Environmental Screening Report

Onion Seed Production & Quality Improvements in Matale
(Farmer Clusters Pilot Projects for Technology Demonstration Parks)

Project Management Unit
Agriculture Sector Modernization Project
Ministry of Agriculture
Rajagiriya, Sri Lanka.
September 2019
# Table of Contents

Abbreviations ........................................................................................................................................... 3

1. Project Identification .......................................................................................................................... 4

2. Project Location .................................................................................................................................. 4

3. Project Justification ............................................................................................................................ 4

4. Project Description .............................................................................................................................. 6

5. Description of the existing environment .......................................................................................... 7

6. Description of Proposed Agricultural Activities ............................................................................... 9

7. Public Consultation ............................................................................................................................ 10

8. Environmental Effects and Mitigation Measures .............................................................................. 12

8a. Screening for Potential Environmental Impacts ........................................................................... 12

8b. Environmental Management Plan ................................................................................................. 15

9. Cost of mitigation ............................................................................................................................... 18

10. Conclusion and Screening Decision .............................................................................................. 19

10. EMP Implementation responsibilities and Costs ............................................................................. 20

11. Screening decision recommendation .............................................................................................. 20

12. Details of Persons Responsible for the Environmental Screening .................................................. 20

   Annex 1: Location Map ......................................................................................................................... 21
## Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>Agriculture Instructor</td>
</tr>
<tr>
<td>ASMP</td>
<td>Agriculture Sector Modernization Project</td>
</tr>
<tr>
<td>ASC</td>
<td>Agrarian Service Center</td>
</tr>
<tr>
<td>ATDP</td>
<td>Agricultural Technology Demonstration Park</td>
</tr>
<tr>
<td>CBO</td>
<td>Community Based Organization</td>
</tr>
<tr>
<td>DDR</td>
<td>Due Diligence Report</td>
</tr>
<tr>
<td>DSD</td>
<td>Divisional Secretary Division</td>
</tr>
<tr>
<td>EMF</td>
<td>Environmental Management Framework</td>
</tr>
<tr>
<td>EMP</td>
<td>Environmental Management Plan</td>
</tr>
<tr>
<td>ESR</td>
<td>Environmental Screening Report</td>
</tr>
<tr>
<td>FO</td>
<td>Farmers Organization</td>
</tr>
<tr>
<td>FPO</td>
<td>Farmers’ Production Organization</td>
</tr>
<tr>
<td>GAP</td>
<td>Good Agricultural Practices</td>
</tr>
<tr>
<td>GND</td>
<td>Grama Niladari Division</td>
</tr>
<tr>
<td>GoSL</td>
<td>Government of Sri Lanka</td>
</tr>
<tr>
<td>IDA</td>
<td>International Development Association</td>
</tr>
<tr>
<td>IEE</td>
<td>Initial Environmental Examination</td>
</tr>
<tr>
<td>IPM</td>
<td>Integrated Pest Management</td>
</tr>
<tr>
<td>LGA</td>
<td>Local Government Authority</td>
</tr>
<tr>
<td>MOA</td>
<td>Ministry of Agriculture</td>
</tr>
<tr>
<td>MOPI</td>
<td>Ministry of Primary Industries</td>
</tr>
<tr>
<td>NIRP</td>
<td>National Involuntary Resettlement Policy</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
</tr>
<tr>
<td>OP</td>
<td>Operational Policy</td>
</tr>
<tr>
<td>PAP</td>
<td>Project Affected Persons</td>
</tr>
<tr>
<td>PCR</td>
<td>Physical Cultural Resources</td>
</tr>
<tr>
<td>PMP</td>
<td>Pest Management Plan</td>
</tr>
<tr>
<td>PMU</td>
<td>Project Management Unit</td>
</tr>
<tr>
<td>SLRs</td>
<td>Sri Lanka Rupees</td>
</tr>
</tbody>
</table>
Agriculture Sector Modernization Project

Environmental Screening Report

1. Project Identification

<table>
<thead>
<tr>
<th>Project title</th>
<th>Onion Seed Production &amp; Quality Improvements in Matale (Farmer Cluster Project for Technology Demonstration Parks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Proponent</td>
<td>Agriculture Sector Modernization Project (ASMP)</td>
</tr>
</tbody>
</table>

