

Terms of reference (tor)
For
Pest surveillance in major agricultural crops and medicinal and aeromatic plants (maps) of nepal

Ref: REOI for Consultancy Services from Firm - NIRTTP/PCO/PPD/S/CQS-45

1. Background

Country: Nepal

Executing Agency: Ministry of Commerce, Government of Nepal

Sector: Agriculture/Plant Protection

Funded by: IDA/World Bank

Implementing Agency: NPPO/Plant Protection Directorate, Department of Agriculture, MoAD

Project ID: P 144335

Project: **Nepal-India Regional Trade and Transport Project (NIRTTP)**

Title of the Task: *Consulting Service for Pest Surveillance in six major agricultural crops and three major medicinal and aromatic plants of Nepal*

Government of Nepal (GoN) has received financing from the International Development Association (IDA), towards the cost of Nepal-India Regional Trade and Transport Project (NIRTTP) and intends to apply part of the proceeds for “Consulting Service for Pest Surveillance in six major agricultural crops and three major medicinal and aromatic plants of Nepal”.

Context

The Planned Pest Survey (PPS) can provide the evidence of pest's presence in a geographical area or crop. In addition, it helps in the determination of pest status (exotic species) which will eventually facilitate risk analysis. The outcomes of this task will finally guide the formulation of pest management and information exchange strategy. Pest information in the export and import of plant and plant products is vital to implement phyto-sanitary measures. For the market access, negotiation with trade partners the evidence of pest presence is frequently asked to ensure phyto-sanitary security of plant and plant products. Generally, pest survey plan is developed for routine diagnosis/general surveillance/specific survey/latent inflection/pest eradication.

In Nepal, pest surveillance work is being carried out by different agencies. However, the work is scattered and international standards for phyto-sanitary measures are not appropriately followed in all the surveillance activities. In 2005, National Plant Quarantine Programme (NPQP) under the assistance of FAO technical cooperation program (TCP) prepared pest database of selected agricultural crops in line with the WTO SPS agreement.

In compliance with International Plant Protection Convention (IPPC)'s mandatory provision for trade facilitation, the Government of Nepal designated Plant Protection Directorate (PPD) as National Plant Protection Organization (NPPO) of Nepal in 2014. The crucial responsibility of NPPO is to streamline pest surveillance work in line with international standards. The NPPO of

Nepal has carried out pest specific surveillance in citrus in 2014 in Sindhuli and Syanjha districts. Pest survey protocols for 84 pests of ten major importing and exporting crops have been prepared. Nevertheless, the challenges caused by new pest incidence always prevail. Pest information from trading partners are frequently requested when market access for Nepalese products are sought. This situation thus calls for the generation of comprehensive pest data-base for the improvement in national pest surveillance system in Nepal.

Geographical and climatic diversity have favored Nepal to produce different crops and herbs. It is estimated that about 1,463 species of medicinal and aromatic plants (MAPs) are found in Nepal, among them about 100 species are in trade (DPR, 2015). Significant amount of MAPs are collected and exported from Nepal every year. The unprocessed parts like leaves, tubers, stems, barks, rhizomes, flowers fruits of MAPs are exported mostly to India, China and other parts of the world from Nepal. Such products are processed in importing countries for further export to different parts of the world. The Nepal Trade Integration Strategy (NTIS, 2016) has recognized the MAPs as potential sector for export promotion. The WTO Agreement on the application of Sanitary and Phyto-sanitary (SPS) measures has recognized International Plant Protection Convention (IPPC) as standard setting body in the plant health concern. IPPC new revised text 1997 article IV has made provision to establish National Plant Protection Organization (NPPO) in providing plant health information to facilitate trade. The NPPO has the responsibility for surveillance of growing plants, including both areas under cultivation (inter alia fields, plantation, nurseries, garden, greenhouses, and laboratories) and wild flora and of plants and plant products in storage or in transportation, particularly with the object of reporting the occurrences, outbreak and spread of pests and controlling those pests including the reporting referred to under article VIII paragraph 1(a). The Government of Nepal has designated Plant Protection Directorate (PPD) as NPPO of Nepal. Hence, it is the duty of NPPO Nepal to generate pest data base to promote agricultural trade and subsequently in adoption of pest management measures.

