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**TERMS OF REFERENCES  
for International Consultant**

**Intelligent Transport Systems (ITS) feasibility study and  
preparation and implementation of a comprehensive ITS Action Plan for Chisinau City**

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|-------------------------|---|
| Job title:              | International Consultant in Intelligent Transport Systems                                     |
| Type of Contract:       | Individual Contract (IC)  |
| Assignment type:        | International consultant  |
| Section/Unit:           | Environment and Energy Cluster  |
| Duty Station:           | Homebased with at least five (5) missions to Chisinau (Moldova)                               |
| Languages required:     | English, working level of Romanian or Russian will be an asset                                |
| Starting Date:          | 1 November 2019   |
| Duration of Assignment: | 75 working days till December 2020  |
| Payment arrangements:   | Lump sum contract (payments linked to satisfactory performance and delivery of outputs)       |
| Evaluation method:      | Interview of shortlisted candidates (Only the first 5 top ranked candidates shall be invited) |

**I. BACKGROUND**

The Czech-UNDP Partnership for SDGs (hereafter CUP) project “*Transfer of Czech experience in the development and implementation of the Sustainable Urban Mobility Plan of the Chisinau Municipality*” is linked with the UNDP/GEF project “*Moldova Sustainable Green Cities – Catalyzing investment in sustainable green cities in the Republic of Moldova using a holistic integrated urban planning approach*”, to be implemented during 2018–2022 years.

The objective of the project is to activate investments in low carbon green urban development based on integrated urban planning approach by encouraging innovation, participatory planning and partnerships between a variety of public and private sector entities.

As a tool for this, the project will support the design, launching, and establishment of the Green City Lab (hereafter GCL) to become the leading knowledge management and networking platform, clearing house, an inter-mediator of finance and a source of innovations and expertise to catalyze sustainable low carbon green city development in Moldova with a mission to transform Chisinau and other urban centers in Moldova into modern green and smart European cities with improved quality of life for their citizens, while also demonstrating opportunities for sustainable economic growth.

The direct global environment benefits of the project are expected to reach at least 200,000 tons of CO<sub>2</sub>, resulting from the concrete pilot/demonstration projects in the building energy efficiency, transport and waste sectors. These are complemented by project's indirect GHG emission reduction impact at the estimated amount of 2.4 million tons of CO<sub>2</sub> by scaling up, replicating and mainstreaming the project results and activities, including those of the Green City Lab.

As several cities from the Czech Republic (e.g. Plzeň/Pilsen, Ostrava, Brno, and Prague) have already experience in Sustainable Urban Mobility Planning, the replication of the best practices and lessons learned will be of benefit for both countries.

This CUP project is directly linked with the UNDP/GEF project "Moldova Sustainable Green Cities" activities aiming to elaboration of the Sustainable Urban Mobility Plan (SUMP) leading to improvements in the urban transport network and supporting Green Urban Development. Both developed products will inform the new General Urban Plan committed for development in the upcoming years. It will also provide a policy basis for decision-making and identification of priority green city development areas within the municipality. Furthermore, the GCL is envisaging to support in development of Green City Action Plan of the Chisinau Municipality, which is financially supported by the European Bank for Reconstruction and Development (hereafter EBRD).

## II. OBJECTIVES

The **Overall Objective** of the tendered services funded by the Czech-UNDP partnership (hereafter CUP) is to strengthen the capacities of the Chisinau municipal public authorities in sustainable mobility planning and traffic management through transfer of the Czech relevant experience and knowledge. The expected result of the project is the enabling environment for successful development and approval of the Intelligent Transport Systems (ITS) feasibility study and preparation and implementation of a comprehensive ITS Action Plan for Chisinau City.

The goal of the ITS Feasibility Study and ITS Action Plan is to develop a desirable intelligent transport system for Chisinau city which is practical and cost-effective for an efficient and effective transport management system in Chisinau city. An ITS Action Plan will also be developed for Chisinau City with support from this consultancy.

As part of this project, UNDP through its Green City Lab, will support the interconnection of the ongoing SUMP development process with ITS Action Plan.

