I. Position Information

Title: Consultant

Purpose: The consultant will technically responsible for the market research for farm mechanization and development of a proposal on value chain of fruit and vegetables in Nepal. The market research for farm mechanization includes research, survey design and conducting surveys and related analysis on the issue of applying the farming equipment sharing model into Nepal. He or she will also provide technical support in developing a project document on value chain development, with a focus on production support, post-harvest technology development and roll-out, and market linkage. The consultant will work directly under the supervision of Advisor on Livelihoods and Employment of UNDP, and in close collaboration with Programme Analyst of the Poverty Reduction and Social Inclusion unit, UNDP.

Reports to: Adviser on Livelihoods and Employment, UNDP.

Duty Station: Lalitpur, Nepal

Duration of Assignment: 37 days until the end of December 2017 (25 days for the feasibility study of farm equipment sharing and 12 days for project document development on value chain)

Expected Places of Travel: Within and outside Kathmandu Valley

Provision of Support Services:
- Office space: Yes ☑ No ☐
- Equipment (laptop etc.): Yes ☐ No ☑
- Secretarial Services: Yes ☑ No ☐
- Other Assisting staff/s: Yes ☑ No ☐

II. Background Information

1. Shared economy for farm mechanization

Farm size constrains agricultural development in Nepal and may impede achievement of the Sustainable Development Goals. Agricultural productivity is a focus of goal 2 (‘End hunger, achieve food security and improved nutrition and promote sustainable agriculture’), with the target of doubling agricultural productivity and incomes of small-scale food producers by 2030.

Average farm size in Nepal is about 0.7ha, typically held in several parcels and, in common with many other Asian countries, is falling (in 1995/96, the average was 1.1 ha. This is important since farm size and
commercialisation are correlated. Land size is an important pre-condition of commercialisation, with those on the smallest farms selling a lower proportion of output.

Small farm size affects labour productivity more than land productivity. While there is an inverse relationship between farm size and yield (with higher yields on smaller farms), there is a positive relationship between farm size and labour productivity. This mainly arises from the opportunity to mechanise larger farms. In contrast, mechanisation of small farms is held back by affordability, with farms often too small to justify buying equipment.

Some 28% of the farmers in Nepal still use manual farm tools, while only about 2% use power tillers. This is important since mechanisation is an important source of factor productivity gains. In response, the government has introduced a farm equipment rental service and, under the scheme, custom hiring centres will rent farm machinery to farmers. The coverage of these hiring centres is not yet known.

Nepal’s 2015 Agricultural Development Strategy addresses mechanization mainly through two-wheel tillers and mini-tillers. The focus is on access to finance for machinery purchase, including hire-purchase and leasing, as well as on service and maintenance providers. Proposals for changed taxation of agricultural equipment include exempting two-wheel tillers, mini-tillers, and spare parts from VAT, as well as reducing road tax for two-wheelers.

While these approaches may succeed (particularly if the private sector is involved in machinery hire), other solutions are now emerging internationally. These include extending the shared economy to agricultural machinery. Hello Tractor, a private firm operating in Nigeria and Kenya, links machinery owners (farmers and others) with potential users to arrange machinery hire. This is mainly through an app for a smartphone and, as in shared economy models for taxis, payment is also made through this app. This currently only covers tractors and eight attachable implements for tilling, threshing, hauling, irrigation and other production activities.

2. Value chain of fruit and vegetables in Nepal

Nepal’s agriculture shows weak growth rates. Productivity and competitiveness are low, adoption of improved technology is limited and, even though most cultivated area is devoted to cereals, there is a growing food trade deficit and malnutrition is high. Some subsectors such as dairying, poultry, tea, vegetables, vegetable seed, and fisheries show dynamism, but overall, these positive signs are not yet sufficient to lift a large number of people engaged in agriculture out of poverty, make a dramatic dent in malnutrition, and assure food security.

The government wants to increase domestic production of fruit and vegetables, in part for import substitution. Import penetration is strong because of tariff-free trade between India and Nepal (as a result of the 1996 Trade and Transits Treaty), while imports from China are also significant. In contrast, and given the scale of the Indian economy and the subsidies available to Indian farmers, Nepalese products are not competitive in Indian markets.

Nepal is a food importer with an agricultural trade deficit. This is mainly because domestic production has not kept pace with demand (with growth strongest in urban areas), leading to increased dependence on imports. In 2010, agricultural imports represented 250% of agricultural exports, with the agricultural trade deficit at NRs 350 million. This is despite substantial increases in Nepal’s vegetable production area
and, whereas the area under production in 1991 was some 140,500 ha, by 2014 it had increased to 255,000 ha.

The trade deficit is not solely a function of domestic production levels and, in some cases, there are imports even where domestic output is sufficient to cover demand. The reasons are low marketed volumes, as well as high rates of loss between the farm and the consumer. At the same time, low productivity is widespread in agriculture in Nepal, with yields well below potential. This is for a number of reasons including access to inputs, quality of extension packages, quality and reach of extension support, and access to finance. Commercialization is also held back by small farm size, with the average farm size about 0.7ha. Average farm size is also falling and in 1995/96, it was 1.1 ha.

Despite the widespread availability of new varieties, hybrids and production technology, technology for post-harvest management is much less developed. Post-harvest technology has been developed for tomato and cauliflower and, to a lesser extent, for apple, citrus, and banana.