A preliminary work in pest surveillance with the financial support of GIZ, Nepal Herbs and Herbal Products Association (NeHHPA), National Plant Quarantine Programme (NPQP) and Department of Plant Resources (DPR) have conducted in cases of five major MAPs during 2015. However, due to the lack adequate resources and technical back up the work could not be continued in a sustainable manner and as a regular programme. This situation thus calls for the improvement in national pest surveillance system in Nepal to generate comprehensive pest data base in cases of some of the MAPs. In such context considering the importance pest surveillance and situation of national organization NPPO Nepal has proposed the pest surveillance for three major MAPs of Nepal by hiring technical consulting services.

The experience of past surveillance shows that it needs substantial human, technical and financial resources and time. It is necessary to follow the international standards for phyto-sanitary measures (ISPMs)- especially ISPM 6 (is very much tedious but mandatory) for the pest surveillance system. This is a task difficult to manage with the existing human resources availability at the PPD (of the organization); whereas experienced plant protection professionals are available in the market that can provide technical support to carry out the needed pest surveillance activities. Technical assistance from these qualified professionals in close

supervision of NPPO can contribute to generate baseline information for national pest database development for important crops. Pest data base once generated in standard formats can be periodically updated by the NPPO by mobilizing its internal resources. Given this context, this consultant's service has been designed to generate pest database and facilitate agricultural trade in Nepal.

2. Objective and Purposes

The objective of this consultant's service is to provide technical assistance to NPPO/Plant Protection Directorate, DoA/MoAD in conducting pest surveillance in six major agricultural crops and three major MAPs as identified hereto in the Scope of Work and detailed in the subsequent sections. Specifically, the consulting service must achieve the following purposes:

- (i) To review and revise the existing pest lists of given crops inclusive of general surveillance;*
- (ii) To prepare an updated detailed pest list of given crops of Nepal appropriate to individual crop's phenology or to in-situ condition, inclusive of general surveillance*
- (iii) To prepare a baseline for Pest Risk Assessment*
- (iv) To detect the presence of South American tomato moth (*Tutaabsoluta*) and coffee rust (*Hemileiavastatrix*) in the respective crops*

3. Scope of Work

The entire work under this consulting service is planned to be carried out in 3 phases:

Phase I: Preparatory phase

In the first phase survey plan based on defined objective/s and review of existing pest list will be prepared and finalized in an inception workshop by the Consultant. The plan (Inception Report) should include in detail methodologies of the study and explicitly identifying the timing of survey by crop phenology and potential pest occurrence period by the geographic location of the area.

Phase II: Field work

The second phase is to be devoted fully to field survey. The pest surveillance in selected six major agricultural crops will be carried out as guided by survey plan and pest survey protocol which can be determined during inception workshop. Pertinent information of pest should be included in the report (Annex I). The key tasks during survey, but not limited to, include field visit, sample collection, pest diagnosis and preservation of specimen[using repository and diagnostic laboratory]. Draft/Primary report of the survey should be prepared by the consultant and be presented in the expert meeting for feedback.

Phase III Reporting

The constructive suggestions and feedbacks from the interaction workshop must be incorporated in the final report of the survey work. Final report covering the entire sets of tasks needs to be submitted to NPPO/PPD Nepal.

Crops selected for survey are: **(1) Large cardamom, (2) ginger, (3) tea, (4) coffee, (5) tomato, and (6) apple.** Four crops are selected on the basis of their inclusion in Nepal Trade Integration Strategy (NTIS 2016), and other two crops on the basis of incidence of new pests, and the SPS/certification needs identified by the trading partners. The technical and economic implications of the selected crops are as below:

Large Cardamom – is a high value export crop of Nepal. A general survey planned in the cardamom zone is to be developed and implemented to generate authentic pest list.

Ginger – is a major traditional export crop of Nepal. General survey plan in the ginger sector is to be developed and implemented to generate authentic pest list.

Tea – is also one of the high value export and cash crops of Nepal. Due to AQ and pesticides residue in tea, Nepalese tea consignments were sporadically rejected by importing countries in the past. (MRL for AQ is 0.02 mg/kg). It is proposed to detect pests in tea through general surveillance in the eastern Nepal.