2. Project Location

| Location (relative to the nearest town, highway) | Degampothana, Nagalawewa, and Siyambalanwewa GNDs of Kibissa AI range in Dambulla DS division of Matale District (Project Location map is attached as Annexure I). |
| Definition of Project Area (The geographical extent of the project & areas affected during construction) | The approximate land extent of Dambulla DSD is 44,400ha and per capita land consumption is 0.6ha. There are 15 farmers selected for this technology demonstration park. Altogether 15 farmers will produce the good quality true big onion seeds (Botanical Name: *Allium cepa*) in 15 household. Farmer usually cultivate cash crops and vegetables on uplands during the Maha season (rainy season). Few perennial trees have been cultivated in their homestead gardens and major part of the upland remains vacant and unproductive throughout drought season. Most of farmers use to cultivate cash crops and vegetables on the low lands during Yala season due to inadequate of irrigation water. |
| Adjacent land and features | The land extent utilized to produce onion seeds by 15 identified farmers is approximately 15 acres (one acre by each farmer). The habitat types are including grassland, cultivated area, home gardens and secondary vegetation. The Inamaluwa Forest Reserve and Pelwehera Forest Reserve are located adjoining to the Kibissa and Degampothana GNDs and the identified technology demonstration park is located about 10km away from the Dambulla city area. |

3. Project Justification

| Need for the project (What problem is the project going to solve) | Big onion (*Botanical Name: Allium cepa*) is an important cash crop cultivated in Sri Lanka. Local production of big onion, which is approximately 81,707 MT per year, is not sufficient to meet the annual demand of big onion approximately 203,993 MT per year (DCS, 2009). Unavailability of good quality seeds of recommended varieties in adequate quantities is considered as the main constraint for increasing production of big onion in Sri Lanka. Furthermore, the quality of the imported big onion true seeds is not up to standard as they reach the country through illegal routes due to export restrictions in India. Poor germination and bulbing, high thick neck percentage and low yield are characteristic to such seeds. The big Onion is a cash crop commonly cultivated in Dambulla region of Sri Lanka. With the aim of increasing the availability of good quality true seeds in Sri Lanka, the Department of Agriculture (DOA) has implemented a programme in Matale districts to enhance |
big onion true seed production among big onion farmers. The locally produced true seeds, which are labeled as “Dambullu Red” and “Galewela light red” have higher germination rates compared to imported seeds (6 kg/ha of local seed compared to 6.5-11 kg/ha of imported seed. However, due to the inadequacy of domestic seed and relatively high prices of domestically produced true seed, more than 70% of farmers still use imported true seeds despite their poor quality. DOA and ASMP officer have identified 15 farmers in 2 GNDs of Dambulla DSD to produce good quality onion seeds.

At present, farmers do not have required facilities to produce the true seeds of big onion. Therefore growers buy imported low quality seeds for the cultivations and it has created many issues on the industry. Due to poor quality onion seeds utilization, many diseases have been spread and resulted loss of income among the growers. Existing traditional Big Onion Stores will be converted into an environment controllable stores. During the 1st year only 15 number of selected existing onion stores will be modified as a pilot project. This will benefit 15 farm families directly. About 3000 kgs of onion seeds will be produced using this facility. Then seeds will be available at a lesser cost compared to the seed produced in the normal process benefitting at least 1500 farm families who cultivate onion.

And, Big Onion seeds production is a two seasons process and bulbs produced in Yala season have to be planted in Maha season or next Yala season. Exposing of mother bulbs to low temperature condition for about two weeks (vernalization) before planting is required to induce flowering. Yala season is more suitable for this purpose due to unfavorable environmental conditions during Maha season to maintain the crop. The major bottlenecks for yala season seed production are

- Over 60% storage loss of mother bulbs (MB) during the six months storage under ambient conditions
- Need of transporting of bulbs to low temperature location such as Nuwaraeliya for vernalization before planting for seed production, which is a unfriendly and expensive process

| Purpose of the project (what is going to be achieved by carrying out the project) | The project will benefit 15 farm households who will be served with improved onion seeds storage facilities. About 1,500 big onion growers will benefit from the high quality onion seeds. The Objective of the subproject is;
- In order to ensure consistent timely supply of high quality Onion Seeds for local farmers at lower price.

