is scrutinized as to its type, location, scale, and sensitivity and the magnitude of its potential environmental impacts. Projects are assigned to one of the following categories:

- *Category A*. A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required.
- *Category B*. A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required.

[7] United Nations. n.d. Status of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Aarhus, Denmark, 25 June 1998. *Multilateral Treaties Deposited with the Secretary-General,* Chapter XXVII, p. 13. https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-13&chapter=27&lang=en

[8] Tajikistan acceded in 2001.

[9] Citizens Information Board. 2013. Provisions of Aarhus convention, http://www.citizensinformation.ie/en/environment/environmental_law/aarhus_convention.html

- *Category C*. A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.[10]

47. According to SPS (Appendix 4, Para 12) it is required that for projects involving facilities that already exist or are under construction, the borrower/client will undertake an environment and/or social compliance audit, including on-site assessment, to identify past or present concerns related to impacts on the environment, involuntary resettlement, and Indigenous Peoples. The objective of the compliance audit is to determine whether actions were in accordance with ADB's safeguard principles and requirements for borrowers/clients and to identify and plan appropriate measures to address outstanding compliance issues. Where noncompliance is identified, a corrective action plan agreed on by ADB and the borrower/client will be prepared. The plan will define necessary remedial actions, the budget for such actions, and the time frame for resolution of noncompliance. The audit report (including corrective action plan, if any) will be made available to the public in accordance with the information disclosure requirements.

48. The Due Diligence report of the construction activities done before is shown in *Annex 4*.

[10] ADB. Safeguard Policy Statement, 2009. http://www.adb.org/sites/default/files/pub/2009/Safeguard-Policy-Statement-June2009.pdf

III. DESCRIPTION OF THE PROJECT

3.1 Justification and Rationale for the Project

49. The justification of this Project (Hydromet Institutional Transformation) under the Water Resources Management in the Pyanj River Basin – Additional Financing lies in the need to strengthen and make accurate and timely severe weather alerts and flood forecasts that can reduce damage to property and save human lives in the PRB. While investments in irrigation and drainage is extremely important to improve agricultural production and enhance productivity, upstream water resource management and early warning about severe weather and flooding in the Pyanj River Basin Project area will go a long way to sustain agricultural output and reduce vulnerabilities of farming families.

50. Climate change may compound existing food security issues and impact heavily upon those dependent on agriculture. In addition, hazards such as flooding may become more frequent and extreme under a future climate given rapid melting of snow and ice, and more intense rainfall events. Improvements in disaster risk management are required in terms of timely and accurate warnings, improved understanding of climate change impacts, adaptation, and the adoption of suitable resilience measures. Timely, accurate and locally high resolution (locally relevant) weather forecasts, severe weather alerts and flood forecasts are critical; these fall within the mandate of Hydromet and building of Hydromet's institutional and technical capacity will contribute to disaster risk reduction and strengthened disaster management strategies.

3.2 Impact, Outcome, and Outputs

51. The impact of the overall WRM-PRB Project remains unchanged, which is:

"Irrigated land in good condition and food security increased by 2021", and

"The efficiency of water resource use increased by 202."

52. The outcome of the overall WRM-PRB Project also remains unchanged, which is:

"Increased agricultural production in CIS area of PRB".

53. The proposed additional financing component of Hydromet includes three outputs: (i) Water resources and disaster risks in PRB better managed using early warning and flood forecasting; (ii) Modernized and climate-proofed CIS WRM and Hydromet infrastructure fully operational; and (iii) Management capacity, water use and monitoring skills improved at farm and institutional level.

3.3 Location of the project area

54. The project area is located in the west part of Dushanbe (coordinates:38º34'11.55"N - 68º44'31.78"E) within the territory of the city, in Sino District of Dushanbe – see Figure 1 below. Figure 2 provides Google image view of the project area. This site is an Agency owned site, located in an urban area in which similar buildings have been erected or under construction and for which the building construction permit has been issued in the name of the Committee of Environmental Protection (CEP). The copies of the Land Use Certificate issued in the name of Hydromet and the Building Permit are provided in the *Annexes 4 and 5*.

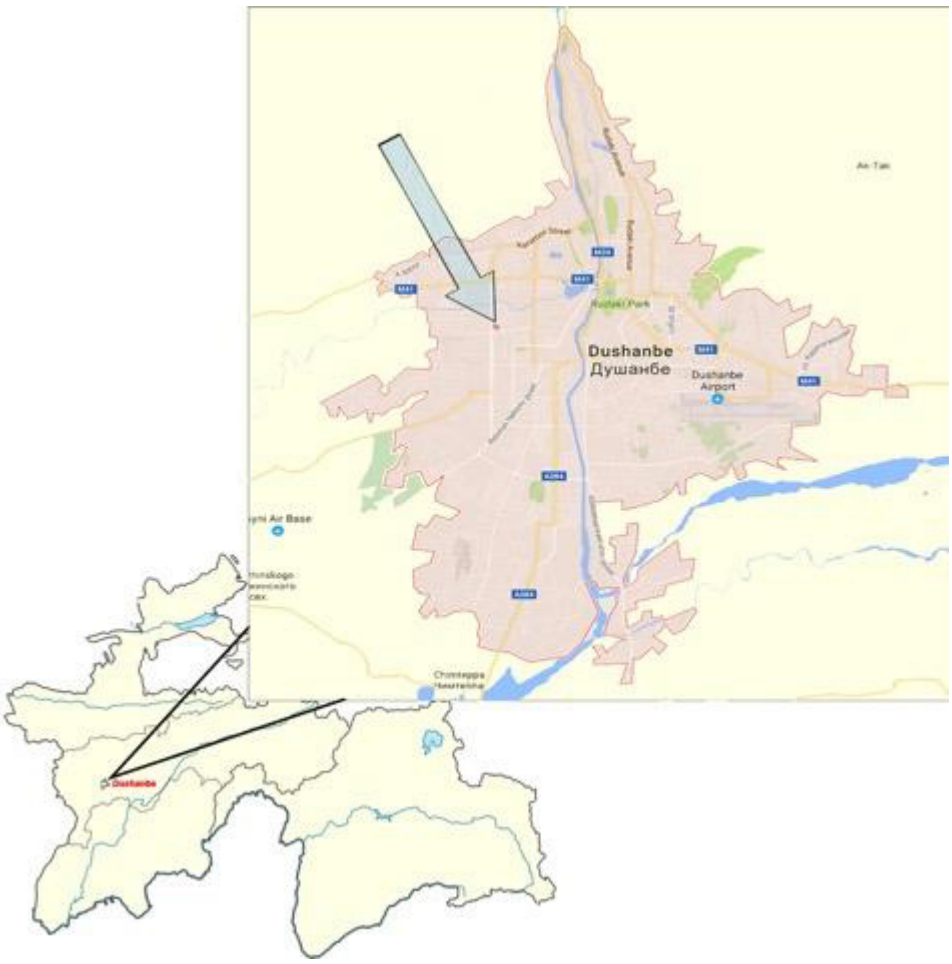


Figure 1. Location of project area

3.4 Physical Activities of the Project

55. The physical activities of the Project during the construction phase are related to output (ii) and are aimed at producing the following civil works:

a) Completion of building of the main office of the Agency of Hydrometeorology in Sino District of Dushanbe (Building 1 – see Environmental compliance audit (Due diligence) in Annex 6). Construction of this Building 1 has started in 2012 under funding by the Government of Tajikistan within the mentioned above allocated site for the Hydromet Agency, but was not completed by 2017;
b) Building supplementary buildings comprising laboratory, auditorium and exhibition space (Buildings 2, 3, and 4); and
c) Building of 2 residential buildings (Buildings 5 and 6).

Figure. Scheme of Campus of Agency of Hydrometeorology

56. **Operation phase activities.** During operation, staff will be utilizing new facilities. List of proposed works is shown in *Table 1*.

Table 1. Proposed project construction activities

Sl. No	Description			Remarks
I	**Main Building (Building 1 – office)**			
1	Site preparation			Completed
2	Footings			Completed
3	Foundations			Completed
4	General Construction works			Completed
5	Roof			Completed
6	Installation of windows			Completed

Sl. No	Description			Remarks
7	Pipe works			
8	Electrification			
9	Internal finishing and decoration			
10	External finishing and decoration			
11	Landscaping			
II	**Supplementary Buildings (Building 2, 3, 4)**			
1	Site preparation			
2	Footings			
3	Foundations			
4	General Construction works			
5	Roof			
6	Installation of windows			
7	Pipe works			
8	Electrification			
9	Internal finishing and decoration			
10	External finishing and decoration			
11	Landscaping			To be done under Building 1
III	**Residential Buildings (Building 5 and 6)**			
1	Site preparation			
2	Footings			
3	Foundations			
4	General Construction works			
5	Roof			
6	Installation of windows			
7	Pipe works			

Sl. No	Description			Remarks
8	Electrification			
9	Internal finishing and decoration			
10	External finishing and decoration			
11	Landscaping			

3.5 Alternatives

57. The analysis of alternative is an effective tool to examine the number of options (siting and technology) and establishing most environmentally favorable alternative, or with cause minimum environmental loss to the natural and social environment.

No-Action Alternative

58. The no-action alternative is defined as a decision not to undertake the proposed Project. The no-action alternative would result in the continued deterioration of the existing physical infrastructure of the Agency of Hydrometeorology.

Site Alternatives

59. Since this project site belongs to the Agency of hydrometeorology (see Land Use Certificate in Annex 3) and the choice to build depends on government decision, and COEP has already started construction of Building 1 on the site, an alternate site for the Hydromet campus cannot be considered.

IV. DESCRIPTION OF THE ENVIRONMENT

60. This section of the report discusses the existing environmental and social conditions within the Project area under the following headings:

- Physical Resources (air quality, hydrology, topography, etc.);
- Ecological Resources (flora, fauna, protected areas);
- Economic Resources (infrastructure, transport, land use, etc.);
- Social and Cultural Resources (health, education, noise, cultural resources, etc.)
- List of sensitive receptors in the project area

4.1. Physical Resources

4.1.1. Topography, Soils and Geology

61. Mountains occupy around 93% of Tajikistan. The main elements of Tajik geography are the following: the Kuramin Mountain Range and the Mogoltau Mountains, Fergana Depression, Hissar-Alai Mountains (the South Tian Shan), the depressed area in southwestern Tajikistan (Tajik depression), and Pamir. Altitudes range from 300 to 7495 meters above sea level. The modern relief of Tajikistan is the result of activities of alpine tectonic movements of the earth surface as well as the denudation process.

62. The majority plain territories of the country are the broad areas of river valleys or the vast depressions between the mountains. Most of the country's population is concentrated in these particular areas along with the main fields of industrial production and agricultural potential of the county.

63. Dushanbe is located in the central west of Tajikistan in Hissar Valley where the Varzob and Kofarnihon rivers meet. The area of the city is 124,6 km^2.

64. The project area is situated in flat in the west of Dushanbe (at a height of 841m) within the city.

65. Tajikistan is the country of intense tectonic movements and high seismicity. Earthquakes are dependent on many factors: geotechnical conditions, the nature of the soil, the presence of groundwater, landforms, etc. Major seismic zones in Tajikistan are with 7, 8 and 9 degree seismic intensity on the MSK-64 scale[11]. In each of these zones, earthquakes at the mentioned level are possible. Most southern districts are in seismic zone 7 and 8. Northern districts are in zone 8 except for Mastchoh district in zone 7. Dushanbe, the Districts of Republican Subordination, and GBAO are in zone 9.

66. As is the case throughout Tajikistan, the project area is situated on a seismically active belt – see Figure 2 below.

67. Soils in the area of Dushanbe are light-brown and carbonate, which are typical of plains formed on loess deposits, are characterized by low organic matter content and fine texture, and are suitable for agriculture.

[11] This normative map of seismic zoning was compiled in 1978 by A.M. Babayev, T.A. Kinyapina, K.M. Mirzoev, R.S. Mikhailova and G.V. Koshlakov under the guidance of S.Kh. Negmatullaev

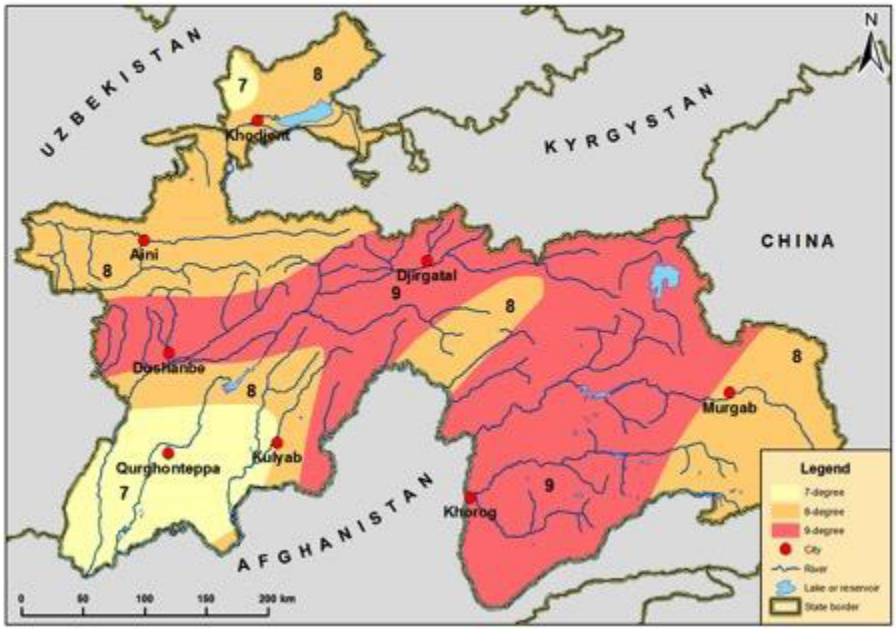


Figure 2. Seismic zones of Tajikistan and project area

68. Figure 3 shows the altitudes of Dushanbe in the relief map of the country.

Figure 3. Relief map and altitude of Dushanbe

4.1.2. Air quality

69. Main stationary sources of air pollution in Dushanbe are Dushanbe cement plant, Dushanbe heat (thermal) power plant, Dushanbe refrigerator plant, Dushanbe reinforcing steel factory, airport, and other enterprises and mobile air pollution sources. There is no regular instrumental air quality data are available in Dushanbe.

70. No sources of industrial air emissions were noted within the project area. The main sources of other emissions to air can be classified as:

- Vehicle engine emissions; and
- Dust, including that generated from the movement of vehicles.
- The main emissions from the combustion of fuel in vehicle engines include Nitrogen Oxides (NOx), Carbon Monoxide (CO), Volatile Organic Compounds (VOCs), Carbon Dioxide (CO2) and Particulate Matter (PM). At present rates, these emissions levels are relatively low when compared regionally.

4.1.3. Climate

71. The climate of Dushanbe is also characterized by features of the "urban climate" typical of southern cities with hot dry summers and unstable mild winters. The average annual temperature is 14.1 °C[12] (see Figure 4 below).