Coffee – The coffee rust a new pest, appeared since 2015. Pest specific survey for coffee rust representing all the coffee growing regions is proposed.

Tomato – *Tutaabsoluta*, a new trans-boundary pest endemic in central hills of Nepal, appeared for the first time in 2016. The pest specific survey for *Tutaabsoluta* representing the tomato growing region is proposed to assess the nature and extent of pest spread.

Apple – Importing countries (eg India) are asking pest data base of apple to carry out Pest Risk Analysis (PRA). Nepal does not have an updated detailed pest data base to meet the information requirements for PRA of importing countries.

MAPs selected for survey are:

The following MAPs are selected for pest detection survey on the basis of their inclusion in Nepalese herbs trade, as known from the record of National Plant Quarantine Programme.

Three MAPS :

- Cinnamon/Tejpat,
- Wild asparagus and
- Chiraito

4. Geographic Locations for Survey

Since the survey tasks are specific to pest detection, their spread and severity of occurrence, the geographic location for survey will be determined based on the predominance of crops cultivated in an area, physiographic dominance of the area where the crop is cultivated, nature of pest incidence (reference to earlier survey reports can be taken for the selection of survey locations). International Standard for Phytosanitary Measures (ISPM) 6 standards should be followed to determine sample size that should assure the adequate representation of the crops and pest regime by geographic locations. Locations for sampling and documentation will have to be determined as per international and national standards subject to time and resource availability.

5. Deliverables and Due Dates

Deliverables include inception report, six monthly survey output reports, Mid-term report, draft final and final reports and interactive workshop. Final report should cover the entire sets of tasks needs to be submitted to NPPO/PPD Nepal in both hard (5 copies) and e-copies (CD or flash drive). The report should be prepared in Times New Roman Font with 12 font size maintaining 1.5” page margin in all sides (top, bottom, left and right). The Report should include **Pest Photograph**: The consultant have to take photographs (close up view, if needed SLR fitted microscope can be used) of pests noticed, their damage symptoms specific to the crop growth stage. It should also include Voucher specimens in the designated laboratories. Deliverable timing are;

Deliverable	Time Line
Inception report and Stakeholders workshop	August 2017
YR-1 report	March 2018
Mid-term report (YR 2)	July, 2018
Draft Completion Report	April 2019
Final Completion Report	July, 2019

The consultant also need to conduct four workshops among the stakeholders regarding their inception report and findings for year one, mid term and draft completion report. Such costs for the workshops to be included in the consultant’s financial proposal.

6. Client Inputs- NPPO/PPD

To support and facilitate the tasks identified in the ToR, NPPO/PPD will provide the following support services.

- i. Access to PPD/RPPL/Plant Quarantine laboratories for diagnosis and other resources.
- ii. Coordination task for the meeting, workshop and consultation.

- iii. Timely disbursement of funds as per contract.
- iv. Designate one nodal person for routine contacts.
- v. Other supports as deemed necessary and mutually agreed.

7. Qualification of the consultancy firm

The consulting firms, Government Owned Enterprises or Institutions and NGOs should have following qualification and team composition

- i.** Minimum of five years institutional experience on research or development works on Nepalese agriculture, Plant protection/plant quarantine, and agricultural trade regulations or procedures on SPS related issues.
- ii.** Minimum working experience with special assignments from five clients from the government and international non-government organizations in the areas of agricultural trade, trade flows and or SPS related issues.
- iii.** Track records of successful completion research projects in the past five years with descriptions of the outcomes of such research works.
- iv.** Having permanent associates following experts and qualified temporary resource persons who have following qualifications:

Team Composition:

Considering the tasks proposed, the Consultant shall form a team with key professionals having adequate qualifications and experiences to complete the task with acceptable professional standard. The Consultant's team shall be led by an experienced Entomologist or Plant Pathologist or Plant Protection expert having experiences in similar activities.