The secondary objectives of the subproject are;
- To ensure at least SLRs.100,000.00 of average monthly income for a farmer household of the Onion seeds production cluster.
- To minimize storage loss of mother bulbs via providing favorable conditions for storage. |
• To facilitate in-situ vernalization of mother bulbs by providing required low temperature conditions for the storage house.
• To promote high quality certified seed production of new local variety MIBO1

The expected outcomes of the projects are:
• At least 3000 kg of high quality Certified Onion Seeds is supplied annually for the farmers maintaining timely as well as consistent supply.
• Average monthly farmer household income earned by Onion Seeds production has been at least SLRs.100,000.00.

One of the main objectives of the ASMP is motivating farmers for using of good agriculture practices (GAP) in their cultivation activities by introducing new technologies

| Alternatives considered (different ways to meet the project need and achieve the project purpose) | None |

4. Project Description

<table>
<thead>
<tr>
<th>Proposed start date</th>
<th>July 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed completion date</td>
<td>September 2019</td>
</tr>
<tr>
<td>Estimated total cost</td>
<td>SLRs. 11,450,000</td>
</tr>
<tr>
<td>Present land ownership</td>
<td>Private</td>
</tr>
</tbody>
</table>

The proposed sub project is mainly focused to introduce the new technology to produce the true onion seeds. The civil works of sub project includes;

- Conversion of 15 Numbers of existing onion stores to environmental controllable stores

Apart from converting the seed storages of 15 farm household following activities will be undertaken by ASMP for quality improvement of the Onion cultivation of the country;

- Store and vernalize 54,000 kg (15X3600) of selected mother bulbs annually
- Reduce the cost of seeds’ production by cutting down the transport cost to Nuwara eliya, Badulla for vernalize
- Promote certified seed production of new improved variety MIBO1
- Facilitate marketing of onion seeds by branding and value addition
- Formation/ strengthening of onion seed producer organization by providing required facilities

ASMP will network the farmer cluster with the relevant stakeholders especially the Provincial Department of Agriculture to promote Onion cultivation ensuring the increased demand for Onion Seeds.
Project Management Team

A Project Management Unit (PMU) has been established under the Ministry of Agriculture to implement proposed project activities.

**Contact Persons**

**Project Director**
Agriculture Sector Modernization Project
Ministry of Agriculture
No. 288, Sri Jayawardenapura Mawatha
Rajagiriya
Tel: +94 112 877 550
Fax: +94 112 877 546
Email: agriculturesectormodernizationproject@hotmail.com
Web: https://www.asmp.lk/

Environmental and Social Safeguards Specialist
Agriculture Sector Modernization Project
Ministry of Agriculture
No. 288, Sri Jayawardenapura Mawatha
Rajagiriya
Tel: +94 112 877 550
Fax: +94 112 877 546
Email: agriculturesectormodernizationproject@hotmail.com
Web: https://www.asmp.lk/

**Nature of Consultations and Inputs Received**

Consultations with Environmental and Social Safeguard Specialist/ PMU

---

5. Description of the existing environment

5.1 Physical features – Ecosystem components

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topography and terrain</td>
<td>Generally the project area covering a hilly and rolling terrain with a medium slope (slope 30-40%) and the relief is 30-40m. The related road section lies at an elevation ranging from 115-120m AMSL. The project site falls into mid country intermediate zone of Sri Lanka and IM 3 Agro-ecological zone.</td>
</tr>
<tr>
<td>Soil (type and quality)</td>
<td>Reddish Brown Latasolic (RBL), Reddish Brown Earth (RBE), Immature Brown Loam. The depth of top soil varies from 20-40m.</td>
</tr>
<tr>
<td>Surface water (sources, distance from the site, local uses and quality)</td>
<td>Several water bodies are located in the close vicinity of the proposed technology demonstration park. These include tanks, perennial streams and seasonal streams. One major stream flows in Northern direction to the proposed development and it is within 5km from the area. Use: The main surface water source of the area is from tanks. The use of surface water for domestic purposes and agriculture are common. Quality: The quality of surface water in the area in is Moderate condition.</td>
</tr>
<tr>
<td>Ground water (sources, distance from the site)</td>
<td>The data on groundwater availability in the project area is very sketchy, and therefore it is not possible to exactly quantify the</td>
</tr>
</tbody>
</table>
Agriculture Sector Modernization Project