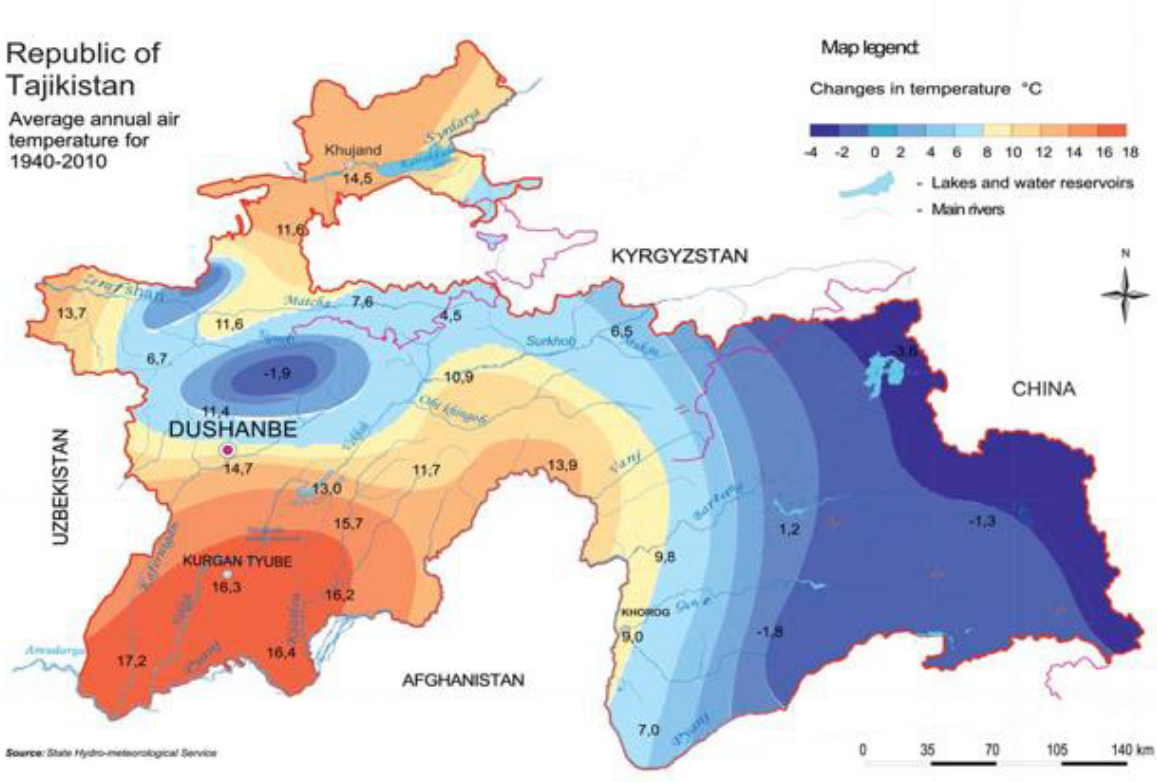


Figure 4. Average temperature in the country and project area

[12] Third National Communication on Climate Change, 2014

72. Dushanbe features a climate with strong continental climate influences. The summers are hot and dry and the winters are chilly, but not very cold. The climate is damper than other Central Asian capitals, with an average annual rainfall over 500 millimeters as moist air is funneled by the surrounding valley during the winter and spring. Winters are not as cold as further north owing to the shielding of the city by mountains from extremely cold air from Siberia. January 2008 was particularly cold, and the temperature dropped to −22 °C.

73. The southern slopes of the Hissar Range and the whole Gissar Valley, where Dushanbe is located, are well protected from northern cold invasions. This determines the soft warm winters with an unstable snow cover. The coldest month is January. The average air temperature of the winter months ranges from 2 to 4 °C. In abnormally cold years, air temperature can drop to - 27 ° C.

74. The spring in Dushanbe is accompanied by the precipitation of heavy rainfall with thunder and hail. For the spring are characteristic late frosts on soil and in the air, which bring great harm to blossoming orchards and vegetable crops. Summer in Dushanbe is hot and dry. In July, the average daily air temperature is 27 °C, in the daytime it rises to 36 °C, annually the highest air temperature is 40 °C, and in some years the absolute maximum can reach 43 ° C. The absence of wind leads to the fact that the continuous duration of the haze reaches several days.

75. In autumn, dry, clear, warm weather prevails in Dushanbe. The air temperature on average is 15-20° C per day. In November, the air temperature drops to 9 ° C, but in the daytime it's still quite warm (16-20 ° C). For the autumn period, Dushanbe has the largest daily amplitude of air temperature, which is 18.5 °C.

76. Precipitation throughout the year is uneven. The annual precipitation is about 630 mm, of them during the cold period (from November to March) is about 390 mm, in the warm period is 240 mm. Precipitation falls mainly in the form of rain, in winter - in the form of rain and wet snow. A stable snow cover in 90% of winters is absent, On the average for a year 25-27 days are marked with a snow cover.

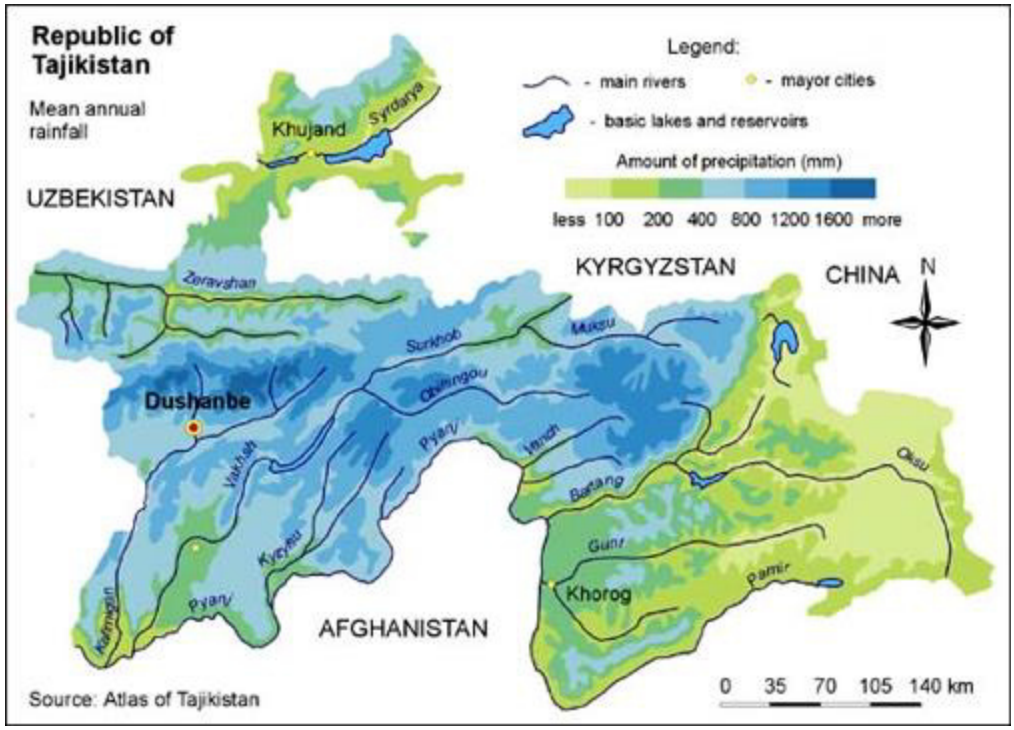


Figure 5. Precipitation map of Tajikistan

77. Dushanbe is characterized by a predominance of mountain pentane winds. On average, the north and north-easterly wind prevails over the year, with north-east winds prevailing in the spring and winter, and in the summer - north, west and north-west – see Figure 6 below.

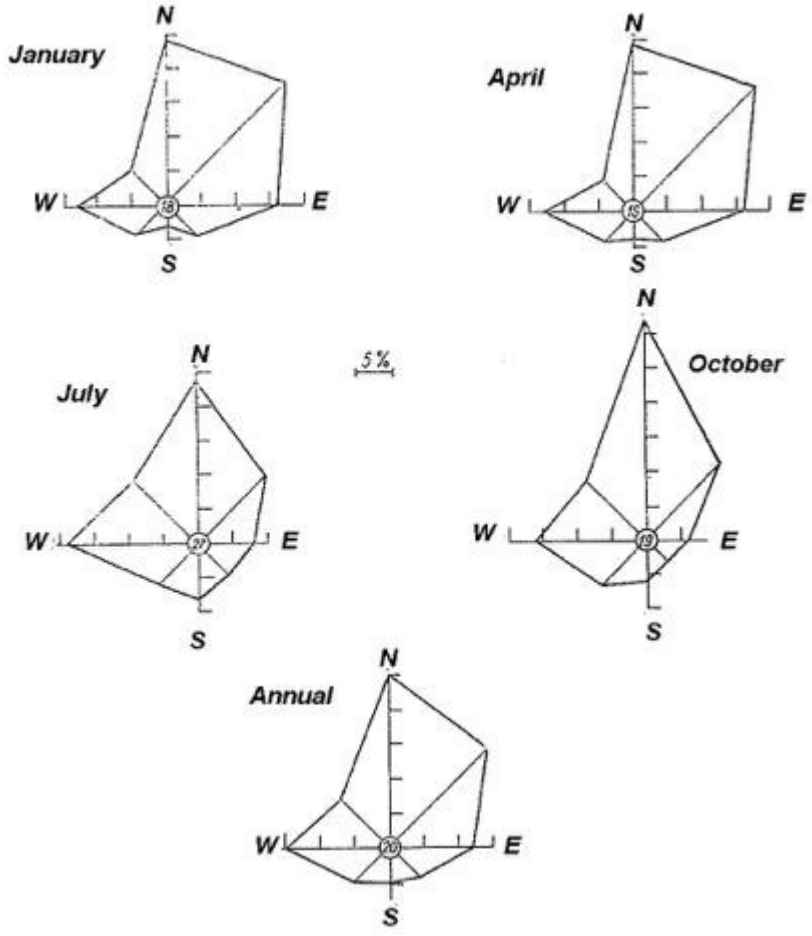


Figure 6. Wind rose of Dushanbe by seasons

4.1.4. Hydrology

78. **General** - The rivers of Tajikistan are important sources of fresh water for the Aral Sea. The glaciers and permanent snow feed the rivers of the Aral Sea basin with over 13 km3 of water a year. The major rivers are the Syr Darya (total length 2,400 km), which flows for 195 km across the Fergana Valley in the north, the Zaravshan, which runs through central Tajikistan, and the Kafirnigan, Vakhsh and Panj rivers, all of which together drain more than three fourths of Tajikistan's territory.

79. Dushanbe is situated at the confluence of two rivers, Varzob and Kofarnihon. Situated in the largest agricultural oasis of the country, Dushanbe occupies the area along both banks of the Varzob River (called the Dushanbinka within the city), taking its waters from the snowfields and glaciers of the Hissar range, which are a part of the giant Pamir-Alai mountain system. In the Upper Varzob river-basin there are around 120 glaciers of various sizes, which create a favourable microclimate in the mountainous valley near Dushanbe. The Varzob River generously provides drinking water, irrigation for adjacent gardens and fields, and electricity for city residents.

80. The Project area is located within the Kafirnigan River Basin. The project area of campus is situated far from the Kafirnigan river.

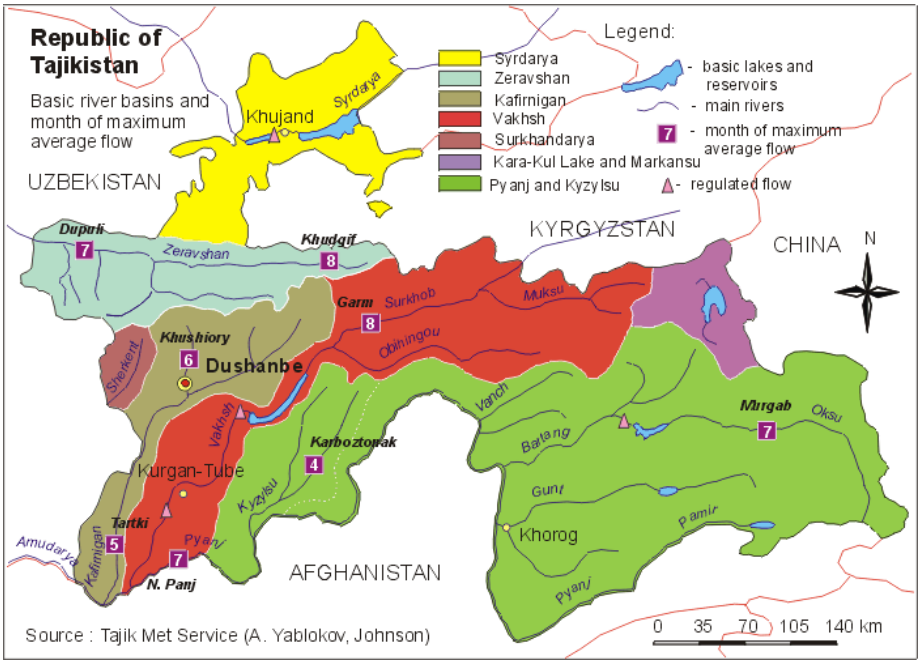


Figure 7. River basins of Tajikistan

81. Groundwater reserves are extensive in the Gissar valley. Aquifers are located and depths of 5 to 40m, generally deeper around the project area.

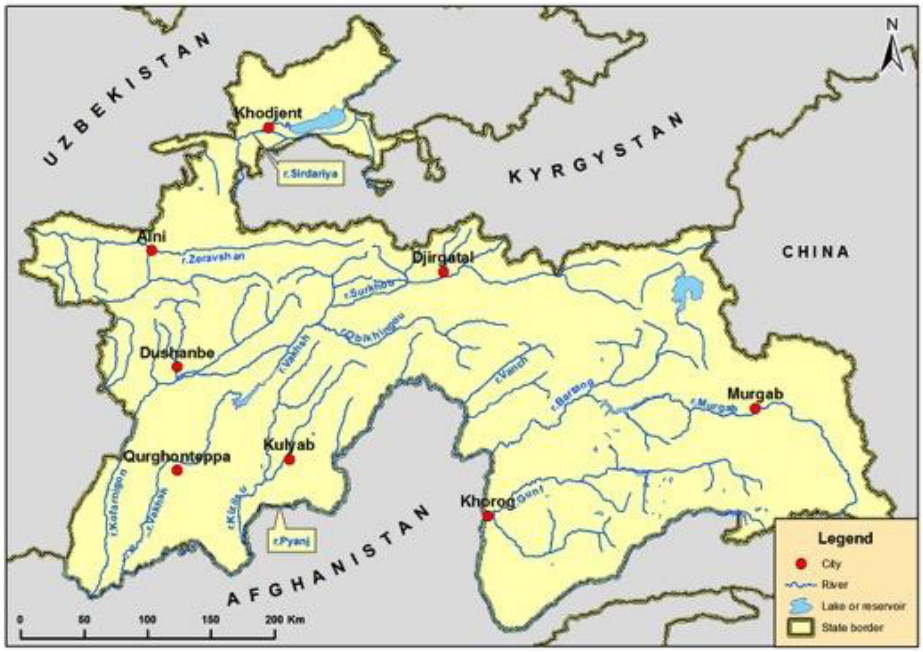


Figure 8. Rivers network of Tajikistan

4.2. Ecological Resources

82. While Tajikistan is home to a wide diversity of animals, birds, vegetation, and habitats, biodiversity in the Project areas is low as project area is located in urbanized area. No important, rare, endangered, or protected species or critical habitats are found in potentially Project-affected area.