PPD estimates that a total of about of professional key person's services for Entomologist, Plant Pathologist, Forest scientist for the contract period based on the activities to be performed by the team. In addition trained/experienced field surveyor will be deployed to observe the field and collect sample for pest identification and record. The requirements for the key persons are as follows:

- Task leader (160 Man days (MDs))
- Experts (Entomologists, Plant Pathologists) – (480 MDs)
- Forest Scientist (50 MDs)

7iv1 Task Leader

- (i) Senior level professional with at least 10 years of working experience in the related task,
- (ii) Minimum academic qualification of master degree in Entomology or Plant Pathology or Plant Protection.
- (iii) Proven track record of management, leadership and coordination skills.
- (iv) Proven capacity to work as Consultant's liaison officer for such service, as well as experience of quality compliance officer.

7iv 2 Entomologists

- (i) Senior expert with at least 10 years of working experience in the Entomology related task,
- (ii) Minimum academic qualification of master degree in Entomology,
- (iii) A proven track record of entomological research, extension and training;
- (iv) Demonstrated technical leadership at national and international levels.

7iv 3 Plant Pathologists

- (i) Senior expert with at least 10 years of working experience in the Plant Pathology related task,
- (ii) Academic qualification of master degree in Plant Pathology,
- (iii) A proven track record of plant pathological research, extension and training, and
- (iv) Demonstrated technical leadership at national and international levels.

7 iv 4 Forest Scientist

- (i) Senior expert with at least 10 years of working experience in the Forestry related task,
- (ii) Academic qualification of master degree in Forestry Science,
- (iii) A proven track record of forest research, extension and training preferably on herbs and MAPs, and
- (iv) Demonstrated technical leadership at national and international levels.

The Consultant shall assess the scope of services and can propose additional professional and or support staff (enumerator, logistics, field technicians/surveyors, GIS expert etc. to be engaged in field survey) on as needed basis to support the Team's tasks.

8. Duration of Contract and Indicative Timelines

This is a multi-year contract covering two and half Nepalese Fiscal Years (073/74-075/76) ending in November 2018. (Years 2017, 2018 and 2019)

Task	YR-1 (FY 2073/74)	YR-2 (FY 2074/75, 2075/76)	Remarks
Signing of the Contract	By June		
Inception Workshop	By August		
Commencement of the Field Survey	By August last week		Survey has to start for all given crops
Field Survey by crop, location and pest (specific timelines depending on crop phenology, pest incidence and the location as explained by survey plan)	←————→		Survey work to remain ongoing depending on crop phenology, pest incidence and geographic location.
Workshops (by title)	←————→		
Six monthly survey output reports	←————→		
Monitoring Visits of the TA team	←————→		The proposal should indicate a M&E plan with timelines.
Mid-term Assessment		July, 2018	
Draft Report submission		April, 2019	
Final report		By July 2019	
End of the assignment		July, 2019	

9. Evaluation Criteria

Criteria	Total Allocated Marks	Marks Obtained
Qualification of the Consultancy firms, Government Owned Enterprises or Institutions and NGOs.	10	
Core Technical Team Composition	55	
Demonstrated resource, leadership and management capacity (Proposal, organization and work program)	35	
Total	100	

10. Consultant's obligation:

The consultants shall be fully responsible to mobilize the key professional and necessary support staff including managing their day to day activities, transport, reporting to complete their services as specified in the TOR scope. Consultants shall also consider to

include all their costs in the financial proposal including for the proposed workshops as defined in the TOR.

ANNEX I

Following information should be included in the Pest Surveillance Report:

- Scientific Name of Host:
- Common Name of Host: (Include details of cultivar/variety if known)
- Scientific Name of Pest:
- Common Name:
- Plant Parts Affected:
- Symptoms/Host Damage:
- Pest Distribution:
- Other Pest Information Source:
- Type of Survey:
- Organization involved:
- Date survey commenced:
- Date survey completed:
- Date of publication (if survey details published)
- Reference:
- Name of collector:
- Collector's background:
- Organization:
- Date of collection:
- Mode of collection:
- Name of Name of identifier
- Identifier's background:
- Organization:
- Date of identification:
- Identification Method:
- Specimen location (Name of repository):
- Name of verifier:
- Verifier's background
- Organization:
- Date of verification:
- Verification Method:
- Date of verification:
- Verification method:
- Specimen location:
- Action taken for pest control:
- Economic significance of pest: give details of known impact of pest if possible)
- General References:
- General Comments / Attachments