The funding from the UNDP-Czech Partnership will facilitate expert support in the guidance/mentoring for ITS Action Plan development. Through the technical assistance and expert support for the Intelligent Transport Systems feasibility study and ITS Action Plan, the Chisinau authorities will be able to learn from the Czech and EU experience and approaches in modern practices of mobility planning and traffic management, which will ultimately secure equitable access of all social groups to urban infrastructure and will increase the quality of life in Chisinau.

In parallel, the GCL and Chisinau municipality will support the ITS Feasibility Study and Action Plan development through a fully participatory and consultative process with professional planners, citizens, policy makers and key stakeholders.

In a medium and a long-term ITS Action Plan, that will be developed in the framework of UNDP project should change the life in the city as its scope is to:

- Ensure all citizens are offered transport options that enable access to key destinations and services;
- Improve road safety and security;
- Reduce air and noise pollution, greenhouse gas emissions and energy consumption;
- Improve the efficiency and cost-effectiveness of the transportation of persons and goods;
- Contribute to enhancing the attractiveness and quality of the urban environment and urban design for the benefits of citizens, the economy and society as a whole.

At the same time term ITS Feasibility Study and Action Plan will be a perfect tool for the municipality to ensure a more sustainable transport and mobility development for the entire urban agglomeration, which covers all modes and forms of transport: public and private, passenger and freight, motorised and non-motorised, moving and parking, etc.

In the *short-term implementation* of the ITS FS and Action Plan, will help municipality to effectively plan its activities and resources required for the implementation of policies and measures set out in the plan. ITS FS and Action Plan can be a perfect tool for municipality to mobilize resources from different funds and subvention programmes, being one of the key documents in municipal transport sector. In compliance with elaborated Sustainable Urban Mobility Plan, the UNDP and GCL will further identify the possible investment areas, i.e. procurement of software and hardware for transport monitoring and management and training of the municipal public transport operators in implementation, segregated bus and cycle lane, congestion charge pilot, and different APP for public transport, electronic ticketing, etc.

### **III. OUTPUTS AND TASKS**

The assignment aims to carry out activities, which would be used as inputs and basis for Chisinau to finalize ITS Strategic plan. The activities include:

- 1) Assessment of ITS service needs based on the current and future transport challenges and identifying key priorities for ITS service for Chisinau city.
- 2) Assessment of operating environment with respect to legal and institutional arrangements and technical capacity.
- 3) Recommendations for technological and financing/investment options for the ITS.
- 4) Stakeholder workshop for consultation on the feasibility study and action plan and awareness raising, including capacity building.
- 5) Provide technical support to key stakeholders in planning proposed activities, which would ultimately include development of an ITS architecture, an action plan, and recommended assignments of roles and responsibility with a timeline.

The consultancy will commence from November 2019 to December 2020. The consultant is expected to make minimum 5 visits to Moldova to ensure smooth facilitation and development of the feasibility study and action plan. An inception report including a clear plan and methodology with a timeline should be submitted 2 weeks after contract signing. Contract tasks will include:

- Consultation with stakeholders to become familiar with current transport service and issues and identify ITS needs for Chisinau city. The consultant is expected to carry out a desk review of existing documents and reports related to transport, including the Chisinau structure plan (key documents will be provided to consultancy).
- ITS service needs should be recommended through short, medium and long term plans. The Plans should identify different components of ITS relevant to Chisinau city. The Plans should include qualitative and quantitative data and the ITS study should also address environmental, social and co-benefits in terms of addressing climate change mitigation and meeting development needs in Moldova.

- Review existing policy and legal documents related to transport and identify opportunities and barriers to plan implementation.
- Visit relevant agencies to study institutional arrangements and functions to identify opportunities and constraints faced in efficient and effective implementation of ITS.
- Recommend solutions based on international best practices and developments and recommend ITS architecture and technology options, including cost estimates with context to Moldova.
- The consultant should conduct face-to-face consultations and raise awareness of benefits of ITS to stakeholders. The consultant will take stock of stakeholder perceptions, findings and recommendations and make recommendations on roles and responsibilities each agency could play in ITS implementation.
- Provide necessary support in drawing ITS Action Plan. The consultant will also assist in drafting necessary TORs for immediate ITS implementation by preparing detailed tender-ready specifications for ITS components that are recommended for immediate (up to 5 years) deployment within the identified locations within the City.