83. Urban vegetation includes ornamental trees and shrubs (eg sycamore, elm, plain trees, ligustigum, maple, poplar, pine, mictobiota spp., cedar, Chinese rose, Russian silverberry etc.) and orchard/garden fruit-bearing species (eg mulberry, apple, fig, apricot, cherry, walnut, pomegranate, grape, Pontic hawthorn, Albert's pearl bush, and dog rose).

84. The city is very green with many trees including fruit trees, sycamores, maples, chestnuts as well as mulberry- trees, oaks, and walnuts besides vines and flower gardens.

85. No protected areas or parks occur in the vicinity of the project area. The nearest protected areas is the Almasy species management area, which is located at the distance about 60 km north-east from the project area, and the Shirkent Historical Nature Park – at the distance about 55 km north-west from the project area.

4.3. Economic Resources

86. Dushanbe is the capital and largest city of Tajikistan and consists of 4 districts: Sino, Somoni, A.Firdavsi and Shohmansur – see Figure 9 below.

87. The project under additional financing is located in Sino district of Dushanbe. The city is served by Dushanbe International Airport which has regularly scheduled flights to major cities in Russia, Central Asia, as well as Dubai, Frankfurt, Istanbul amongst others. Tajikistan's principal railways are in the southern region and connect Dushanbe with the industrial areas of the Gissar and Vakhsh valleys and with Uzbekistan, Turkmenistan, Kazakhstan and Russia.

88. The Dushanbe trolley bus system operates public buses in the city. Automobiles are the main form of transportation in the country and as of 2017 many highway and tunnel construction projects are underway or have recently been completed.

89. More than 100 industrial enterprises were put into operation in the capital, which produced about 60 types of items including looms, refrigerators, cotton and silk fabrics, hydro-equipment for agricultural machinery, knitwear, apparel, leather goods, and many other goods.

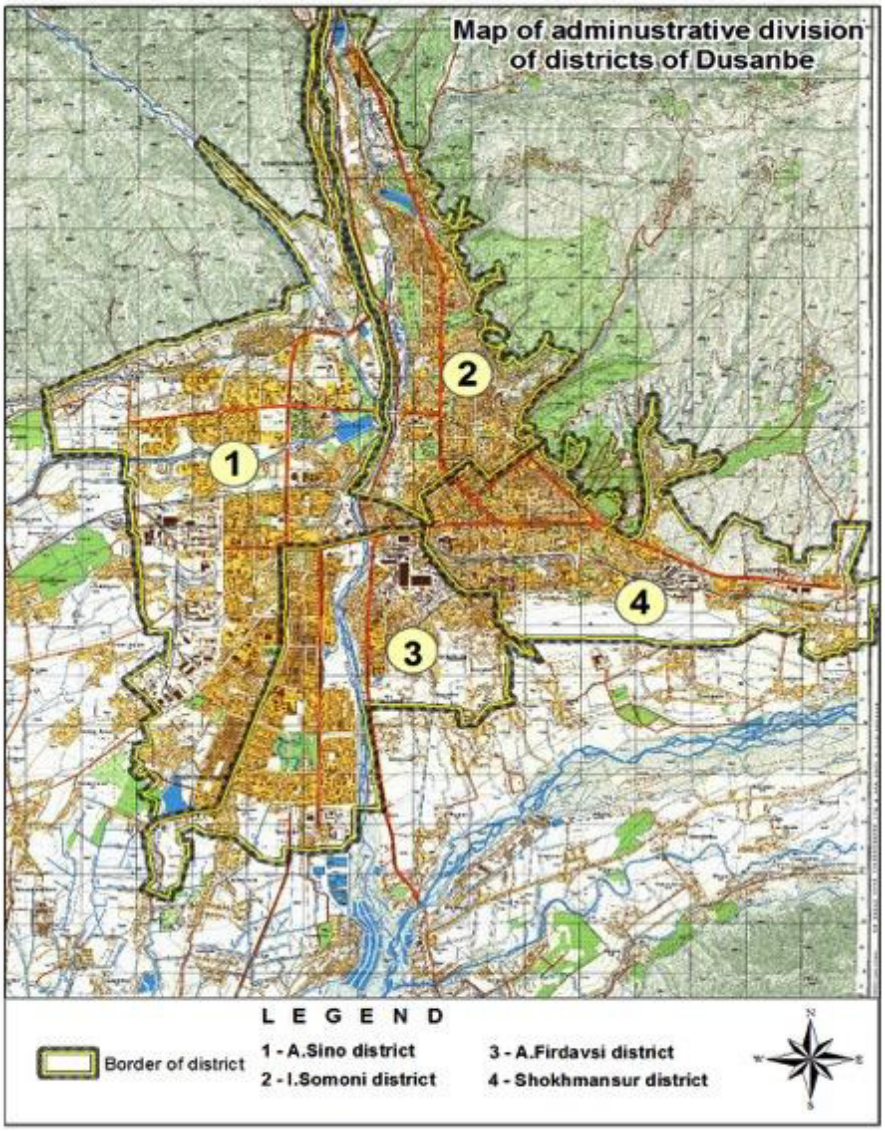


Figure 9. Administration map of Dushanbe city

4.4 Social and Cultural Resources

90. In 2015 Tajikistan's population was estimated at 8.35 million people. The growth rate was 2.19 percent per year. The average density was 51.3 people per square kilometer, but the population was concentrated heavily in the western, southwestern, and northwestern regions. The level of poverty is quite high in the rural areas: in 2009, the poverty headcount ratio living on US$ 1.25 per day was 6.6 % as determined by the World Bank's atlas method; for the same year, the UNDP Human Development report reported 22 %. Poverty is multidimensional as it touches the three sectors of education, health, and living standards, implying that there is severe deprivation in these three dimensions.

91. With regard to gender, females with secondary education are at least at 93.2 % compared to males at 85.8 %, at the national level for those 25 years and older. The population of Dushanbe city is 802,700 made up of ethnic Tajiks, Uzbeks, Russians and others (2.4%).

Health facilities.

92. Indicators such as infant and maternal mortality rates are among the highest of the former Soviet republics. In the post-Soviet era, life expectancy has decreased as a result of poor nutrition, polluted water supplies, and increased incidence of cholera, malaria, tuberculosis, and typhoid. The leading causes of death are cardiovascular diseases, respiratory disorders, and infectious and parasitic diseases. The health care system has deteriorated badly and receives insufficient funding and sanitation and water supply systems are in declining condition. This has resulted in a high risk of epidemic disease.

93. Health facilities in the selected region include the follow indicators: number of doctors, nursing staff and units of hospital. These indicators are important to obtain information on the health of the population. *Table 2* below provides data on health facilities in Dushanbe.

Education

94. School attendance is mandatory between the ages of 7 and 17, but many children fail to attend because of economic needs and, in some regions, security concerns. Tajikistan's education system suffers from a depleted infrastructure and an acute shortage of teachers at all levels. This will become more acute because of the relatively high birth-rate. The official literacy rate is 98 %%, but the poor quality of education since 1991 has reduced skills in the younger generations.

95. A number of educational facilities are based in Dushanbe: Tajik State National University, Tajik State National University, Tajikistan Humanitarian International University, Agricultural University of Tajikistan, Tajik State Medical University, Tajik State Pedagogical University, Tajik State University of Commerce, Tajikistan State University of Law, Business, & Politics, Russian-Tajik Slavonic University, Tajikistan University of Technology, Tajikistan-Russian Modern University, Technical University of Tajikistan, Dushanbe International School etc.

96. *Table 2* provides data on education facilities in Project districts and cities.

Table 2: Education and health statistics in selected sub-project areas

Location	Health Facilities	Education Facilities
Dushanbe city	Doctors (persons) - 6282 Nursing staff (persons) - 6122 Hospitals - 43	Universities - 23 Schools (units) - 140 Teachers (thousand) - 7,9 Students – 103,6 Schoolchildren – 27,4 thousand

Source: www.dushanbe.tj

97. Present-day Dushanbe is a young capital, being only 88 years old and meets all the conditions of modern urbanized life. There are a libraries, architectural complexes, administrative, research and cultural institutions, universities, theatres, hotels and restaurants in the city. The vicinity of project area of campus is located at the corner of the street (crossing point) and only administrative and residential buildings can be seen from two sides of the campus.

Sensitive receptors in the project area

98. Two roads Campus are from 2 front sides of the Project sites – see Figure 10 below:

Figure 10. View of the project area of Agency for Hydrometeorology campus (Source. Google)

99. Following sensitive receptors are detected in the project area:

a) Residential houses: 1 nine floor and 1 four house is located at the distance of 80 m from the north side of the Project site.
b) 1 four floor house is located at the distance of 60 m from the east side of the Project site.
c) Schools: There are two schools located near the site – School number 84 at the distance of 600 m and School number 92 at the distance of 1050 m of the Project site
d) There is old cemetery distance of 500 m of the Project site

100. Allocated site for the campus was empty before construction of the main office of Hydromet agency (Building 1) in 2012. By 2017 within the project site only one building was constructed but not completed (see DDR in Annex 6).

V. Screening of Potential Environmental Impacts and Mitigation Measures

5.1. Impacts and Mitigation Measures during Construction

5.1.1. Overview

101. Potential environmental impacts were evaluated on each resource or value with regard to major phases of the Project.

(i) **Location.** Since the project location is on existing site, generally no impacts are expected.
(ii) **Construction.** Impacts will caused by site clearing, earthworks, machinery, vehicles, and workers, including erosion, dust, noise, and wastewater.
(iii) **Operation.** Impacts will result from operation and maintenance activities, including health and safety issues and those from possible accidents.

5.1.2. Environmental Impacts

102. **Location.** New facilities will be built on existing site and do not have additional, severe impacts on the landscape. The new supplementary buildings comprising laboratory, auditorium and exhibition space (Buildings 2, 3, and 4); and Building of 2 residential buildings (Buildings 5 and 6) will be located within the city on government land. All piping works for water supply and sewage will be along streets and within the right-of-way. Temporary impacts from construction work will produce dust, noise, and air pollution, mainly affecting residents in the vicinity of the project sites.

103. **Construction**. Major impacts due to construction activities will occur on soil, groundwater, air, flora, fauna, and people located on the surrounding and along access roads. These impacts would be associated with pollution from wastes, noise, dust, and air pollution, oil, and fuel spills, health hazards and labor safety issues due to civil works. These impacts will be temporary, not exceeding 18 months. Soil excavation and storage can cause runoff and alteration of soil levels. No impacts on local vegetation and loss of flora and fauna are expected. All impacts are expected to be typical for small scale construction/rehabilitation works, temporary by nature and site specific and can be easily mitigated by applying best construction practices and relevant mitigation measures.

104. Positive impacts include improving conditions for the Hydromet agency personnel, improved climate services performance.

105. The text below provides more details on potential negative project impacts of the project.

106. **Construction-phase impacts of a routine nature.** Management of dust and noise, solid and liquid waste will be required during construction. Environmental management will follow a construction environmental management plan and site-specific environmental management plan (SSEMP). The following plans will be developed as part of the SSEMP:

- Dust Management Plan
- Noise Management Plan
- Health and Safety Management Plan
- Emergency Management Plan
- Waste Management Plan
- Traffic Management Plan

The EMP will be included in the bidding documents for construction work, and contractor will be required to prepare the SSEMPs.

107. During construction of buildings, construction of premises for staff or other small scale construction premises for vehicles, the main negative impacts expected relate to air and soil pollution through waste generation, dust and air emissions, temporary increased background noise levels and aesthetics, as well as labor safety issues. The most common potential negative impacts from these activities can be summarized as follows:

(a) *Dust, air pollution and noise*. These are the most common environmental effects during the civil works which are temporary and depends on the scale of construction activities and types of facilities to be constructed or renovated.
(b) *Waste handling and risk of spill*: construction activities will also generate solid and liquid wastes including drywall, machine oil, paints, and solvents. Minor spills of fuel and other materials may unexpectedly occur during the course of rehabilitation activities. Improper handling of on-site wastes and response to spills could result in adverse effects on the local environment including groundwater and soil.
(c) *Labor and safety impacts*: during civil works in the case the workers do not obey necessary safety rules, they might be subject to various accidents.
(d) *Health impacts* associated with indoor construction activities in the case of the usage of noxious/toxic solvents and glues and of lead-based paints.
(e) *Risk of soil contamination* as the results of inadequate implementation of sanitation activities.
(f) *Pollutant air emissions*. The types of pollutants and their volumes also depend on the type of used fuels.
(g) *Community risks* due to increased traffic during construction, creating risk for accidents and traffic disruption.

108. The potential impacts associated with the construction of campus buildings and premises will be easily mitigated by ensuring that all civil works will be designed and operated in accordance with environmentally sound engineering practices and governed by the applicable environmental standards of the Tajikistan. This will be clearly specified in the construction contracts and enforced by the client. Such practices would include the following:

Organizational measures. Before starting the construction/rehabilitation activities it is necessary to inform the local construction and environment inspectorates and communities about upcoming activities in the media and/or at publicly accessible sites (including the site of the works). Furthermore, it is necessary to have in place all legally required permits. All works should be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. Construction workers should be properly dressed, having when necessary respirators and safety glasses, harnesses and safety boots.

Protection of air quality and dust minimization. During construction/rehabilitation activities it is necessary to use debris-chutes above the first floor and to keep demolition debris in controlled area, spraying with water mist to reduce debris dust. It is also necessary to suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site. It is strictly prohibited burning of construction/waste material at the site. For the transportation of any other dusty material to the rehabilitation site watering or covering of the cargo should be implemented. Reduction of dust on rehabilitation site during dry season of the year can be accomplished by watering the ground surface. Workers that perform the works should be introduced with protective closes and respirators.

Noise reduction. Before any beginning of the work it is recommended to inform all potentially affected parties and especially the neighbors either directly or through local billboards or newspapers on the rehabilitation activities. The noise should be limited by using good management practice and limiting works on regular daily shift (during the vacation time) and or

after the school classes. The construction equipment and machinery used should be calibrated according to the Noise Standards.

Construction wastes and spills. As a general requirement is that the existing building elements to be rehabilitated (walls, ground cement slabs etc.) should be carefully rehabilitated and the construction wastes should be sorted and removed in an organized way and disposed on an authorized land filed. All valuable materials (doors, windows, sanitary fixtures, etc.) should be carefully dismantled and transported to the storage area assigned for the purpose. Valuable materials should be recycled within the project or sold. Wastes where ever possible should be minimized, separated and handled accordingly. When wastes are separated they are more manageable. Some materials like doors or ceramics sinks might be usable on the site again. Non-usable materials should be taken to appropriate place for recycling. For non-recyclable wastes, in agreement with local councils the wastes will be deposited on authorized landfill. Open burning and illegal dumping of any waste is strictly prohibited. In addition to solid wastes, some amounts of hazardous wastes will be produced on the site: like the remaining from paints, enamels, oiled packaging, oils, material contaminated with oil, insulation material, etc., which have to be collected and handed over to the local self-government body authorized for collection and transportation of hazardous waste.

Asbestos. No asbestos materials were used before for construction of building 1. No asbestos will be used in frame of additional financing.

Temporary storage of materials (including hazardous). Stockpiling of construction material should be avoided if possible. If not, construction material should be stored on the construction site, and protected from weathering. Hazardous materials like paints, oils, enamels and others should be kept on impermeable surface, and adsorbents like sand or sawdust should be kept for handling small spillage.

