

STATE INSTITUTION "DEVELOPMENT OF ENTREPRENEURSHIP IN THE AGRICULTURAL SECTOR"

Project "One Health for Pandemic Prevention, Food Security Systems Resilience, and Ecosystem Health in Central Asia"

Terms of Reference

Consulting Services for the mapping of risk zones for the spread of zoonotic diseases among domestic and wild animals including migratory waterfowl

I. BACKGROUND

The “One Health” approach is an integrated and unifying concept aimed at achieving optimal levels of health for humans, animals, and ecosystems. It recognizes the interdependence of human, animal, plant, and environmental health, uniting various sectors and communities to address global challenges, including pandemic prevention, antimicrobial resistance (AMR), food security, and environmental sustainability. This approach is key to ensuring the well-being of the population and solving complex problems in healthcare and ecology in the context of interconnected systems.

The “One Health” Program in the Republic of Tajikistan is aimed at strengthening the country's capacity in the field of preventing environmental risks, monitoring the state of ecosystems, and managing resources. The program envisages investments at the national and regional levels to develop coordination within the "One Health" approach, communication and information exchange, improve the regulatory framework in the field of environmental protection, develop knowledge and human resources, environmental control, risk prevention and response systems, laboratory infrastructure, and data management systems.

The project consists of four main components:

- Strengthening governance within the “One Health” approach – creation of an intersectoral management system to improve coordination and alignment of state policy in the field of environmental protection.
- Development of knowledge and human resources within the "One Health" approach – development and implementation of staff training programs and scientific research initiatives in the field of ecology.
- Improving systems for prevention, monitoring and response to environmental risks – strengthening national and regional laboratory networks, developing risk-based surveillance, and supporting digital information systems.
- Project management, monitoring and evaluation, training – creation of management mechanisms and monitoring of project implementation, ensuring compliance with requirements, and disseminating knowledge.

The One Health Program in Tajikistan is implemented by the State Institution “Agriculture Entrepreneurship Development” (SI AED).

II. OBJECTIVE OF THE ASSIGNMENT

Provide technical assistance to the Committee for Environmental Protection under the Government of the Republic of Tajikistan (CEP) to map zoonotic disease risk zones, taking into account climate factors, and to strengthen the use of this data for decision-making.

III. SCOPE OF WORK

3.1. Preparatory Stage

The consulting firm is obliged to:

- conduct preliminary consultations with the CEP, the State Institution "Specially Protected Natural Areas" the administrations of reserves, national parks, natural parks, and other stakeholders;
- develop a detailed project implementation plan indicating stages, timelines, and expected results;
- identify data sources and mechanisms for their integration;
- develop and submit a preliminary report on the start of work.

3.2. Data Collection and Analysis

The consulting company will carry out the collection, systematization, and analysis of the following data:

- data on wild animal populations, including distribution, migration, abundance, and habitats;
- data on domestic animals and their interaction with wildlife;
- epizootic and epidemiological data on zoonotic diseases;
- climatic data, including temperature, precipitation, and climate change;
- ecological data, including ecosystems, vegetation cover, and water sources;
- data on specially protected natural areas and adjacent zones;
- data on migratory waterfowl, including migration routes, resting, feeding, and nesting sites in Tajikistan;
- analysis of the review and conclusions of national and international experience in identifying and mapping risk transmission zones associated with wild animals and migratory birds, as well as the transmission of zoonotic diseases between livestock, poultry, and humans. CAREC may play a role in connecting consultants with specialists from other countries, and consultations may be conducted remotely.

An assessment of data availability and quality should also be carried out.

3.3. Risk Zone Mapping

The consulting firm will:

- conduct an analysis of risk factors for the spread of zoonotic diseases;
- identify high-risk zones;
- develop thematic risk maps;
- analyze the impact of climatic and environmental factors;
- prepare interactive and static maps;
- assess the nature of zoonotic disease risks associated with wild animals (including migratory waterfowl) in Tajikistan. This should identify the species and populations of wild animals and waterfowl that pose a real serious threat of transmitting zoonotic diseases to livestock, poultry, and humans;
- describe possible transmission routes, including:
 - mixing of migratory waterfowl in wetlands that are also used by poultry;
 - interaction between migratory and non-migratory animals with domestic livestock;
 - transmission through legal and illegal trade of wild animals in markets;
 - risk of transmission to and from other wild animal species (for example, snow leopards, ventoroghi goats, and so on in rehabilitation centers);

- conduct a qualitative assessment of the risk level by different species and transmission routes.