The Consultant shall transfer knowledge, skills and good practices through provided consultancy services in close collaboration with National consultant for ITS Action Plan for Chisinau development. The Consultant will work under direct supervision of the CUP Programme Specialist and in close collaboration with the Green Cities Project Moldova Manager and UNDP Country Office in Moldova. The office of the consultant will be housed in the Green City Lab office. The consultant will report directly to the project manager on day-to day activities and submit reports as required in the agreed upon plan and time schedule.

A National expert contracted by UNDP Green City Lab during the whole working process will second the international expert, providing assistance, local guidance and necessary support to the consultant.

#### **IV. SCHEDULE AND DELIVERABLES**

##### DATA COLLECTION & ASSESSMENT

1. Gather basic background such as existing and projected collision and traffic statistics (all available data would be shared with the consultant).
2. Review all existing relevant reports including the General Urban Development Plan of Chisinau (2007), Chisinau Public Transport Development Strategy (2014), Concept of Sustainable Transport Development for Chisinau (2019).
3. Consult and interview relevant officials of the Chisinau Municipality, National Transport Authority, National Inspectorate of Police, and other relevant stakeholders
4. Identify relevant technologies that can be realistically implemented under the current technology regime and the agencies budget positions for the immediate and long term.
5. Identify international best practices based on similar traffic, road conditions, natural topography, weather characteristics, social and cultural values/systems, etc.
6. Estimate life-cycle costs and benefits of potential ITS applications. Costs include initial capital and ongoing maintenance and operating costs.
7. Prepare and submit a Needs Assessment Report summarizing the findings of the above tasks and identifying the ITS requirements for the identified roads, junctions, locations on and the major highway junctions/connections.

## PLAN DEVELOPMENT AND PLAN IMPLEMENTATION

1. Develop a systematic and comprehensive plan for Traffic Management System. This will include:
  - Establishment of a 24/7 Operation Control Center and its management set up;
  - Plans for installation of CCTV cameras, speed monitoring cameras, traffic lights at identified junctions, parking guidance systems and other ITS equipment along the city roads, junctions, national roads connections and major junctions as per requirement;
  - An ITS Blue Print for the City.

**(Note: The plan for CCTV should complement the already existing plan on installation of CCTVs by the Moldova National Inspectorate of Police and must specifically address monitoring traffic flow and surveillance at bus terminals.)**

2. Develop a plan for setting up Traveler Information Systems at the city bus terminals/bus stops and the inter-city bus terminals in Chisinau.
3. Design user training curriculum and schedules and suggest training institutes for training of officials on installation, maintenance and management of the Control Centre and the entire ITS system.
4. Prepare detailed tender-ready specifications for ITS components that are recommended for immediate (up to 5 years) deployment within the identified locations within the City.
5. The Feasibility Study must, to an adequate degree of detail, address the following individual ITS components:
  - Weigh in motion, virtual weigh stations, and automated vehicle identification systems.
  - Video incident detection systems.
  - Road and weather information systems including real time emission recorder/data collectors.
  - Speed monitoring devices and systems.

The consultant should explore opportunities for integrating these components and leveraging their capability to achieve practical and cost-effective solutions. The recommended technology should be based on its effectiveness, maintenance, serviceability, durability, and conformance with the international ITS architecture standards.

Other technologies may be identified and included as per relevance, cost, and time constraints, and may include over-height warning/detection, traffic classification/counting, data collectors (detector loops, detector cameras, CCTVs), parking guidance signs, forewarning variable message signs, off-street parking collection equipment, bus priority/lanes signs and signals, bus departure and arrival information systems, GPS systems, etc.

6. Develop and present to the steering committee a draft final report detailing the results and recommendations of the above tasks.
7. Finalize the report by incorporating the feedbacks from the steering committee and the Green City Lab project team.
8. During the whole process of the ITS feasibility study and ITS Action Plan for Chisinau City development, the consultant will consult the Chisinau Municipality in ongoing transport and traffic planning activities.