Ensuring workers health and safety. The personal should have protective equipment, rubber gloves, respirators, goggles and breathing mask with filter, as well as helmets. Prior starting civil works, all workers have to pass labor safety training course. In addition, it is necessary to carry out the routine inspection of the machinery and equipment for purpose of the trouble shooting and observance of the time of repair, training and instruction of the workers engaged in maintenance of the machinery, tools and equipment on safe methods and techniques of work. Special attention should be paid to welding operations. It is prohibited to distribute the faulty or unchecked tools for work performance as well as to leave off hand the mechanical tools connected to the electrical supply network or compressed air pipelines; to pull up and bend the cables and air hose pipes; to lay cables and hose pipes with their intersection by wire ropes, electric cables, to handle the rotating elements of power driven hand tools.

5.2. Involuntary resettlement issues

109. The project will not finance any activities that might trigger involuntary resettlement issues. Any infrastructure constructed under the project will be: (a) located on land already owned by participant, or will be bought or leased on a willing buyer-willing seller basis, and, (b) will be screened to ensure that it is free of legal encumbrance, or informal use or occupation by others who lack formal title. Hence the project will not support projects on land that is acquired involuntarily or triggers the policy in any other way.

5.3. Environmental Impact and Mitigation Measures during Operation

110. During the operation phase the impacts relate to proper functioning of water and sewage system of the campus, relevant waste management, electric system and fire-protection issues.

111. Potential project impacts and key mitigation measures are summarized in the Table 3 below.

Table 3. Environmental and social impacts and proposed mitigation measures

Expected environmental and social impacts	***Key Measures to prevent/mitigate negative impacts***
Labor and safety impacts	• The local construction and environment inspectorates and communities have been notified of upcoming activities • The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) • All legally required permits have been acquired for construction and/or rehabilitation • All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. • Workers will comply with international good practice - providing the construction workers with suitable personal protective equipment (always hardhats, as needed masks and safety glasses, harnesses and safety boots) • Appropriate signposting of the sites will inform workers of key rules and regulations to follow. • Emergency Response Plan • Health and Safety Plan
Noise - Nuisance and disturbance of neighboring residential houses	• Construction works will be limited to restricted times agreed to in the permit • Timely public announcements of works • There will be no excessive idling of construction vehicles at sites; • During operations the engine covers of generators, air compressors and other powered mechanical equipment should be closed, and equipment placed as far away from residential areas as possible
Air quality, Dust, and emissions of Volatile Organic Compounds and thinners	• Construction works will be limited to restricted times • Timely public announcements of works • Providing the construction workers with suitable personal protective equipment (respirators) • There will be no open burning of construction / waste material at the site • There will be no excessive idling of construction vehicles at sites • Keep surrounding environment (side-walks, roads) free of debris to minimize dust • Keep demolition debris in controlled area and spray with water mist to reduce debris dust • Suppress dust during pneumatic drilling/wall destruction by ongoing water spraying and/or installing dust screen enclosures at site
Construction waste and spills	• Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities; • Construction waste will be collected and disposed properly by licensed collectors

Expected environmental and social impacts	*Key Measures to prevent/mitigate negative impacts*
	• Timely sorting of rehabilitated and removing construction waste in an organized way, and disposal them on an authorized land field - Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers • Dispose off waste appropriately to prevent pollution of soil and groundwater • The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities • Recycle valuable materials within the project or sold. • Aim to minimize waste through reducing and re-using (packaging) material • Do not allow any burning or burying of waste on site. • Prevent littering by construction staff at work sites by providing bins or waste bags in sufficient locations. • The records of waste disposal will be maintained as proof for proper management as designed; • Whenever feasible the contractor will reuse and recycle appropriate and viable materials.
Toxic / hazardous waste management	• Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information • The containers of hazardous substances should be placed in an leak-proof container to prevent spillage and leaching • The wastes will be transported by specially licensed carriers and disposed in a licensed facility • Paints with toxic ingredients or solvents or lead-based paints will not be used
Direct or indirect hazards to public traffic and pedestrians by construction activities	• In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to: ✓ Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards ✓ Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes ✓ Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement ✓ Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public ✓ Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public

VI. ENVIRONMENTAL MANAGEMENT AND MONITORING PLANS

6.1. Responsibilities for the EMP implementation

112. The construction contractors will be responsible for implementation of the EMP. The project management office (PMO) will have the overall responsibility for supervising contractors environmental performance, coordinating the public consultations and project grievance redress mechanism (GRM), and reporting to ADB through the periodic project progress reports and annual environment monitoring reports.

113. The PMO will assign an environmental safeguards officer (ESO) to supervise the implementation of the EMP. Among responsibilities of the ESO are: (i) reviewing and approval site-specific EMPs, (ii) monitoring of EMPs implementation, (iii) establishing the GRM, (iv) organizing of training in environmental management, and (v) updating the IEE (if necessary) as discussed below.

6.2. Environmental Monitoring

114. Annual environmental monitoring reports (EMR) will be prepared and submitted to ADB by the PMO within one month of the end of each period covered. The EMR will include a review of progress made on the implementation of the EMP, problems encountered and remedial measures taken. Periodic project progress reports will include a section on environmental and social aspects of the project.

115. Environmental Management and Monitoring Plans are in *Tables 4 and 5*.

Table 4. Environmental Management Plan

PRE-CONSTRUCTION PHASE						
Activity	Environmental Aspect (EA)	Mitigation Measures	Location	Responsibility		Costs / Budget
				Imple-mentation	Super-vision	
Preparation of bid documents	EA: Bid documents	All environmental managing activities described in IEE and, therefore, required activities by Contractor shall be clearly indicated in the Technical Specification of Bid Document . No bid documents will be prepared without a (Tajik/Russian) copy of the mitigation and monitoring plans, which shall be included in the safeguard clauses of the Technical Specifications in the contracts.	Buildings 1-6, landscaping, parking and warehouse (all facilities)	PMO		PMO budget
Preparation for construction works	EA: I: Environmental assessment completed	IEE and EMP completed during project preparation will be translated, disclosed public and handed over contractor. EA will submit IEE/EMP to State ecological Expertise of CEP to get the environmental clearance (positive environmental conclusion) prior the commencement of civil works.	All facilities	PMO	ESO	PMO budget
Preparation to construction works	EA: Site-specific Environmental Management Plans	Building-specific Environmental Plans including Waste management Plan, Health and Safety management plan, Dust suppression plan, Emergency response Plan should be submitted to the PMO for approval at least 10 days before taking possession of any work site	All facilities	Contractor	PMO	Contractor's budget

CONSTRUCTION PHASE						
Activity	Environmental Aspect and Impact	Mitigation Measures	Location	Responsibility		Costs / Budget
				Implementation	Supervision	
A. General Conditions	Worker Safety	The local construction and environment inspectorates and communities have been notified of upcoming activities The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works) All legally required permits have been acquired for construction and/or rehabilitation All work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment. Workers will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots) Appropriate signposting of the sites will inform workers of key rules and regulations to follow. Emergency Response Plan Health and Safety Plan	Sino district of Dushanbe	Contractor	PMU, Environmental Consultant	to be included in the Project Costs

Construction of buildings	EA: Increased background noise levels - Nuisance and disturbance of neighbouring residential houses	(i) Construction works will be limited to restricted times agreed to in the permit (ii) Timely public announcements of works (iii) Providing the construction workers with suitable personal protective equipment	Sino district of Dushanbe	Contractor	PMU, Environmental Consultant	to be included in the Project Costs
	EA: Air quality, Dust, and emissions of Volatile Organic Compounds and thinners	(i) Construction works will be limited to restricted times (ii) Timely public announcements of works (iii) Providing the construction workers with suitable personal protective equipment (respirators) (iv) There will be no open burning of construction / waste material at the site (v) There will be no excessive idling of construction vehicles at sites (vi) Keep surrounding environment (side-walks, roads) free of debris to minimize dust	Sino district of Dushanbe	Contractor	PMU, Environmental Consultant	to be included in the Project Costs
	EA: construction waste	Timely disposal of construction waste Dispose off waste appropriately to prevent pollution of soil and groundwater The approach to handling sanitary wastes and wastewater from building sites (installation or reconstruction) must be approved by the local authorities Do not allow any burning or burying of waste on site.	Sino district of Dushanbe	Contractor	PMU, Environmental Consultant	to be included in the Project Costs

		Prevent littering by construction staff at work sites by providing bins or waste bags in sufficient locations Aim to minimise waste through reducing and re-using (packaging) material.				
	EA: Asbestos containing materials (ACM)	(i) ACM will not be used as a new material in construction works of new buildings.	Sino district of Dushanbe	Contractor	PMU, Environmental Consultant	to be included in the Project Costs
	Toxic / hazardous waste management	Temporarily storage on site of all hazardous or toxic substances will be in safe containers labeled with details of composition, properties and handling information The containers of hazardous substances should be placed in an leak-proof container to prevent spillage and leaching The wastes will be transported by specially licensed carriers and disposed in a licensed facility. Paints with toxic ingredients or solvents or lead-based paints will not be used	Sino district of Dushanbe	Contractor	PMU, Environmental Consultant	to be included in the Project Costs
Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to Signposting, warning signs, barriers and traffic diversions: site will be clearly	Sino district of Dushanbe	Contractor	PMU, Environmental Consultant	to be included in the Project Costs

		visible and the public warned of all potential hazards Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes. Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public. Ensuring safe and continuous access to office facilities, shops and residences during renovation activities, if the buildings stay open for the public.				

Table 5. Environmental Monitoring Plan

PRE-CONSTRUCTION PERIOD				
Monitoring Aspect	Monitoring Activity / Details / Outputs	Timing	Executing Unit	Reporting Responsibility
Bid documents	Confirm that bid documents contain environmental clauses tailored to the project conditions as well as this EMP	Preparing the bid documents	PMO	PMO
Initial Environmental Examination	Confirm that the IEE covers all aspects of campus construction and environmental clearance from State Ecological Expertise (SEE) of the Committee of environmental protection is received before commencement of construction works	Project implementation	Environmental consultant	PMO
SSEMP	Confirm that contractors prepared and submitted for approval the SSEMP: (1) Traffic and pedestrian safety management plan, (2) Waste management plan, (3) Emergency management plan, (4) Occupational health and safety plan, (5) Complaints register, (6) Dust management plan, (7) Noise Management Plan	At least 10 days before taking possession of any work site	Contractor	Environmental consultant / PMO
CONSTRUCTION PERIOD				
Monitoring Aspect	Monitoring Activity / Details / Outputs	Timing	Executing Unit	Reporting Responsibility
Noise and Vibration	Ensure that maximum and equivalent noise levels on the sites are in compliance with the EHS Guidelines (weekly instrumental measurements). Ensure that there is no complaints about noise levels - inspection and audit, checking complaints register records	During project implementation	Contractor PMU/Env consultant	Contractor

Air quality - Dust and VOC	Visual observations to ensure there is no dust emission Ensure that there is no complaints about dust/VOC and other pollutants	During project implementation	Contractor PMU/Env consultant	Contractor
Construction waste	Confirm that solid construction waste is regularly transferred to approved disposal sites - inspection and audit of construction materials.	During project implementation	Contractor PMU/Env consultant	Contractor
ACM	Ensure that no ACM used for construction of buildings and roofing – inspection and audit of construction materials.	During project implementation	Contractor PMU/Env consultant	Contractor
Traffic and Pedestrian Safety	Visual observations, implementation of management plan, Complaints register records	During project implementation	Contractor PMU/Env consultant	Contractor
OPERATION PERIOD				
Monitoring Aspect	Monitoring Activity / Details / Outputs	Timing	Executing Unit	Reporting Responsibility
Environmental impacts related to the sewage system, electrical safety, emergency system etc.	Ensure that administration of Hydromet campus continue to maintain properly in accordance with standards project buildings and facilities	Operation stage	Hydromet agency	NA

ACM = Asbestos Containing Material, SSEMP = Site-specific Environmental Management Plan, PMO = Project Management Office

VII. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

116. ADB's SPS has specific requirements for information disclosure and public consultation. Information disclosure involves delivering information about a proposed project to the general public and to affected communities and other stakeholders, beginning early in the project cycle and continuing throughout the life of the project. Information disclosure is intended to facilitate constructive engagement with affected communities and stakeholders over the life of the project.

117. The SPS also requires that the borrower carry out consultation with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation.

7.1. Public Consultation

118. Public consultations were held on 21 September 2017 in the administrative centre of Sino city authority. Participants included specialists of Hydrometeorology Agency, invited communities living in the project area, environmental NGOs of Dushanbe, representatives of Dushanbe Khukumat, district level authority of Dushanbe (Sino district), KMK (Khojagii manziliyu communaly).

119. In total 15 people participated in public consultations. The records of these consultations are provided in *Annex 7*.

7.1.1. Summary of the main concerns raised during public consultations

- Dust from the construction site
- Noise from construction site
- Usage of proper access road (on east side of Hydromet campus site) by heavy tracks transporting the construction materials.

7.2 GRIEVANCE REDRESS MECHANISM

7.2.1. Current Practice in Tajikistan

120. GRM practice is relatively new to Tajikistan. The IEEs of previous ADB Tajikistan projects describe GRMs.

7.2.2. Proposed Mechanism

121. **Construction-stage GRM**. Environmental conditions during construction are the responsibility of the contractor. To manage environmental damage risks, civil works contracts will oblige the Contractor to provide third-party insurance in the joint name of PMO as the Employer. To make a claim, an affected person provides the detailed claim to the Contractor or PMO Construction Department as soon as possible after the event; the Contractor/PMO are obliged to notify the insurer, who contact the claimant to investigate causes, assess damages, and determine if the claim is justified. If part or the entire claim is denied, the Contractor or PMO may accept liability, or the claimant may take legal action. Other environmental concerns may be raised with the Contractor or PMO Construction Department. The Contractor and PMO Construction Department will each maintain a registry available for public inspection, that documents each grievance received and all actions taken.

122. **Operation-stage GRM.** Environmental conditions at operational rehabilitated Hydromet office are the responsibility of administration. One or more staff members will be assigned and appropriately trained to take responsibility for health, environment, and safety (HES) matters. Responsible staff

names and contact information will be posted in a central location, stating that they are responsible to receive and respond to HES concerns.

7.2.3 Types of Grievances Expected and Eligibility Assessment

123. **Construction stage**. Expected grievances during construction include noise, dust, traffic, waste, and hazards affecting individuals (including construction workers) or their belongings on or near Hydromet campus property.

124. **Operation stage.** Expected grievances during operation include noise or environmental pollution caused by equipment malfunction; improper waste disposal; and hazards affecting individuals or their belongings on or Hydromet campus property.

125. **Grievance eligibility assessment.** Expected grievances are straightforward in nature therefore no formal arrangements are needed to assess if grievances fall within the GRM mandate or if complainants have standing.

VIII. ENVIRONMENTAL MANAGEMENT AND MONITORING PLANS

8.1. Responsibilities for the EMP implementation

126. The construction contractor will be responsible for implementation on the EMP. The project management office (PMO) will have the overall responsibility for supervising contractor environmental performance, coordinating the public consultations and project grievance redress mechanism (GRM), and reporting to ADB through the periodic project progress reports and annual environment monitoring reports. The PMO will assign an environmental and social safeguards officer (ESO) to supervise the implementation of the EMP. Among responsibilities of the ESO are: (i) reviewing and approval site-specific EMPs, (ii) monitoring of EMPs implementation, (iii) establishing the GRM, (iv) organizing of training in environmental management, and (v) updating the IEE (if necessary) as discussed below.