3.4. Development of Analytical Materials and Recommendations

The consulting company is obliged to:

- prepare analytical reports based on mapping results;
- develop recommendations for the prevention and control of zoonotic diseases;
- prepare methodological materials for specialists;
- develop criteria for mapping risk zones and "hotspots" based on data quality assessment and transmission routes, which will be used for mapping purposes in GIS.

3.5. Data Quality Assessment and Recommendations for Filling Gaps

The consulting company will:

- identify and assess the quality of existing spatial data sources that are relevant to the transmission of zoonotic diseases between wild animals and livestock in Tajikistan;
- develop specific and costed recommendations (with cost indication) to address data gaps, including:
 - additional field-level mapping;
 - measures to better understand the movement of wild animals relative to livestock (for example, installation of radio collars and satellite transmitters on specific wild animal species);
 - regular monitoring of sites used by migratory waterfowl.

3.6. Training and Consultations

The consulting company:

- conduct trainings and seminars for staff of the CEP, the State Institution "Specially Protected Natural Areas," and the administrations of protected areas;
- provide consultations on the use of data for management decision-making.

IV. REPORTING REQUIREMENTS AND DELIVERABLES

The Consulting company will work under the overall supervision of SI AED PMU, and Environmental Protection Coordinator and will maintain close coordination with the CEP. All deliverables and reports shall be submitted in both Tajik and Russian languages, accompanied by executive summaries in English.

No.	Deliverable	Timeline
1	Report on the start of work and implementation schedule	Within 2 weeks of contract signing
2	Data Collection and Analysis Report, including review of international experience and assessment of data quality and gaps	Within 1 month of the contract signing date

No.	Deliverable	Timeline
3	Draft Risk Assessment Report and Preliminary Risk Maps	Within 2 months of the contract signing date
4	Final Risk Zone Maps (interactive and static formats) and GIS Database	Within 3 months of the contract signing date
5	Final Analytical Report, methodological guidelines, recommendations for addressing data gaps, training materials, and training completion report	Within 4 months of the contract signing date

V. QUALIFICATION REQUIREMENTS OF THE CONSULTING FIRM:

- Legally registered consulting firm with authorization to operate in relevant technical fields;
- Proven track record of at least 7 years of institutional experience in public health, veterinary epidemiology, environmental health, or related sectors;
- Demonstrated expertise in zoonotic disease surveillance, epidemiology, risk mapping, wildlife health, livestock disease systems and avian influenza or other priority zoonotic diseases will be considered an advantage;
- The consulting firm should have demonstrated experience of wildlife and waterbird monitoring, survey and mapping;
- Strong knowledge of climate change impacts on disease ecology and vector-borne/zoonotic disease transmission;
- Demonstrated experience in spatial analysis, GIS-based risk mapping, and geospatial modelling related to epidemiology, biodiversity, natural resource management, or environmental risk assessment;
- Capacity to integrate animal health, human health, and environmental/climate data (One Health approach);
- Familiarity with international standards and frameworks (WHO, FAO, WOAHO/ OIE guidelines on zoonoses and surveillance).
- Demonstrated experience working with government institutions of the Republic of Tajikistan and projects financed by international development partners, including the World Bank, ADB, and UN agencies, will be considered an asset.

5.1 Team Composition Requirements

The consulting firm shall propose a multidisciplinary team with demonstrated experience in biodiversity, epidemiology, and spatial analysis. Key experts shall include, at a minimum:

5.1.1 Biodiversity and Wildlife Specialist

- University degree in ecology, biology, wildlife management, or a related field;
- At least 7 years of relevant professional experience in biodiversity assessment and wildlife monitoring;
- Proven experience in monitoring wild animal populations, including migratory species (particularly waterfowl);

- Experience in ecosystem and habitat analysis, including identification of wildlife–livestock interface zones;
- Familiarity with conservation practices in protected areas and experience in spatial data analysis and the use of GIS tools will be considered a strong advantage.