<table>
<thead>
<tr>
<th>site, local uses and quality)</th>
<th>availability, yield and capacity within the project area. However, the quality of ground water present in this area is moderate in condition and use for washing/ bathing activities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air quality</td>
<td>Any major pollution source near the project area is not recorded</td>
</tr>
<tr>
<td>(any pollution issues)</td>
<td></td>
</tr>
</tbody>
</table>

5.2 Ecological features – Eco-system components

<table>
<thead>
<tr>
<th>Vegetation (trees, ground cover, aquatic vegetation)</th>
<th>The predominant land use type of the project area is agriculture. The identified farm lands are located within the several habitat types including grassland, cultivated area, home gardens and secondary vegetation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of wetlands</td>
<td>No wetlands present in the area proposed for development</td>
</tr>
<tr>
<td>Fish and fish habitats</td>
<td>The stream flowing nearby the proposed development is ideal fish habitat</td>
</tr>
<tr>
<td>Birds (waterfowl, migratory birds, others)</td>
<td>The proposed project area is closer to the waterways and agricultural lands and there is a possibility of recording bird species in these habitat types.</td>
</tr>
<tr>
<td>Presence of special habitat areas (special designations and identified sensitive zones)</td>
<td>The area has not been identified as a special habitat area. According to the sensitive area map produced by the Central Environment Authority (CEA) other DSDs of the Matale district and part of Dambulla DSD are considered as sensitive as this particular locality is listed under landslide prone as well as erosion-prone areas but the proposed site is not listed as sensitive for landslides or soil erosion due to flat terrain</td>
</tr>
</tbody>
</table>

Other features

<table>
<thead>
<tr>
<th>Residential/Sensitive Areas (E.g., Hospitals, Schools)</th>
<th>The subproject activities will be undertaken at households’ level privately owned by farmers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional, economic and cultural activities</td>
<td>The total population(^2) of Dambulla DSD is 76,750 comprises 50.2% males and 49.8% females. Per head land use is around 0.6ha and per household land use is 2.3ha. Out of total workforce, 20.1% is employed in agriculture sector activities, 29.5% is engaged with daily paid non- agriculture labors, 11.5% is employed in industrial sector and 8.4% is engaged with skilled labor category. Other sector are minor and low contribution to the economy. The average monthly household’s income is SLRs. 56,075/= and the average monthly household’s expenditure is SLRs.47, 744/-. The community who lives below the poverty line is around 3.9 %-( Statics in 2012/13). With compared to other area selected for ASMP, this district shows high percentage of occupants in non-agricultural labor sector and its share is bigger than agriculture sector employment. The non- agricultural labors are occupied in making bricks, mining as well as construction sector in outside the area mainly. There is no major irrigation systems in this area and all farmers have limited the paddy cultivation paddy land in Maha season as rainfed cultivation. Many farmers cultivate seasonal crops on uplands during Maha season. During Yala season; farmers are cultivating seasonal crops like Big Onion and other vegetable crops on their</td>
</tr>
</tbody>
</table>

---

paddy lands with their own irrigation methods. The access issue is the prominent for the farmers who are living and continuing cultivation activities on this area.
The farmers have constructed their residential houses on upland and timber trees & fruit bearing trees are planted in balance part of the land. During the Maha season (September to March), intercropping is done on upland.
The Traditional, economic and cultural activities not observed.

| Archeological resources (recorded or potential to exist) | The proposed subproject will be located on privately owned lands and there is no archeological or Physical Cultural Resource (PCR) to record or potential to exist. |

### 6. Description of Proposed Agricultural Activities

#### 6.1 Cultivation

| Existing Condition of the Crop | The big Onion is a cash crop commonly cultivated in Dambulla region of Sri Lanka. With the aim of increasing the availability of good quality true seeds in Sri Lanka, the Department of Agriculture (DOA) has implemented a programme in Matale districts to enhance big onion true seed production among big onion farmers. The locally produced true seeds, which are labeled as “Dambullu Red” and “Galewela light red” have higher germination rates compared to imported seeds (6 kg/ha of local seed compared to 6.5-11 kg/ha of imported seed. However, due to the inadequacy of domestic seed and relatively high prices of domestically produced true seed, more than 70% of farmers still use imported true seeds despite their poor quality.