8.2. Site-specific Environmental Management Plans

127. The Site-specific Environmental Management Plans (SSEMPs) are based on the Environmental Management Plan. They are prepared by the Contractor for each construction site. The SEMPs must be submitted by the Contractor to the PMU for approval at least 10 days before taking possession of any work site.

8.3. Environmental Monitoring and reporting

128. Annual environmental monitoring reports (EMR template attached in the Project Administration Manual) will be prepared and submitted to ADB by the PMO within one month of the end of each period covered. The EMR will include a review of progress made on the implementation of the EMP, problems encountered and remedial measures taken. Periodic project progress reports will include a section on environmental and social aspects of the project.

8.4. Contractors' Responsibilities

i. Prepare and implement a Site Specific Environmental Management Plan (SSEMP) with relevant Annexes as Waste Management, OHS, and Emergency Response plans based on the requirements of the EMP in the construction contract. The SSEMP will include any corrective measures relating to the existing environmental risks associated with wastes existing at the facilities prior to the new project.
ii. Implement the SSEMP including periodic air and noise monitoring as specified in the EMP.
iii. Prepare an environmental management report to PMO as part of monthly project progress reporting. The environmental management report will identify the work undertaken over the reporting period and document the environmental protection measures including air and noise monitoring activities that have been carried out, problems encountered, and follow-up actions that were taken (or will be taken) to correct the problems.

8.5. PMO /PIO Responsibilities

i. Obtain necessary permits and/or clearance, as required, from CEP and other relevant government agencies, ensuring that all necessary regulatory clearances are obtained before commencing any civil work on the relevant sections.
ii. Submit to ADB the IEE and EMP report and other documents, as necessary.

iii. Ensure that any EMP including relevant mitigation measures needing to be incorporated during the construction stage by the contractor are included in the bidding documents.
iv. Ensure that the contractors have access to the IEE and EMP reports of the project.
v. Ensure that contractors understand their responsibilities to mitigate environmental problems associated with their construction activities and train their staff in implementation of the EMP.
vi. Ensure and monitor that the EMP including an environmental monitoring plan will be properly implemented including spot check air and noise monitoring during construction to verify contractual compliance.
vii. Ensure that the contractors submit monthly environmental management reports to the CSC (these reports will be included as part of the contractors' monthly progress reports).
viii. Ensure that the CSC reviews and submits biannual environmental monitoring reports to the PMO.
ix. Submit bi-annual environmental monitoring report to ADB.
x. In case unpredicted environmental impacts occur during the project implementation stage, prepare and implement as necessary a corrective action plan in consultation with CEP, any other relevant government agencies, and ADB.

IX. Environmental Management Budget and Resources

129. The cost of all compensation and rehabilitations works will be an integrated part of the overall sub-project cost, which will be borne by the sub-project. The preliminary estimated cost of the environmental management for additional works sub-project including implementation and monitoring is US$ as detailed in Table 6 below.

Table 6: Summary of Estimated Costs for EMP Implementation of the Project Subproject

Item	**Sub-Item**	**Total Cost (US$)**
PMO Environment Specialist	Monitoring and Supervision of EMP (10 months)	20000
PIC Environment Specialist	2 months input over 12 months (development of SSEMP, preparation of BA-EMRs, monitoring of implementation of EMP/SSEMP)	30000
Waste management, restoration of area after completion of construction works, monitoring of noise, mitigation measures for air quality etc.	As detailed in EMP	15000
Training Program		10000
	Total (USD)	75000

Note: Cost estimates are indicative only.

X. Findings And Recommendation

130. The anticipated residual impacts of the Project after application of all mitigation measures are expected to be non-significant.

ANNEX 1. ENVIRONMENTAL STANDARDS

IFC Noise Standards

Receptor	One Hour LAeq (dBA)	
	Day time 07:00 – 22:00	**Night time 22:00 – 07:00**
Residential; institutional; educational	55	45
Industrial, commercial	70	70

Emissions to the Atmosphere

	National Standards / Requirements	**Adopted Project Standard**			**Rationale**
General atmospheric pollutants	Tajikistan standards for emissions where relevant TAJ standards exist	IFC Environmental, Health, and Safety General Guidelines (or IFC PS)	IFC Environmental, Health, and Safety Guidelines for Onshore Oil and Gas Development		
Emissions of ozone depleting substances	No relevant numeric standard	No relevant numeric standard (*Although 'no new systems or processes should be installed using CFCs, halons, 1,1,1-trichloroethane, carbon tetrachloride, methyl bromide or HBFCs'*)	No relevant numeric standard.	Consistent with applicable international conventions apply the principle that the will be no utilisation of ozone depleting substances (halons, PCBs, CFCs, HCFCs) and IFC	Good practice
GHG emissions	No relevant numeric standard		No relevant numeric standard	Numeric standards do not apply. GHG will be quantified and reported annually if >25,000 tonnes CO_2 equivalent per year are expected (as per IFC PS3, 2012)	Most relevant

Environmental Standards for Ambient Air

Tajikistan standards[13] (mg/m^3)		IFC/World Bank	IFC EHS GL	Adopted Project Standard (mg/m^3)		Rationale
PM 0.15 NO 0.06, NO_2 0.04 SO_2 0.05 Ammonia 0.06 Benzopyrene 0.1 Benzene 0.1 Acetone 0.35 Petrol 1.5 V_2O_5 0.002 Vinyl acetate 0.15 HCl 0.2 HF 0.005 Fe_2O_3 0.04 HNO_3 0.4 H_2SO_4 0.1 Xylol 0.2 Mn & its oxides 0.001 Copper oxides 0.002 Magnesia 0.05 Nickel oxide 0.001 Inorg dust (SiO_2 70 %) 0.05	SiO_2 = 70 % - 20 % 0.1 SiO_2 < 20 % 0.15 Pb & compounds 0.0003 PbS 0.001 H_2S 0.008 Turpentine 1 Ethanol 5.0 Butanol 0.1 Propanol) 0.3 Methanol 0.5 Styrene 0.003 Soot 0.05 CO 3.0 Phenol 0.01 Formaldehyde 0.003 Fluoride (HF, SiF4) 0/05 Freon (all brands) 10 Chromium trioxide 0.0015 Cl 0.03 ZnO 0.05 Ethylene oxide 0.03	Where set, national air quality standards apply. If no national standards are set then apply WHO standards WHO guidelines, µg/m^3: $PM_{2.5}$ 10 (1 yr) $PM_{2.5}$ 25 (24 h) PM_{10} 20 (1 yr) PM_{10} 50 (24 h) Ozone 100 (8 h) NO_2 40 (1 yr) NO_2 200 (1 hr) SO_2 20 (24 h) SO_2 500 (10 min)	Emission concentrations as per General EHS Guidelines, and: H_2S: 5 mg/Nm^3	PM 0.15 NO 0.06 NO_2 0.04 SO_2 0.05 CO 3.00 Ammonia 0.06 Benzopyrene 0.1 Benzene 0.1 Acetone 0.35 Petrol 1.5 V_2O_5 0.002 Vinyl acetate 0.15 HCl 0.2 HF 0.005 Fe_2O_3 0.04 HNO_3 0.4 H_2SO_4 0.1 Xylol 0.2 Mn & its oxides 0.001 Cu oxides 0.002 Magnesia 0.05 Ni oxide 0.001 Inorganic dust (SiO_2 70 %) 0.05	SiO_2 = 70 % - 20 % 0.1 SiO_2 < 20 % 0.15 Pb & its compounds 0.0003 PbS 0.001 H_2S 0.008 Turpentine 1 Ethanol 5.0 Butanol 0.1 Propanol 0.3 Methanol 0.5 Styrene 0.003 Soot 0.05 Phenol 0.01 Formaldehyde 0.003 Fluoride (HF, SiF4) 0/05 Freon (all brands) 10 Chromium trioxide 0.0015 Chlorine 0.03 ZnO 0.05 Ethylene oxide 0.03	Tajikstan standard supplemented by WHO where needed to achieve most comprehensive suite[14]

Human population protection (at receptors)

Water Quality and Discharges to Water

[13] Annex 3 to Procedure of Environemntal Impact Assessment accepted by Resolution No 464 of the Government of the Republic of Tajikistan dated 3 october 2006

[14] The IFC cites WHO ambient air quality guidelines typically apply only in jurisdictions where there are no national standards in place.

Topic	Tajikistan	IFC Environmental, Health, and Safety General Guidelines	**Adopted Project Standard**	**Rationale**
Effluent water discharged to surface water	List of MPC quality of water at surface water bodies (Requirements to water quality in fishery water bodies)[15] pH 6.5-8.5 Aluminium (Al) 0.04 Iron (Fe) 0.1 Cadmium (Cd) 0.005 Copper (Cu) 0.001 Nickel (Ni) 0.01 Lead (Pb) 0.006 Zinc (Zn) 0.01 Chromium (Cr^{+6}) 0.02 Chromium (Cr^{3+}) 0.07 Oil and petrochemicals 0.05 Arsenic (As) 0.05 Calcium (Ca) 180 Silicon (SiO_3^{2-}) 1.0	Temperature of wastewater prior to discharge does not result in an increase greater than 3°C of ambient temperature at the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use and assimilative capacity among other considerations. For treated sanitary wastewater: pH 6-9 BOD 30 COD 125 Total nitrogen 10 Total Phosphorus 2 Oil and grease 10 TSS 50 Total coliform bacteria 400/100ml	pH 6.5-8.5 *BOD 30* *COD 125* *Total Nitrogen 10* *Total Phosphorus 2* *TSS 50* Total Coliform bacteria 400/100 ml Aluminium (Al) 0.04 Iron (Fe) 0.1 Cadmium (Cd) 0.005 Copper (Cu) 0.001 Nickel (Ni) 0.01 Lead (Pb) 0.006 Zinc (Zn) 0.01 Chromium (Cr^{+6}) 0.02 Chromium (Cr^{3+}) 0.07 Oil and petrochemicals 0.05 Arsenic (As) 0.05 Calcium (Ca) 180 Silicon (SiO_3^{2-}) 1.0	Tajik MPC as most stringent standard supplemented by IFC where needed for comprehensive suite
Freshwater water quality	List of MPC above (mg/l)	No numeric standards	Tajik MPC for surface water bodies	Tajik is only relevant standard

MPC = maximum permissible concentration.

Drinking Water Standards

DRINKING WATER GENERAL ANALYSIS CONTENT AND LIMITS					
Parameter	**Units**	**Tajikistan Standard[5)]**	**WHO Standard**	**EU Standard[3]**	**Project Standard [16] (mg/l unless stated otherwise)**
Physical Quality					

[15] Annex 3 to Procedure of Environmental Impact Assessment accepted by Resolution No 464 of the Government of the Republic of Tajikistan dated 3 October 2006 ..

[16] Project standard represents most stringent for each parameter

DRINKING WATER GENERAL ANALYSIS CONTENT AND LIMITS						
Parameter	**Units**	**Tajikistan Standard[5)]**	**WHO Standard**	**EU Standard[3]**	**Project Standard [16] (mg/l unless stated otherwise)**	
pH	---	6-9	6–9	6.5-9.5	TS	6-9
Total Dissolved Solids	mg/l	1000	---		TS	1000
Hardness	Mg-eqv/l	7.0	---		TS	7.0
Turbidity	EMF (formasine) or mg/l (caoline)	1.5	---	Acceptable to consumers and no abnormal change	TS	1.5
Inorganic Chemical Quality						
Aluminium (Al)	mg/l	0.5	---	0.2	EU	0.2
Ammonium ion (NH_4)	mg/l		---	0.5	EU	0.5
Antimony (Sb)	mg/l	0.05	0.02	0.005	EU	0.005
Arsenic (As total)	mg/l	0.05	0.01	0.01	EU	0.01
Barium (Ba)	mg/l		0.7	---	TS	0.7
Beryllium (Be)	mg/l		---	---	TS	
Boron (B)	mg/l		0.5	1.0	WHO	0.5
Cadmium (Cd)	mg/l	0.001	0.003	0.005	TS	0.001
Chloride ion (Cl^-)	mg/l	350	---	250	EU	250
Chlorine (Cl)	mg/l	0.3-0.5 (free) 0.8-1.2 (bounded)	5	---	TS	0.3-0.5 (free) 0.8-1.2 (bounded)
Chromium (Cr^{+6}) (Cr^{+3})	mg/l	0.05 0.5	0.05	0.05	TS	0.05 0.5
Copper (Cu)	mg/l	1.0	2	2.0	TS	1.0
Cyanide (CN)	mg/l		0.07	0.05	EU	0.05
Fluoride ion ($F^=$)	mg/l		1.5	1.5	EU	1.5
Hydrogen Sulphide (H_2S)	mg/l		---	---	TS	

DRINKING WATER GENERAL ANALYSIS CONTENT AND LIMITS						
Parameter	**Units**	**Tajikistan Standard[5)]**	**WHO Standard**	**EU Standard[3]**	**Project Standard [16] (mg/l unless stated otherwise)**	
Iron (Fe)	mg/l	0.3	---	0.2	EU	0.2
Lead (Pb total)	mg/l	0.03	0.02	0.01	EU	0.01
Manganese (Mn)	mg/l		0.4	0.05	EU	0.05
Mercury (Hg)	mg/l		0.001	0.001	EU	0.001
Molybdenum (Mo)	mg/l		0.07	---	WHO	0.07
Nickel (Ni)	mg/l	0.1	0.02	0.02	EU	0.02
Nitrate ion (as NO_3^-)	mg/l	45	50	50	TS	45
Nitrite ion (as NO_2^-)	mg/l		3 or 0.2	---	TS	3.0
Phosphate ion (PO_4^{2+})	mg/l	3.5	---	---	TS	3.5
Selenium (Se)	mg/l		0.01	0.01	TS	0.01
Silicon (Si)	mg/l	10	----	----	TS	10
Silver (Ag)	mg/l		---	---	TS	0.05
Sodium (Na)	mg/l		---	200	TS	200
Sulphate ion (SO_4^{2+})	mg/l	500	---	250	EU	250
Strontium (Sr)	mg/l		---	---	TS	---
Uranium (U)	mg/l		0.015	---	WHO	0.015
Vinyl Chloride (C_2H_3Cl / H_2C)	mg/l		0.0003	0.0005	WHO	0.0003
Zinc (Zn)	mg/l	5.0	---	---		5.0
Other quality parameters						
Petrochemicals	mg/l	0.1		0.1-5	TS	0.1
Sufactants (anionic)	mg/l	0.5		----	TS	0.5
COD	mg/l	----		150-400	EU	150-400

DRINKING WATER GENERAL ANALYSIS CONTENT AND LIMITS						
Parameter	**Units**	**Tajikistan Standard[5)]**	**WHO Standard**	**EU Standard[3]**	**Project Standard [16] (mg/l unless stated otherwise)**	
Permanganate oxizability	mg/l	5		----	TS	5
Specific electrical conductivity	$2x10^{-3}$			----	TS	$2x10^{-3}$

Selected GOST (Russian: ГОСТ) Technical Standards

31431—2011. Protection of nature. Air. Set of Maximum Allowable Emissions (MAE). 29 November 2011

31434—2011 Protection of nature. Air. Determination of parameters of efficiency of dust collection systems. 29 November 2011

IEC 61241-0—2011 Electrical equipment used at areas containing flammable dust. Part 0. General requirements. 29 November 2011

GOST 17.0.0.01-76 (ST SEV 1364-78) (in edition of 1987) System of standards for environmental protection and improvement of natural resources usage. General provisions

General provisions GOST 17.0.0.04-80 (1998) Protection of nature. Environmental passport (certificate) of industrial facility. General provisions

GOST R ISO14001-98 Environmental management systems. Requirements and guidelines.