5.1.2. Epizootiology and Zoonotic Diseases Specialist

- University degree in veterinary medicine, epidemiology, public health, or a related field;
- At least 7 years of relevant professional experience in zoonotic diseases and epidemiological analysis;
- Demonstrated experience in analyzing epidemiological and/or epizootic data;
- Understanding of disease transmission dynamics at the human–animal–ecosystem interface (One Health approach);
- Experience working with national surveillance systems or similar datasets is an asset.

5.1.3. GIS / Spatial Data Specialist

- Degree in geography, GIS, environmental science, or related field;
- At least 5 years of experience in spatial data analysis and mapping;
- Proven experience in developing risk maps and spatial models;
- Proficiency in GIS software (e.g., ArcGIS, QGIS);
- Experience integrating environmental, epidemiological, and biodiversity datasets is highly desirable.

VI. CLIENT'S INPUT AND COUNTERPART PERSONNEL

The consulting firm is responsible for all logistics, accommodation and travel costs necessary for the execution of the assignment, as well as the costs of translation and interpretation associated with the execution of the assignment. All these costs, including all applicable taxes and fiscal obligations under the legislation of the Republic of Tajikistan (including but not limited to Value Added Tax (VAT), income tax, and any other mandatory levies), shall be reflected in and covered by the financial proposal submitted by the consulting firm.

The CEP will provide the consulting firm with the necessary administrative support, in particular, introductory letters to other departments, local authorities, etc., meeting rooms, and provide materials, documents and regulations necessary for the provision of services under the assignment. The following project specialists will provide day-to-day support in the execution of this assignment: OHP Project Coordinator, OHP Environmental Protection Coordinator and OHP M&E Specialist.

VII. DURATION OF THE ASSIGNMENT

The period of service provision is **four (4)** months from the moment of signing the contract.

VIII. STAKEHOLDERS TO BE MET

- CEP
- Branches of CEP in oblast levels

- Administration of Special Protected Areas

IX. QUALITY MANAGEMENT

The consulting firm shall establish and implement a robust Quality Management (QM) system to ensure the accuracy, reliability, and scientific validity of all deliverables produced under this assignment. This includes:

- The firm shall develop and apply a clear QA/QC framework covering all stages of data collection, analysis, modelling, and reporting;
- All spatial analyses, risk models, and maps shall be subject to internal peer review by qualified senior experts prior to submission;
- The firm shall ensure the use of validated, up-to-date, and reliable datasets (epidemiological, wildlife, livestock, climate, and environmental data);
- All analytical approaches shall be aligned with internationally recognized standards (e.g., WHO, FAO, WOAHA guidance on zoonoses and One Health risk assessment);
- All assumptions, data sources, modelling parameters, and analytical steps shall be clearly documented to ensure reproducibility;
- Final outputs (risk maps, technical reports, and datasets) shall undergo a comprehensive quality review before submission and approval.

X. TRANSFER OF KNOWLEDGE / CAPACITY BUILDING

The consulting firm shall ensure effective transfer of knowledge and strengthening of national capacities throughout the assignment, with a focus on sustainability and long-term use of the developed tools and methodologies.

Key requirements include:

- Provision of hands-on training to national counterparts on GIS-based risk mapping, spatial analysis, and epidemiological data interpretation.
- Organization of at least 1–2 training workshops covering:
 - One Health approach to zoonotic disease risk assessment
 - GIS and spatial modelling techniques
 - Integration of climate and environmental data into risk analysis
- Full transfer of analytical models, GIS layers, scripts (e.g., R/Python), and methodologies developed under the assignment.
- Continuous advisory support to national experts during the implementation period to ensure effective learning-by-doing.
 - Ensuring that national stakeholders are able to independently update risk maps and apply methodologies after project completion.