Parts of the assignment can be home-based with a minimum of five visits for contract signing stakeholder consultation, data collection and other relevant activities.

The consultant should also make a visit to present the draft report and seek stakeholder's feedback in finalization of the report. The payments will be made as per the deliverables indicated below.

| <b>Deliverable/Milestones</b>  | <b>Time line (Tentative – Subject to change after discussions with Project manager)</b> | <b>Payment schedule (%)</b> |
|--|---|-----------------------------|
| Stakeholder consultation, interviews, desk review and field visits   | 2-10 November 2019  |                             |
| Submission of final Inception report   | 20 December 2019  | 20 %                        |
| Submit brief progress reports  | April and July 2020   | 20%                         |
| Draft report submission and presentation to stakeholders and seek inputs   | 1st Week of September 2020  | 30%                         |
| Presentation and submission of final ITS feasibility study including action plan, needs assessment and training curriculum | 15-30 November 2020   | 30%                         |

**Note:** The dates of the missions will be proposed by Consultant as part of his technical offer and consulted with the Project manager prior to contract signature.

All deliverables will be prepared in English, working language will be English with Romanian and/or Russian interpretation.

## V. QUALIFICATION CRITERIA

### Academic qualifications:

- At least master's degree in transport engineering, urban development and/or other related fields.

### Experience:

- At least seven (7) years of professional experience in ITS design, planning and implementation/urban mobility and/or other related fields in the Europe and CIS countries;
- At least three (3) years of experience in the international state-of-the-art approaches and best practices in ITS development in his field of expertise;
- Experience in ITS design and practical project implementation.
- Previous working experience from the Czech Republic in terms of a specific track record of cooperation with institutions and bodies responsible for public policies in transportation, urban development and mobility would be an asset;
- Proven experience in cooperation with international organizations or other bodies responsible for formulating smart urban development, at least three (3) similar assignments; previous working experience with UNDP or other international agencies will be an asset;
- Demonstrated experience and success in the engagement of and working with the private sector and CSOs in transportation, urban development and/or other related fields;
- Thorough understanding of ITS Architectures, practical experiences in ITS deployments, and working knowledge of hardware components included in ITS technology.
- Good analytical and problem-solving skills and the related ability for adaptive management with prompt action on the conclusion and recommendations coming out from the assignment;

- Ability and demonstrated success to work in a team, to effectively organize it, and to motivate its members and other project counterparts to effectively work towards the project's objective and expected outcomes;
- Experience with Eastern European countries will be an asset;
- Excellent communication, analytical, facilitation and presentation skills;
- Excellent computer literacy (Word, Excel, Internet, Power Point).

**Important notice:**

- **The Consultant must be an individual that has no direct or indirect affiliations (financial or otherwise) with an ITS product manufacturer/vendor and must disclose any associations that may affect the impartiality of the study outcome.**

**Language skills**

- Proficiency (verbal and written) in English; working level of Romanian and/or Russian will be an asset.

**VI. PAYMENT MODALITIES**

The consultant will organize and facilitate the implementation of all project advisory activities as described above; his/her payment will be lump sum amount based, disbursed in instalments upon satisfactory performance and approval of deliverables.

**VII. APPLICATION PROCESS**

Applicants shall submit the following four documents:

**Required**

- Offeror's Letter confirming Interest and Availability;
- CV, including information about past experience in similar assignments and contact details for at least 3 referees;
- Brief description of approach to work/technical proposal of why the individual considers him/herself as the most suitable for the assignment, and a proposed methodology on how they will approach and complete the assignment.
- Financial proposal (in USD, specifying the total lump sum amount as well as the requested amount of the fee per day). Financial proposal template prepared in compliance with the template in Annex 3

Incomplete applications will not be considered.

If an applicant is employed by an organization/company/institution, and he/she expects his/her employer to charge a management fee in the process of releasing him/her to UNDP under Reimbursable Loan Agreement (RLA), the applicant must indicate at this point, and ensure that all such costs are duly incorporated in the financial proposal submitted to UNDP.

**VII. ANNEXES TO THE TOR**

Annex 1- Individual Consultant General Terms and Conditions

Annex 2- CV

Annex 3- Financial proposal template