GOST 17.0.0.02-79 (1980) Protection of nature. Provision of metrological control of air, surface water and soils pollution.

GOST 17.1.1.01-77 (ST SEV 3544-82) Usage and protection of water. General terms and definitions.

GOST 17.2.1.01- 76 Classification of emissions (content).

GOST 12.1.014-84 (1996) SSBT. Air at workplace. Methodology of measuring of pollutants concentration using indication tubes.

GOST 12.1.005-88 (1991) SSBT. General sanitary and hygiene requirements to air at workplace.

GOST 17.2.2.05-97 Norms and methods of emissions measuring containing spent diesel gases, tractors and self-propelled agricultural machines.

GOST 21393-75 Diesel motorcars. Exhaust gas opacity. Norms and methods of measurement.

GOST 17.2.2.03-77 Concentration of carbon monoxide at exhaust gases of motorcars with gasoline engines. Norms and measurements methodology.

GOST 17.2.2.03-87 Norms and methods of measurements of carbon monoxide at exhaust gases of motorcars with gasoline engines.

GOST 17.4.2.01-81 Nomenclature of sanitary condition parameters

GOST 17.4.1.02-83 Classification of chemical substances for monitoring of contamination.

GOST 12.1.003-83 (1991) SSBT. Noise. General safety requirements

GOST 12.1.023-80 (1996) SSBT. Noise. Methods of threshold noise levels for stationary machinery.

GOST 12.1.029-80 (1996) SSBT. Means and methods of noise protection. Classification.

GOST 12.1.036-81 (1996) SSBT. Noise. Allowable levels of noise within residential and public buildings.

GOST 12.1.007-76 (1999) SSBT. Harmful substances. Classification and general safety requirements.

GOST 12.4.119-82 SSBT. Means of respiratory PPE. Methods of protective features assessment for aerosols.

GOST 12.4.125-83 (1985) SSBT. Means of collective protective equipment from mechanical factors. Classification.

SanPiN 2.1.4.559-96 Drinking water. Hygienic requirements to the quality of water from centralised systems of drinking water supply. Quality control

CH 2.2.4/2.1.8.562-96 Noise at working places, indoors of residential and public buildings and the territories of residential areas

ANNEX 2: Standard Construction Contract Environmental Safeguard Clauses

Environmental Protection and Control of Pollution

General

The Contractor shall observe and comply with all National Laws, Government Regulations, Presidential Decrees, and Ministerial Regulations pertaining to environmental protection, pollution control, waste management, and biodiversity protection. In conducting his/her construction activities, the Contractor shall take all necessary precautions to minimize environmental disturbance to the project area and surroundings and to prevent the escape of polluting substances into streams, water courses, and ground water. The Contractor shall also utilize all necessary practicable methods and devices as are available to prevent and otherwise minimize atmospheric emissions or discharges of air contaminants.

Except where otherwise agreed or provided for by the Employer or expressly stipulated in Particular Specifications or Technical Specifications forming part of the Contract Documents, no separate payment will be made for complying with the provisions of this Clause and attendant sub-clauses; and all costs shall be deemed to be included in the prices for the Contractor's mobilisation for construction, and the various rates and lump sum items for the works included in the priced Bill of Quantities.

Pollution of Water Courses and Streams

The emission of polluting liquids or other waste into drains, water courses, or ground water shall not be permitted.

Storage of fuels, fuelling and maintenance of plant and vehicles, etc. shall take place only on sites and under conditions that that do not allow spilt fuels to be discharged to water bodies. Fuel storage and fuelling areas shall be equipped with adequate protective measures to confine and retain accidental spillages. No drainage from fuel store and plant maintenance depots shall be allowed to be discharged without passing through an adequate arrangement of oil traps and separators.

Washing of vehicles shall not be permitted in streams but only in specially designated and equipped areas.

Adequate sanitary waste control facilities shall be provided in site offices and workers camps, and sewage waste shall be collected regularly and disposed in accordance with relevant environmental legislation.

The Contractor shall accordingly be responsible for the installation, operation and maintenance of a comprehensive drainage system to all areas of the Works. The system shall be constructed such that no discharges of oil, cement, silt or other liquid or solid waste matter can enter the streams and water courses at the site; and it shall have all necessary solid waste and sediment traps, settling ponds, oil separators, etc., required to ensure that pollution of streams watercourses and natural bodies of water does not occur. The Contractor shall be responsible for maintaining the system to the satisfaction of the Employer's Construction Supervisor and all costs of providing the system shall be deemed to be included in the various rates and lump sum items for the works included in the priced Bill of Quantities.

Air Pollution

The Contractor shall take all necessary steps to minimize air pollution resulting from his/her operations.

Except where stipulated in these Specifications for the disposal of natural vegetation and organic materials from clearing operations, the burning of waste materials for disposal, particularly oil and petroleum wastes, rubber, plastics and similar materials will not be permitted.

During the performance of the work required under the Contract or of any operations appurtenant thereto, whether on the Project Site or elsewhere, the Contractor shall take all steps necessary, and shall furnish all labor, equipment, materials and means, required to reduce dust nuisance from the Works, and to prevent dust originating from his/her operations from causing a nuisance to persons. The Contractor shall be held liable for any damage resulting from dust originating from his operations including on Government roads, rights-of-way or elsewhere.

The emission of dust into the atmosphere shall not be permitted during the manufacture, handling and storage and handling of cement and of concrete aggregates, and the Contractor shall use such methods and equipment as are necessary for the prevention, or the collection and disposal, of dust during such operations. All truckloads of loose materials shall be covered during transportation

The cost of spraying water on haul roads, access roads, government roads, aggregate stockpiles, etc.; or of any other methods of reducing the formation of dust; and the cost of furnishing and applying materials to maintain the works areas, adjacent areas, and roads, in a dustless condition, shall be deemed to be included in the various rates and lump sum items for the works included in the priced Bill of Quantities.

Noise Pollution

The Contractor shall take all necessary precautions to minimize the amount of noise and vibrations coming from construction activities.

The Contractor shall ensure that all plant and equipment is properly maintained in good operating condition, and that noisy construction activities shall be effectively sound reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means, to avoid disturbance to any nearby noise sensitive receivers. All plant and equipment shall comply with relevant Government legislation covering sound emissions.

Operation of trucks and heavy vehicles and machinery shall be restricted to the hours of 06:30 to 19:00.

Damage to Property

The Contractor shall limit the movement of his/her employees and equipment within the project area and on adjacent land, including access routes approved by the Employer's Construction Supervisor, so as to minimize damage to property, and shall endeavor to avoid any damage to land.

The Contractor shall preserve existing trees, plants and other vegetation that are to remain within or adjacent to the Works and shall use every precaution necessary to prevent damage or injury thereto. Trees or shrubs shall only be felled or removed where such impinge directly on the permanent works or necessary temporary works areas; and where such is approved by the Employer's Construction Supervisor.

On completion of the Works all areas disturbed by the Contractor's construction activities shall be restored by the Contractor to their original condition, or as may be acceptable to the Employer.

The Contractor shall be responsible directly to the Employer for any excessive or unnecessary damage to lands arising from his/her operations, whether within the project area, on lands adjacent thereto, or adjacent to approved access roads: and deductions will be made from the payment due to the Contractor to cover the cost of such excessive or unnecessary damage, as determined by the Employer.

Reporting

The Contractor shall maintain a record of all emissions and spills of liquid, solid and gaseous matter which occur at the site, whether into water courses, streams, on land, or into the air. This record shall be compiled daily and shall include details of date, time and nature of the event, along with details of the remedial and clean-up measures carried out.

Copies of these records shall be given to the Employer monthly.

The Contractor shall also maintain a record of any complaints made by any Governmental or Community Organization or by the public, regarding his/her operations. This record shall contain the date and time of receipt of the complaint, the name and address of the complainant and the action taken to remedy the situation. Copies of these records shall be given to the Employer monthly.

Environmental Management Plan

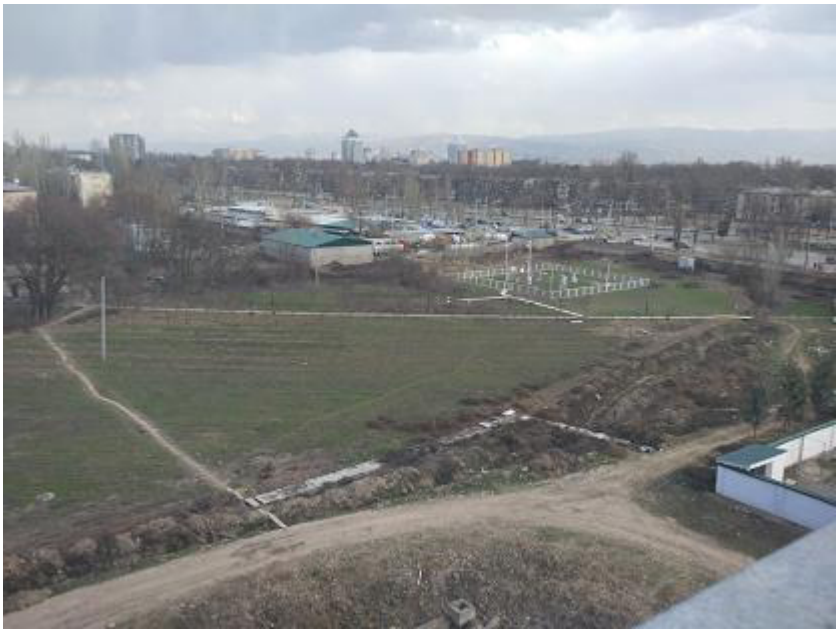
The requirements of this clause and attendant sub-clauses on Environmental Protection and Pollution Control notwithstanding; the Contractor shall observe and comply with all relevant environmental protection and mitigation, monitoring, and reporting requirements in the Environmental Management Plan (EMP) as stipulated in the Particular Specification. In the event of any conflict between the foregoing sub-clauses and the environmental protection and mitigation measures and pollution control requirements of the EMP, the EMP shall take precedence.

The Contractor shall prepare and submit to the Employer's Construction Supervisor a Site Specific Construction Environmental Management and Monitoring Plan (SSEMP) demonstrating the manner in which the Contractor will comply with the requirements of the foregoing sub-clauses on Environmental Protection and Pollution Control, the EMP, and any particular environmental mitigation measures as stipulated in the Particular Specifications or Technical Specifications forming part of the Contract Documents.

The SSEMP shall be submitted within 15 working days of the Contractor receiving the Notice to Proceed with the Works, and shall include a waste management plan detailing procedures for waste management for the site covering all solid, liquid and gaseous waste materials and emissions. The waste management plan shall include procedures for the collection and disposal of all waste materials in such a way as to ensure that no damage is caused to the environment. Training shall be provided to workers about the appropriate implementation of the CEMP and waste management plan measures.

Where stipulated in the Particular Specifications or Technical Specifications forming part of the Contract Documents, and provision has been made in the Bill of Quantities; payment for the implementation of the SSEMP will be made in accordance with the Unit Rates, Lump Sum or Provisional Sum Items included in the Priced Bill of Quantities.

ANNEX 3. Project area views



Area of future project campus

Some premises in process of construction by Hydromet agency (government budget)

Access road to the campus used for transportation of construction materials

Some premises in process of construction by Hydromet agency (government budget)

Wastes near the constructing buildings

Annex 4. LAND USE CERTIFICATE for Hydromet building site

Замин дар Чумхурии Точикистон моликияти истисноии давлат буда, давлат истифодаи самаранокии онро ба манфиати халк кафолат медихад.

Заминистифодабарандагон хукук доранд:

мустакилона дар замин хочагидорй намоянд;

моликй кишту махсулоти кишоварзй ва даромади фурўши он бошанд;

бо дарназардошти талаботи Кодекси замини Чумхурии Точикистон манзил, иншооти истехсолй, маданию маишй ва дигар иншоотро бунёд намоянд.

Заминистифодабарандагон ўхдадоранд:

заминро мувофики максад ва шартхои муайяншуда истифода баранд;

замини додашударо самаранок истифода баранд ва аз технологияи барои хифзи табиат пешбинишудаи истехсолот истифода намуда, ба бад шудани вазъи экологии махал дар натичаи фаъолияти хочагидорй рох надиханд;

сари вакт андоз ва ичорапулии заминро супоранд;

хукуки дигар заминистифодабарандагонро вайрон накунанд;

маълумоти дар конуни замин мукарраргардидаи оиди вазъу истифодаи заминро сари вакт ба макомоти дахлдори хокимияти ичроия пешниход намоянд.

(Аз кодекси замини Чумхурии Точикистон)

Дарачаи А № 015979

Сертификати хукуки истифодаи заминро ба истифодаи

Кумитаи замини Чумхурии Точикистон дар асоси карори Хукумати

аз « » с. №

дар он хусус дод, ки ба заминистифодабарандаи мазкур гектар замин дар худудхои мувофики накшаи заминистифодабарй мукаррартардида вобаста карда шуд.

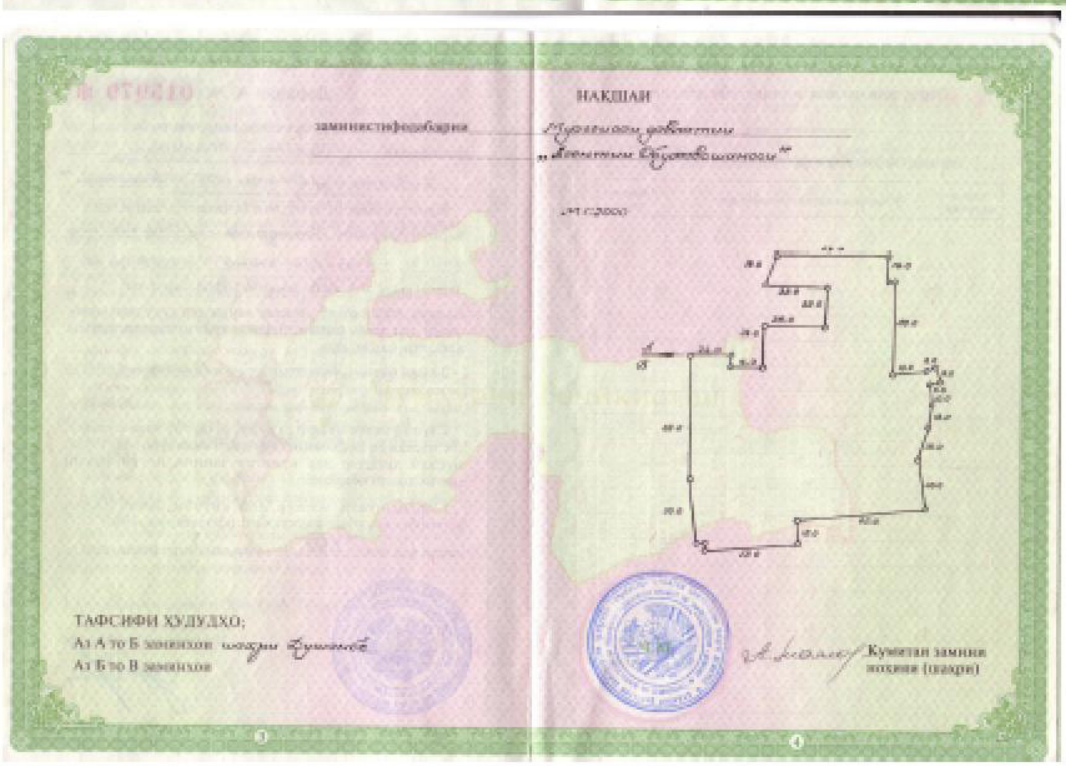
Замин барои

дода шуд.