At present, farmers do not have required facilities to produce the true seeds of big onion. Therefore growers buy imported low quality seeds for the cultivations and it has created many issues on the industry. Due to poor quality seed onion utilization, many diseases have been spread and resulted loss of income among the growers. |

### Polluting Processes (point source)

In cultivation some key polluting steps, although limited, takes place; mainly in the cultivating and post harvesting phases.

| Land preparation for cultivation | Well-drained land selection is essential. Cropping site is very critical factor to decide the yield. Primary weed control is needed prior to land preparation. This can be done by manually. Farmers plough the land at the depth of 8 inch and prepare the soil smoothly. According to the irrigation facility better to decide the bed width and length and recommended bed size is 1m x 3 m x 15cm. Prior to planting, farmers apply the well-decomposed organic manure at the rate of 10 mt/ha.

Suitable time of planting is early January and the crop should be covered with white polythene at the height of about 3ft. at the rains and night. Better to cultivate crops like sunhemp (kind of legume) around the crop to attract the insect to increase the pollination |

| Water requirement$^3$ | At the initial stages of the crop water requirement is high. Therefore, |

farmers irrigate the crop in 3-day intervals and later it can be increased. This intervals may be depend on the soil type. However, after irrigation drainage improving is very essential unless the crop may fail due to ill drainage condition. Two weeks before harvesting water supply should be stopped to increase the quality of the harvest.

| Use of fertilizer and pesticides and weedicides | Farmers use chemical fertilizer for the big onion production. Urea is used as the nitrogen source, Rock Phosphate and Triple Super Phosphate are used as the phosphate source and Mutracte of Potash is the Potassium source. To control pest and diseases, there are several crop management methods apart from pesticide application. They are establish the crop at proper time, proper land preparation, destroy crop residuals, Manually destroy the eggs and larva and weed control. Thrips (Thrips tabaci), Leaf eating caterpillar (Spodoptera exigua) and Root eating ants (Dorylus spp) are the common pests in big onion cultivation in this area. Purple blotch (Alternaria porri), Anthracnose (Colletotrichum gleopordes), Downy mildew (Peronospora destructor) and Bulb rot are the common diseases in big onion production. Integrated pest management (IPM) is encouraged to control the pest and diseases in the crop management as per the pest management plan (PMP) prepared for ASMP and for both pest and diseases the recommended pesticides and the fungicides are applied by the framers. These agrochemicals are recommended by the Pesticides register of Department of Agriculture and PMP as well. |
| Harvesting | Mature seed can harvest about 3 months after planting. Seed must be well dried unless germination may be loss quickly. |
| Post-harvest storage and transportation | Store of big onion true seeds in controlled micro climatic condition is the main requirement in big onion seed production. To induce the seed germination seed should be stored at 8 -15°C temperature for two weeks just before planting. |
| Other factors | The solid organic waste is generated as crop residuals and at post-harvest period. All the crop residuals and post-harvest waste should be burnt to keep the hygienic condition of the farm lands. |
| Solid waste | Due to application of integrated pest management mechanism, soil and ground/surface water pollution will be minimalized. ASMP will conduct the awareness creation and training programs for both farmers as well as the officers regarding the integrated pest management as per the Pest Management Plan (PMP). |

### 7. Public Consultation
Community consultations were conducted by the Environmental and Social Safeguard Specialist of ASMP. Following concerns were arisen during the discussions held with farmers and tank users in the area.
1. Linking farmers with DOA to obtain continues technical knowhow throughout the cultivation cycle and seed production cycle as well.
2. Training the farmers to construct and operate the seed storages.
3. Raising awareness on hygienic conditions that should be maintained during harvesting as well as post harvesting periods.

4. Encourage farmers for integrated pest management mechanism for better crop production.

Mitigation measures to minimize these identified issues are given in EMP.

The majority of the community is willing to support the project activities as they will benefit from the proposed sub project directly.