Against this backdrop, UNDP Nepal has developed a project proposal with an objective of improving livelihoods through value chain development of fruit and vegetables. The proposal specifically proposes increased production and supply, reduced post-harvest losses, and improved marketing systems for selected fruit and vegetables.

### III. Purpose and Objectives of the Assignment

#### Description of assignment

The consultant will be responsible for providing technical support for two assignments: one is to complete a feasibility study on adoption of the farmer-to-farmer equipment hire model in Nepal. To do so, the consultant will have the liberty to design appropriate methods for achieving the above results. The other is to provide technical advice in developing a full-scale project document in UNDP format on value chain development of fruit and vegetable in Nepal. This assignment includes support to the preparation of the Korea International Cooperation Agency (KOICA) in-depth study team’s visit (tentatively scheduled for October 2017).

#### Duties and Responsibilities

The consultant will have the following responsibilities:

1. **Feasibility study of the farmer-to-farmer equipment hire model**
   - Identify and specify key aspects to be addressed in the feasibility analysis,
   - Analyse the feasibility of applying the farmer-to-farmer equipment hire model in Nepal by looking at demand and supply side,
   - Develop research methods, sampling frame and questionnaire,
   - Identify survey sites and relevant stakeholders,
   - Conduct field visits,
   - Analyse what to be prepared for introduction of the idea (i.e. methods of delivery and return of equipment; pricing; payment methods; insurance; operator),
   - Identify target areas for pilot project(s),
   - Organize a result sharing workshop, and
   - Produce a market research report.
2. Project development on value chain development of fruit and vegetables

- Define project goal, objective, outcomes, outputs and verifiable indicators,
- Design detailed activities, identify resources needed and potential partnering organizations for each activity,
- Provide support to development of the Results and Resources Framework (RRF),
- Prepare Annual Work Plans,
- Review implementation arrangements for the project with detailed roles, responsibilities and a timeline for project implementation,
- Review the Monitoring and Evaluation (M&E) system with quantifiable and verifiable indicators,
- Define project management and reporting arrangement,
- Provide necessary support in preparing meetings with the Korea International Cooperation Agency (KOICA) in-depth study team, and
- Perform any other duty as assigned.

V. Deliverables/Final Products

By the end of the assignment period, the consultant will deliver a final report for the study on the farmer-to-farmer equipment sharing and a draft project document on the value chain development including the Results and Resources Framework.

VI. Consultant Inputs and Time frame

The assignment will be of a total duration of 37 days (25 days for the feasibility study of farm equipment sharing and 12 days for project document development on value chain). Final report of this assignment is to be submitted not later than end of December, 2017. Proposed tasks to be accomplished within the time frame for the assignments are as follows:

Feasibility study of the farmer-to-farmer equipment hire model (25 days)

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| 1  | • Analyse the feasibility of applying the farmer-to-farmer equipment hire model in Nepal by looking at demand and supply side  
• Develop research methods, sampling frame and questionnaire  
• Identify survey sites and relevant stakeholders  
• Analyse what to be prepared for introduction of the idea (i.e. methods of delivery and return of equipment; pricing; payment methods; insurance; operator)  
• Identify target areas for pilot project(s) | 6 days          |
| 2  | • Conduct field visits                                                   | 8 days         |
| 3  | • A synthesis of research findings and production of final report        | 9 days         |
| 4  | • Organize a workshop                                                   | 2 days         |
|    | Total                                                                    | 25 days        |

Project development on value chain development of fruit and vegetables (12 days)

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<th>SN</th>
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<tr>
<td>1</td>
<td>• Define project goal, objective, outcomes, outputs and verifiable indicators,</td>
<td>12 days</td>
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</table>
- Design detailed activities, identify resources needed and potential partnering organizations for each activity,
- Provide support to development of the Results and Resources Framework (RRF),
- Prepare Annual Work Plans,
- Review implementation arrangements for the project with detailed roles, responsibilities and a timeline for project implementation,
- Review the Monitoring and Evaluation (M&E) system with quantifiable and verifiable indicators,
- Define project management and reporting arrangement,
- Provide necessary support in preparing meetings with the Korea International Cooperation Agency (KOICA) in-depth study team, and
- Perform any other duty as assigned.

| Total | 12 days |

**Mode of Payment to the Expert**: Upon completion of deliverables as indicated above.

**Recruitment Qualification and Competencies**:

**Education**
- Completion of Master’s Degree in agriculture, economics, public policy or any other relevant areas

**Language Proficiency**
- Fluency in written and spoken Nepali and English.

**Competencies**
- Good practical knowledge of the agriculture sector in Nepal and value chain,
- Ability in designing and executing high quality documentation,
- Ability to go beyond established procedures and models, propose new approaches which expand the range of projects,
- Consistently approaches work with energy and a positive, constructive attitude;
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
- Ability to work in a multi-cultural team environment with a positive attitude;

**Experience**:
- At least 7 years of relevant work experiences,
- Strong background in research and project development and thorough knowledge of Nepal’s Agriculture Development Strategy and agriculture-related policies and programmes,
- Knowledge of and experience working with government ministries, private sector and development agencies/partners will add value,
- Good knowledge of statistical tools and analytical skills,
- Advanced computer application skills, data management, reporting and presentation skills are essential for the functions of the job, and
- Work experiences with UN system in Nepal would be an advantage.