Сертификати мазкур аз ду нусха тартиб дода шудааст. Як нусхаи он ба заминистифодабаранда супорида шуда, нусхаи дигараш дар кумитаи замини нохия (шахр) нигох дошта мешавад.

Сертификати мазкур дар китоби бакайдгирии сертификатхо барои хукуки истифодабарии замин тахти раками ба кайд гирифта шуд.

Кумитаи замини Чумхурии Точикистон



НАКШАИ

заминистифодабарии

ТАФСИФИ ХУДУДХО:

Аз А то Б заминхои

Аз Б то В заминхои

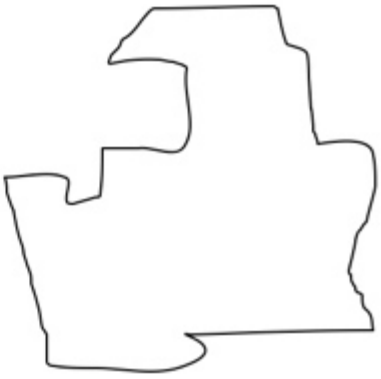
Кумитаи замини нохияи (шахри)

Land in the Republic of Tajikistan is the exclusive property of the State and the State guarantees its effective use for the benefit of the people. Land users have the following rights: To exercise the land economic management independently; To be owner of the agricultural crops, yields and incomes gained from their sales; To construct dwellings, production, cultural and community facilities and other structures in accordance with the requirements of the Land Code of the Republic of Tajikistan; Land users are are obliged: To use the land according to the assigned purposes and provisions; To use the land effectively and according to the technologies and practices envisaged for the nature protection and to allow environmental deterioration of the location as he result of the economic activities; To pay land taxes and rental fees timely; Not to violate the right of other land users; To submit the information provided in the Law on Land regarding the conditions and use of land to the appropriate executive bodies in assigned time. (Extract from the Land Code of the Republic of Tajikistan)	Decree A No. 015979 * This Land Use Certificate has been issued **for *termless use*** *(termless, for a term indicating the fixed term)* ***to the State Institution of "Agency of Meteorology "*** *(for life inheritance, name of land users)* *By the Land Committee of the Republic of Tajikistan according to decision of the **Authorities /Hukumat/ of the Executive Committee of the City of Stalinabad*** ***_____ dated June 29,1999, No.18*** On the subject that the area of ***15533.0m²*** ha of lands has been provided to this Land User within the territory specified in the Land Use Layout. *The Land has been allocated for **Agency of Meteorology*** _____ *(Purpose of the assignment)* _____ This Certificate has been made in two copies. One of the copies will be handed over to the Land user and another one will be kept in the Land Committee of the district (city). This Certificate has been registered in the book of registration of the Land Use Certificates under **No.3148** /SEALED/ Land Committee of the Republic of Tajikistan /Signature/

LAYOUT

Land use of ***the State Institution***
"Agency of Meteorology"

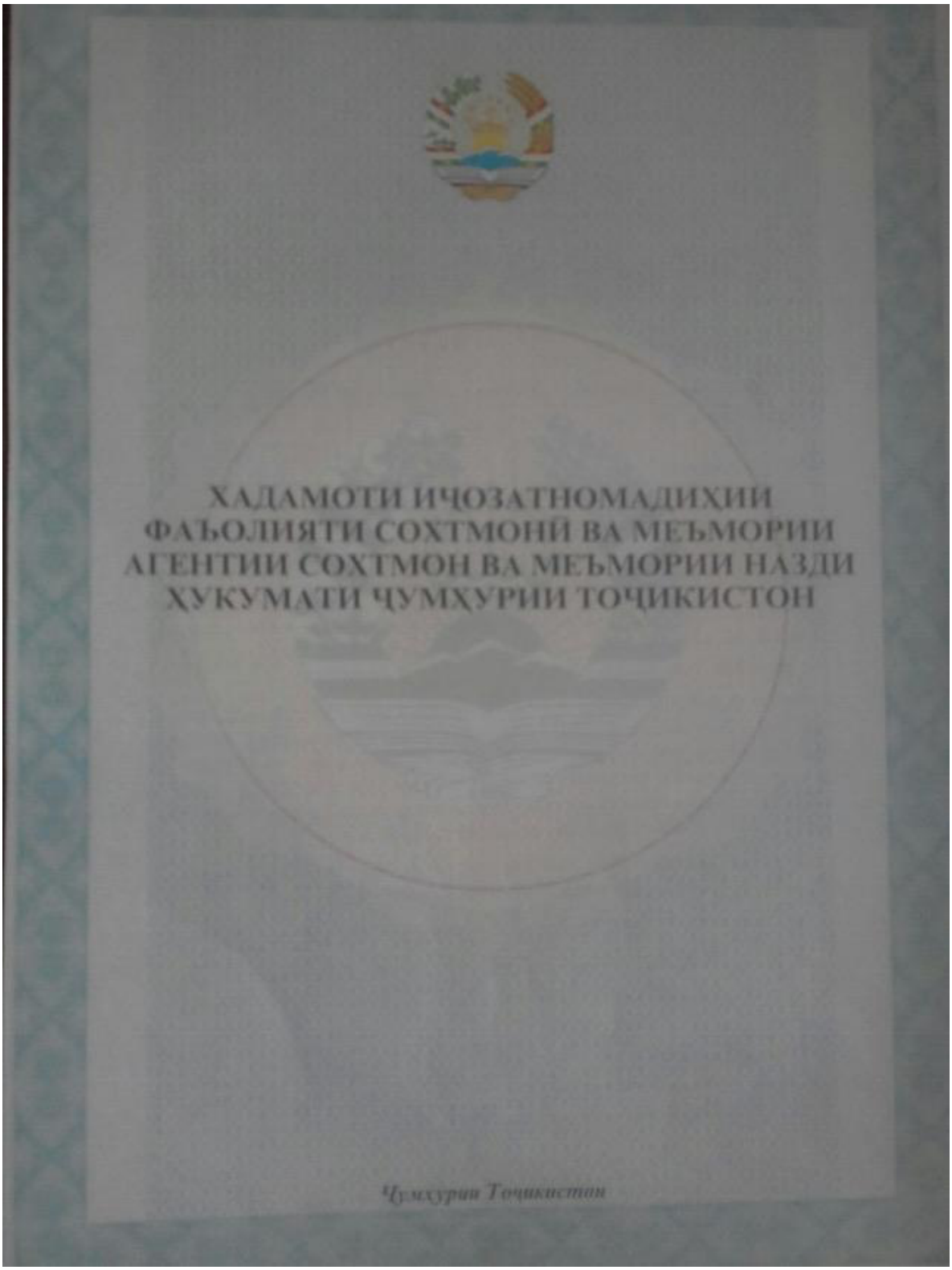
Scale: 1:2000



DESCRIPTION OF LIMITS:
From A to B –Lands of ***the city Dushanbe***
From B to C- Lands of....

/SEALED/ /Signature/ Land Committee of the district (City)

Annex 5. Building Permit – COEP



ХАДАМОТИ ИҶОЗАТНОМАДИҲИИ
ФАЪОЛИЯТИ СОХТМОНӢ ВА МЕЪМОРӢ
АГЕНТИИ СОХТМОН ВА МЕЪМОРИИ
НАЗДИ ҲУКУМАТИ ҶУМҲУРИИ ТОҶИКИСТОН

ИҶОЗАТНОМА

Силсила ДБ-I №0001179

Дода шуд ба Кумитаи Ҳифзи Муҳити Зисти назди Ҳукумати Ҷумҳурии Тоҷикистон

Оид ба фаъолияти ____________________ *(мувофиқи илова)*

Шакли моликият давлатӣ

Суроғаи ҳуқуқӣ ё маҳалли ҷойгиршавӣ Ҷумҳурии Тоҷикистон, шаҳри Душанбе, ноҳияи Сино, кӯчаи ба номи Шамси 5/1

Рақами ягонаи мушаххас ____________________

Рақами мушаххаси андозсупоранда 020009496

Шартҳои фаъолияти мазкур дар Қонуни Ҷумҳурии Тоҷикистон таҳти № 37 аз 17 майи соли 2004 «Дар бораи иҷозатномадиҳӣ ба баъзе намудҳои фаъолият» ва «Низомнома дар бораи хусусиятҳои иҷозатномадиҳӣ ба баъзе намудҳои фаъолият» (дар таҳрири нав), ки бо Қарори Ҳукумати Ҷумҳурии Тоҷикистон аз 03 апрели соли 2007 таҳти № 337 тасдиқ шудааст, пешбинӣ шудааст.

Иҷозатномаи мазкур дар асоси Қарори Комиссияи иҷозатномадиҳӣ аз «30» апрели соли 2013 таҳти № 4 дода шудааст.

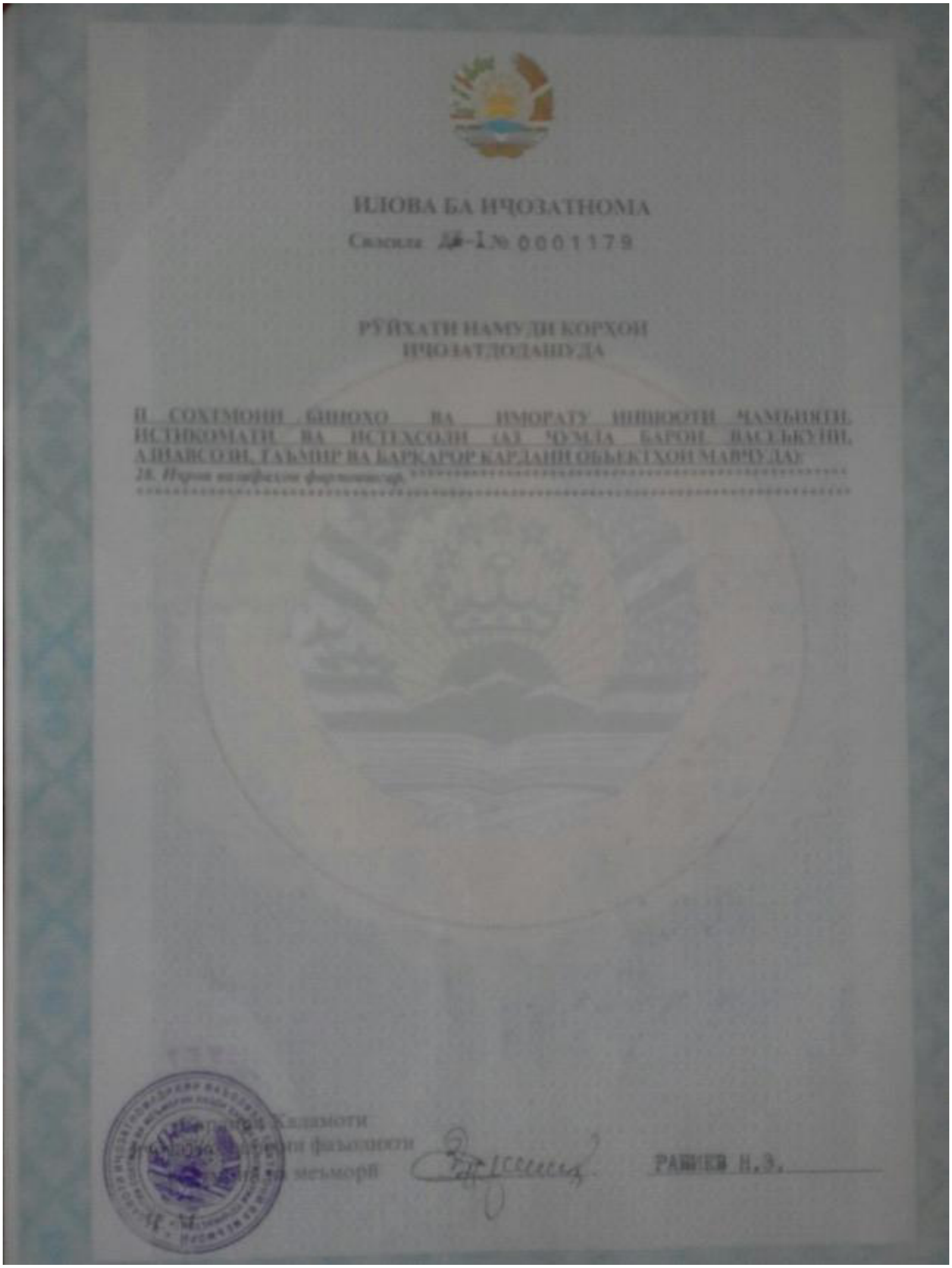
Мӯҳлати амали иҷозатнома 5 сол то «30» апрели соли 2018.

Мӯҳлати амалаш дар асоси Қарори Комиссияи иҷозатномадиҳӣ № ___ аз «__» _____ соли 20___ дароз карда шуд, то «__» _____ соли 20___

Хадамоти
...и фаъолияти
...меъморӣ

РАБИЕВ Н. З.

Иҷозатнома бе илова эътибор надорад.



ИЛОВА БА ИҶОЗАТНОМА

Силсила ДБ-I № 0001179

РӮЙХАТИ НАМУДИ КОРҲОИ
ИҶОЗАТДОДАШУДА

II. СОХТМОНИ БИНОҲО ВА ИМОРАТУ ИНШООТИ ҶАМЪИЯТИ, ИСТИҚОМАТИ ВА ИСТЕҲСОЛИ (АЗ ҶУМЛА БАРОИ ВАСЕЪКУНИ, АЗНАВСОЗИ, ТАЪМИР ВА БАРҚАРОР КАРДАНИ ОБЪЕКТҲОИ МАВҶУДА):
28. Иҷрои вазифаҳои фармоишгар. **

Хадамоти
фаъолияти
меъморӣ

РАШИЕВ Н.Э.

Annex 6
Due diligence report

of the conducted construction activities at site, proposed for construction of Hydrometeorology administration buildings

I. Description of the Project

1. The project expected to be implemented with additional financing component of Resources Management in the Pyanj River Basin (PRB) Project. While the Water Resources Management in the Pyanj River Basin Project deals with improved institutional and physical water resources management (WRM) capacities in the PRB of the Republic of Tajikistan by establishing a PRB organization, council, and Joint PRB committee, modernizing and climate-proofing the Chubek Irrigation System (CIS), and improving farm and water use management capacities, the additional financing deals with institutional transformation of the Agency of Hydrometeorology.