Extensive social screening has been covered under the Social Safeguard component.
8. Environmental Effects and Mitigation Measures
8a. Screening for Potential Environmental Impacts

<table>
<thead>
<tr>
<th>Screening question</th>
<th>Yes</th>
<th>No</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Will construction and operation of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.?)</td>
<td>√</td>
<td></td>
<td>No disturbances for any existing land use, or water bodies and no negative impact causes are anticipated</td>
</tr>
<tr>
<td>2. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?</td>
<td>√</td>
<td></td>
<td>No such impacts are anticipated. There will not be any harmful chemical storage or transport during the construction.</td>
</tr>
<tr>
<td>3. Will the Project produce solid wastes during construction or operation?</td>
<td>√</td>
<td>Moderate</td>
<td>During the operation solid organic waste will be produced as crop residuals. All the organic waste will be burnt to keep the farmlands in clean (to maintain Hygienic condition)</td>
</tr>
<tr>
<td>4. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?</td>
<td>√</td>
<td></td>
<td>No chemical blasting or any hazardous substance emission is anticipated.</td>
</tr>
<tr>
<td>5. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?</td>
<td>√</td>
<td></td>
<td>Since there are no major construction works, noise and vibration impacts are not anticipated.</td>
</tr>
<tr>
<td>6. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater or coastal waters?</td>
<td>√</td>
<td></td>
<td>There will be no such impacts.</td>
</tr>
<tr>
<td>7. Will the project cause localized flooding and poor drainage during construction</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening question</td>
<td>Yes</td>
<td>No</td>
<td>Remarks</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----</td>
<td>----</td>
<td>---------</td>
</tr>
<tr>
<td>Is the project area located in a flooding location?</td>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>8 Will there be any risks and vulnerabilities to public safety due to physical hazards during construction or operation of the Project?</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Are there any transport routes on or around the location which are susceptible to congestion or which cause environmental problems, which could be affected by the project?</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?</td>
<td>✓</td>
<td></td>
<td>Installation of seed storages will be implemented at household’ level only</td>
</tr>
<tr>
<td>11 Are there any areas or features of high landscape or scenic value on or around the location which could be affected by the project?</td>
<td>✓</td>
<td></td>
<td>There are no areas or features with high landscape or scenic value on or around the location.</td>
</tr>
<tr>
<td>12 Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other water bodies, the coastal zone, mountains, forests which could be affected by the project?</td>
<td>✓</td>
<td></td>
<td>Important or sensitive areas on the project location will not be affected by the project</td>
</tr>
<tr>
<td>13 Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening question</td>
<td>Yes</td>
<td>No</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>flora e.g. for breeding, nesting, foraging, resting, migration, which could be affected by the project?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Is the project located in a previously undeveloped area where there will be loss of green field land</td>
<td>√</td>
<td></td>
<td>No such green fields will be encountered, as the project is merely to install seeds storages.</td>
</tr>
<tr>
<td>15 Will the project cause the removal of trees in the locality?</td>
<td>√</td>
<td></td>
<td>Removal of trees is not required.</td>
</tr>
<tr>
<td>16 Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?</td>
<td>√</td>
<td></td>
<td>No features of historic importance have been identified.</td>
</tr>
<tr>
<td>17 Are there existing land uses on or around the location e.g. home gardens, other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the project?</td>
<td>√</td>
<td>Low</td>
<td>Individual sees storage units will be installed on private lands to store the big onion seeds</td>
</tr>
<tr>
<td>18 Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?</td>
<td>√</td>
<td></td>
<td>Densely populated or built-up areas will not be affected by the project.</td>
</tr>
<tr>
<td>19 Are there any areas on or around the location which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities, which could be affected by the project</td>
<td>√</td>
<td></td>
<td>Sensitive land-uses in or around the project site will not be affected by the project.</td>
</tr>
<tr>
<td>20 Are there any areas on or around the project</td>
<td>√</td>
<td></td>
<td>Existing agricultural practices will be</td>
</tr>
<tr>
<td>Screening question</td>
<td>Yes</td>
<td>No</td>
<td>Remarks</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------------</td>
<td>-----</td>
<td>----</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, which could be affected by the project?</td>
<td></td>
<td></td>
<td>improved by the sub project activities and no negative impacts are anticipated.</td>
</tr>
</tbody>
</table>

21 Are there any areas on or around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?

√ There are no areas around the location where legal environmental standards have been exceeded or has been environmentally polluted.