2. The proposed additional financing component of Hydromet includes three outputs: (i) Water resources and disaster risks in PRB better managed using early warning and flood forecasting; (ii) Modernized and climate-proofed CIS WRM and Hydromet infrastructure fully operational; and (iii) Management capacity, water use and monitoring skills improved at farm and institutional level. The physical components are related to output (ii) and comprise the following:

a. Completion of building of the main office of the Agency of Hydrometeorology (Building 1) ;
b. Building supplementary buildings comprising laboratory, auditorium and exhibition space (Buildings 2, 3, and 4); and
c. Building of 2 residential buildings (Buildings 5 and 6).

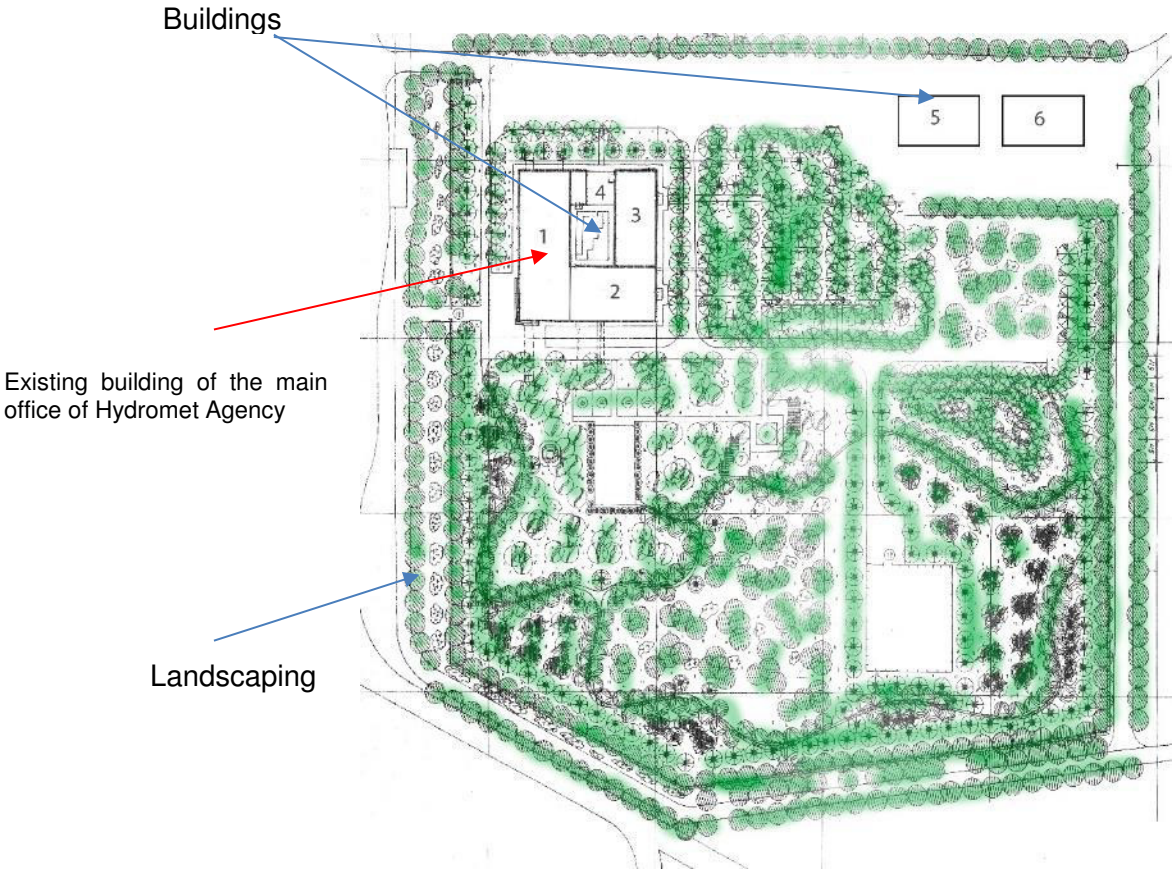


Figure. Scheme of Campus of Agency of Hydrometeorology

3. The project area is located in the west part of Dushanbe (coordinates:38º34'11.55"N - 68º44'31.78"E) within the territory of the city, in Sino District of Dushanbe. This site is an Agency owned site, located in an urban area in which similar buildings have been erected or under construction and for which the building construction permit has been issued in the name of the Committee of Environmental Protection (CEP). Following sensitive receptors are detected in the project area:

a) Residential houses: 1 nine-floor and 1 four-floor house is located at the distance of 80 m from the north side of the Project site.
b) 1 four-floor house is located at the distance of 60 m from the east side of the Project site.
c) Schools: Two schools located near the site – School number 84 at the distance of 600 m and School number 92 at the distance of 1050 m of the Project site
d) Old cemetery located in distance of 500 m of the Project site

II. Description of existing facility under construction

4. The building of the Agency administration (Building 1) is already erected. This is a six-floor building that is built under skeleton system with walls from aircrete blocks. The job already done on building 1:

a) Poured concrete pad and
b) Poured skeleton of the building
c) Completed construction of the walls
d) Completed construction of roof
e) Partially completed pipe works.

The architectural design of Administrative building (Building 1)

Partially completed Administrative building (Building 1)

III. Description of environment

Physical Environment

5. **Topography:** The buildings is located in Dushanbe, the altitude of 706 meters above sea level (masl). The soil in building area is - Grey sierozems

6. **Climate conditions** where the buildings located are characterized by dry climate, with hot dry summers and cool, winters. The cold period lasts 110-190 days, the warm period - 260-140 days. The climate don't affects the construction season.

7. **Air quality** is generally acceptable with all parameters measured in 2015 within the maximum acceptable limits set by Government. Proposed works here will have minor and temporary effect due emissions from tracks bringing the materials for construction works and excavators which will be used for earth works. The impacts can be easily mitigated in frame of existing EMP/SSEMP developed for these projects.

8. **Noise** from construction works may be main issue because the site is located near to the residential houses. Noise mitigation measures are included in the environmental management plan to ensure construction and operational vibration does not escalate to unacceptable levels.

9. **Soil contamination** is not a concern in the areas around the construction site at present and soil contamination should not be a problem in construction or operation. Mitigation measures are included in the environmental management plan to control any residual effects (spills, cement usage).

10. **Solid waste disposal** in construction or operation will be controlled by mitigation measures included in the environmental management plan.

11. **Water pollution** is not a big concern in the area of proposed construction works. Mitigation measures are included in the environmental management plan to control any residual effects.

Ecological resources

12. **Flora and fauna**. No important, rare, endangered, or protected species of flora and fauna are found within the vicinity of the construction site. No impact on biodiversity is expected from proposed construction works. Relevant mitigation measures related to pollution of waters in regards to aquatic fauna are included to existing EMP/SSEMP developed for the project.

Impacts of the work done

13. Impacts due to construction activities in period from 2012 to 2017 were associated with pollution from wastes, noise, dust, and air pollution, oil, and fuel spills, health hazards and labor

safety issues. Part of construction wastes were not taken from the site and disposed at relevant landfill.

Wastes near the constructing buildings

Noise impacts during the construction works were mitigated by restriction of working hours from 8 a.m.to 22 p.m. Dust during the excavation and earth works were mitigated by spraying water of the area of construction site and no complaints were received from the residential houses because area where Building 1 was constructed is rather far from the residential houses. Project site is already fenced. No spills of fuel could be seen at the area and access road to the site.

No accidents or other problems dealing with health and safety issues with workers were reported (confirmed by representatives of Hydromet Agency).

No impacts on local vegetation and loss of flora and fauna were occurred.

IV. Grievance redress mechanism

14. Environmental conditions during construction are the responsibility of the contractor. To make a claim, an affected person provides the detailed claim to the Contractor or PMO Construction Department as soon as possible after the event; the Contractor/PMO are obliged to notify the insurer, who contact the claimant to investigate causes, assess damages, and determine if the claim is justified. If part or the entire claim is denied, the Contractor or PMO may accept liability, or the claimant may take legal action. Other environmental concerns may be raised with the Contractor or PMO Construction Department. The Contractor and PMO Construction Department will each maintain a registry available for public inspection, that documents each grievance received and all actions taken.

15. According to information of representatives of Hydromet agency no complaints were recorded from residents and other stakeholders during the construction of Building 1 (main office of Hydromet agency) in period from 2012-2017. No grievance redress mechanism was established that time. But Hydromet agency and environmental department of the Dushanbe conducted monitoring of construction activities on regular basis in accordance with national environmental legislation.

V. Conclusions

16. The proposed works involve the construction works which are acceptable environmentally and offers some other advantages.

17. During construction work, the Contractor will take all measures to mitigate the possible adverse effects (such as noise and dust) and the PMO in turn will run strict monitoring of the Contractor's activity for timely undertaking of mitigation measures in line with the accepted EMP/SSEMP. PMO specialists will periodically visit the site during the construction active phase

of works to monitor the environmental impacts and check on the implementation of the EMP/SSEMP.

18. The project will not create any additional impacts on cultural or heritage sites. The proposed project will not create conflicts with natural resource allocation.

19. The construction impacts should be very predictable and manageable and with appropriate mitigation few residual impacts are likely. Implementation of appropriate measures during the design, construction, and operation phases will minimize negative impacts to acceptable levels.

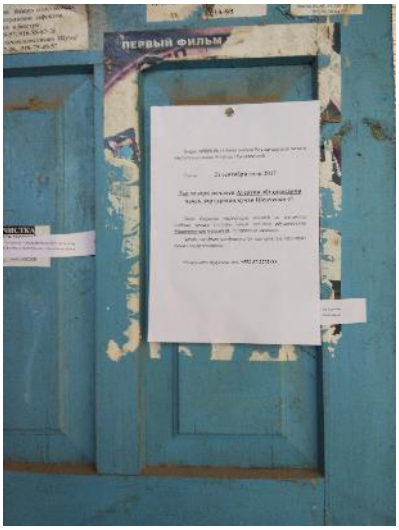
20. To ensure that these mitigation measures are implemented and negative impacts avoided, the measures have already been included in the contract specification. Environmental monitoring of the project will continue to be undertaken regularly through the construction to ensure that the measures are being implemented properly

Annex 7
Public Consultations

1. The Public Consultations have been conducted with the representatives of NGO, construction companies and people from nearby houses of project area, where the construction works is to be implemented. The Public Consultations were held in September 21, 2017 .

2. Announcements of the public consultations were posted in entrance of nearby houses, in mosque and on the placard of housing and communal service of project area, where the construction works is to be implemented. The announcements were posted 10 days before the conduction of consultation were planned.

Announcement placed in on the placard of housing and communal service



Announcement placed in on entrance of nearby house

3. The public consultations were aimed at discussion of planned works on the project, investigation of potential impacts, whether permanent and temporary on various groups under the given planned activities. Since the building works were started an long ago, most of the stakeholders met are well aware of the planned works. The points of inquiry and discussions were people opinion on planned works, time for commencement of works, GRM, etc.

Participants of the Public consultations with representatives of NGO, construction companies and people from nearby houses

Participants of the Public consultations with representatives of NGO, construction companies and people from nearby houses

Discussions on EMP

4. The following Table 7 provides an overview of the meetings.

#	Questions/Comments	Answer
1	When the construction works will start?	Actually the construction works is continuing now, and the start date of construction of other buildings approximately is expected in end of 2018
2	What will be the working hours of the construction site?	In accordance with the norms the working hours for construction sites in residential area is from 8-00 till 23-00
3	Currently there are problems with dust from the construction site, It's makes women have to clean and wash closes every day their houses what increase the house work for them please take mitigations to reduce dust issues.	Comments noted
4	The heavy trucks should use the access road on east of Hydromet campus. Because the access	Comments noted

	road on north of the campus is mostly used by residents of the nearby houses.	
5	Please if it possible build children's playground	Comments noted
6	How long will the Project last?	Approximately two years
7	How complaints will be considered	The GRM will be established for consideration of environmental social complaints. Complaints log will be provided to ensure the rights of people to comment/complain on any concerns

5. From the discussions it was found that local residents have some concerns over noise and dust from construction site as well as movement of heavy trucks along the accees roads. They asked to build children playground area. But it was answered that it is not included to the scope of project works. They also advised to take precautions in the environmental mitigation to avoid impacts anticipated during the construction and operation stage (noise pollution, traffic management, dust etc.) of the project.

Список участников / Рӯйхати иштирокчиён / List of participants

Общественной консультации по отчёту Предварительного экологического исследования Строительство инфраструктуры Агентство по Гидрометеорологии Республики Таджикистан

Конференц зал Агентства по Гидрометеорологии Республики Таджикистан — 21.05.2017

Место проведения / Чои гузаронидани маҷлис / Location — Дата/ Сана/ Date

№	ФИО / Ном / Name, surname	Место проживания / Чои истиқомат	Профессия / Вазифа /Occupation	Подпись/ Имзо/ Signature
1.	Камилова Лариса	г. Душанбе	ОО РФ, Кухистон	
2.	Насриддинов Олим	г. Душанбе	ОО РФ, Кухистон	
3.	Файзизода Комилджон	г. Душанбе		
4.	Джумахонова Манзура	г. Душанбе	Сармутахассиси С.М.И.А.	
5.	Рустамов Алишер	г. Душанбе	Мутахассиси М.А.А	

List of participants

6.	Назаров Музаффар	г. Душанбе	Мутахассиси IT. М.А.А.	
7.	Сафармамадова	г. Душанбе	мутахассиси пешбар. ст. Метеорологи	
8.	Суриева Хакика	г. Душанбе	сармутахассиси шуъбаи робитахои байналмилали.	
9.	Боева Сурайё	г. Душанбе	мутахассиси пешбари пайгохи мониторинги муҳити зист	
10.	Сайфуллоев Н.Н.	г. Душанбе	Мутахассиси гурухи омузиши хавои атмосфера ш. Турсунзода	
11.	Хикматуллоев Н.	г. Душанбе	мутахассиси гурухи [illegible]	
12.	Шарипов Д.Н.	ш. Вахдат	сардори шуъбаи нарасонидан ва [illegible]	
13.	Музафаров И.М	ш. Душанбе		
14.	Саидахмедов С.С	ш Душанбе	ООО Шахнорои зам. директор	

List of participants

N	Name	Occupation
1	Kamilova Larisa	NGO “Kuhiston”
2	Nasirjanov S.	NGO “Kuhiston”
3	Dolulzoda Kh.	Resident of Sino district
4	Jumahonova M.	Senior specialist of the Hydrometeorology agency
5	Rustamov A.	Specialist of the Hydrometeorology agency
6	Nazarov M.	IT specialist of the of the Hydrometeorology agency
7	Safarmamadova L.	Specialist of the Hydrometeorology agency
8	Surieva Kh.	Committee of environmental protection, senior specialist
9	Boeva S.	Specialist of Monitoring Department , Committee of environmental protection
10	Saifulloev N.N.	Specialist for air survey, Department of environmental protection
11	Hikmatulloev N.	Specialist for air survey, Department of environmental protection
12	Sharipov D.	Head of Vakhdat department of the Hydromet agency
13	Muzaffarov M.M.	Head of mahalla in Sino district
14	Saidahmedov S.S.	Deputy director of public organization “Shahnora”
15	Dadobaev Dilshod	Consultant