8b. Environmental Management Plan
Contractor’s Responsibility for Mitigating Adverse Environmental Issues

<table>
<thead>
<tr>
<th>Potential Environmental Impacts and Risk Level</th>
<th>Key project activities causing the impact</th>
<th>Mitigation Measures proposed and action to be implemented by the Contractor</th>
</tr>
</thead>
</table>
| 1 Public complaints and lack of community support for the project implementation | Information Disclosure among Stakeholders | 1. Discussions should be conducted with the beneficiary farmers.  
2. The beneficiary farmers have been selected based on the criteria which were developed at stakeholders meeting and identifying of beneficiary farmers were undertaken transparently.  
3. Residents in the area had been briefed of the project, purpose and design and outcomes with comprehensive discussion. *This should be repeated once the contractor is mobilized.*  
4. The contractor should take note of all impacts, especially temporary issues and safety hazards that will |
<table>
<thead>
<tr>
<th>Potential Environmental Impacts and Risk Level</th>
<th>Key project activities causing the impact</th>
<th>Mitigation Measures proposed and action to be implemented by the Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td>be of concern to the cropping pattern of the farmers. All possible impacts will be mitigated as stipulated in the EMP to mitigate them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The contractor will maintain a log of any grievances/complains and actions taken to resolve them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. A copy of the EMP should be available at all times at the project supervision office on site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Activities related to installation of seed storage units causes safety issues</td>
<td>Converting of existing seed onion storages in to improved condition.</td>
<td></td>
</tr>
<tr>
<td>1. Carry out installation works during off cultivation seasons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Use Personal Protection Equipment (PPE) and all safety measure which should be apply during installation and fixing activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Exposing and damaging of physical cultural resources</td>
<td>Site preparatory work</td>
<td></td>
</tr>
<tr>
<td>Upon discovery of physical cultural material during project implementation work, the following should be carried out;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Immediately stop construction activities.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. With the approval of the resident engineer delineate the discovered site area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Through the Resident Engineer, notify the responsible authorities, the Department of Archaeology and local authorities within 24 hours.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Submit a brief chance find report, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Responsible authorities would be in charge of protecting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Environmental Impacts and Risk Level</td>
<td>Key project activities causing the impact</td>
<td>Mitigation Measures proposed and action to be implemented by the Contractor</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| 4 Spreading of Invasive Alien Species          | ▪ Vegetation clearing ▪ Cultivation of big onion | 1. Provide Department of Agriculture (DoA) certified big onion seeds only to farmers.  
3. Prevent weed spreading via organic manure (Compost) by periodic inspection and manual removal after application. |
| 5 Impaired water quality                       | ▪ Site clearing ▪ Waste from harvest during project operation | Excess water extraction is to be cut-down to preserve ground water table. |
| 6 Solid Waste Disposal                        | ▪ Site clearing ▪ Waste from harvest during project operation | 1. Burnt to maintain the farmlands’ hygienic condition |
| 7 Public/occupational safety hazard            | Converting of existing onion seeds storages in to improved condition | **Training**  
1. The farmers and the contractor must ensure that all workers, including managers are trained on occupational health and public safety risks and mitigation measures for the site, prior to commencement of construction. |
## Potential Environmental Impacts and Risk Level

<table>
<thead>
<tr>
<th>No.</th>
<th>Potential Impacts and Risk Level</th>
<th>Key project activities causing the impact</th>
<th>Mitigation Measures proposed and action to be implemented by the Contractor</th>
</tr>
</thead>
</table>
| 8   | Temporary loss of livelihood due to inability to grow crops during Installation works         | Converting of existing onion seeds storages in to improved condition                                                          | **Personal Protective Equipment**  
   2. All workers will be provided with necessary PPEs (basic should include safety helmet, protective footwear and gloves).  
   3. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored. |
| 9   | Environmental Enhancement/Landscaping                                                        |                                                                                                                              | **Post construction phase**  
   1. Farmers are to be advised to maintain their farm land in a proper manner and be trained on proper crop management. |

### 9. Cost of mitigation

<table>
<thead>
<tr>
<th>Environmental mitigation measure</th>
<th>Cost (SLRs)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Information Boards, leaflets</td>
<td>25,000.00</td>
<td>Awareness leaflets for organic cultivation practices and integrated pest management</td>
</tr>
<tr>
<td>2. On-site first aid facilities</td>
<td>5,000.00</td>
<td></td>
</tr>
<tr>
<td>3. Training of Farmers and Village level stakeholders on Integrated Pest Management</td>
<td>100,000.00</td>
<td>Should be scheduled to a few sessions</td>
</tr>
</tbody>
</table>
### 10. Conclusion and Screening Decision

**Summary of environmental effects:**

Assuming that all mitigation measures are implemented as proposed, the following effects can be predicted:

<table>
<thead>
<tr>
<th>Key project activities</th>
<th>Potential Environmental Effects</th>
<th>Significance of environmental effect with mitigation in place</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>NS - Effect not significant, or can be rendered insignificant with mitigation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SP - Significant positive effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SN - Significant negative effect</td>
</tr>
<tr>
<td></td>
<td></td>
<td>U - Outcome unknown or cannot be predicted, even with mitigation</td>
</tr>
</tbody>
</table>

#### During sub project Implementation

<table>
<thead>
<tr>
<th>Material transportation and storage</th>
<th>No significant impacts</th>
<th>NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetation clearing</td>
<td>Clearing of vegetation will collect significant amount of waste which will lead to several environmental issues such as blockage of drainage, siltation of downstream, damage to habitats, spreading of invasive species etc</td>
<td>NS</td>
</tr>
<tr>
<td>Installation of seeds storage units</td>
<td>No such harm</td>
<td>NS</td>
</tr>
</tbody>
</table>

#### During Operation

<table>
<thead>
<tr>
<th>Solid waste during sub project operation</th>
<th>Solid waste generate through post-harvest</th>
<th>NS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wastewater</td>
<td>The proposed agricultural activities will be undertaken using only organic fertilizer and integrated pest management practices. Therefore, application of chemical fertilizer, pesticides and insecticides will be minimized. Hence the soil and ground/surface water will not be polluted.</td>
<td>NS</td>
</tr>
</tbody>
</table>
10. EMP Implementation responsibilities and Costs
The overall responsibility of ensuring compliance with safeguard requirements lie with the PMU while the contractor will be responsible for implementing the provisions of the EMP. In addition, the PMU will be directly responsible for reviewing the proposed design to ensure that all design related mitigation measures mentioned herein are implemented. The overall supervision will be carried out by the in-house staff of the PMU supported by the Provincial Project Engineer who is responsible for the overall design and supervision of the proposed project. Any consequent design modification will be reflected in the project cost.

Environmental monitoring will be carried out largely through visual observations and compliance monitoring using the checklist provided in the EMF by the Provincial Project Engineer of the PMU and the contractor jointly. The Environmental and Social Safeguards Specialist will need to visit the site on a monthly or quarterly and report on issues and performance on EMP implementation to the PMU.

11. Screening decision recommendation
Majority of the potential adverse effects can be classified as general construction related impacts and can be mitigated on site with proper engineering interventions. These potential impacts are temporary in nature. It is recommended to start the project work off-season for upland cultivation and avoid night time work.
Implementation of the Environmental Management Plan is sufficient to mitigate the identified impacts.

12. Details of Persons Responsible for the Environmental Screening

<table>
<thead>
<tr>
<th>Screening report completed by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>J.A.P Jayaweera/ Consultant-Environment and Social Safeguards</td>
<td>September 2019</td>
</tr>
</tbody>
</table>

E-mail: japjayaweera@gmail.com

Name/Designation/Contact information

<table>
<thead>
<tr>
<th>Screening report reviewed by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.M. Sanjaya Bandara Environment and Social Safeguard Specialist Agriculture Sector Modernization Project</td>
<td></td>
</tr>
</tbody>
</table>

Name/Designation/Contact information

<table>
<thead>
<tr>
<th>Screening report Approved by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. R.R.A.Wijekoon Project Director Agriculture Sector Modernization Project</td>
<td></td>
</tr>
</tbody>
</table>

Name/Designation/Contact information

Signature
Annex 1: Location Map

(Source: https://www.google.com/maps/place)