Environmental & Social Screening Report

for

Controlled Atmosphere Storage Facility and Grading and Packing Facility

Chachyot (Katlog), Mandi District, H.P.

Submitted to

Himachal Pradesh Horticulture Development Project

Shimla

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Sub-Project Description

Himachal Pradesh Horticulture Development project (HPHDP), Himachal Pradesh in support of World Bank is proposing for the establishment of Controlled Atmosphere (CA) storage and Grading & Packing facilities at Katlog Village located in Chahyot Tehsil, Mandi district. Production of apples in Himachal Pradesh is vast, very common in due seasons and based on the localities production turnover will vary; either huge quantity or reasonable quantity. Proposing of construction of particular processing unit like Grading & Packing unit or market yard or CA storage units will acknowledge the potential and demand in production of apples in that proposed site. It is very important to manage and maintain such demanding fruits until the various purposes of its production is accomplished without compromising in terms of quality. However, due to the lack of Grading and Packing, CA storage facilities in various regions of apple cultivation, the apple growers are expected to reap losses. Hence, there is an immediate need to set up these facilities to take advantage of the best quality apples grown and adding value to it would enable better realization of the fruit. Controlled Atmosphere (CA) storage slows ripening and maintains firmness, helps to extend the storage life of the products when refrigerator alone is not sufficient.

The proposed facility at Katlog, Chachyot is designed to handle around 1000 MTA for CA storage and around 5600 MTA for Grading & Packing units. The proposed project site is located in Katlog Village (Chachyot) in an area of around 2 Acres and nearer to NH- 3 (12km) N, SH-13 (10km) W. The total fresh water requirement for the proposed project at Katlog site with operations of Controlled atmosphere storage (around 4 to 5 KLD), Grading & Packing (around 8 to 9 KLD), consumption by workers & employees, domestic use and for green area development & maintenance is estimated to be around 12 to 14 KLD. Apart from this, around water of 40 KL of water per annum for fire hydrant and 15 KL per annum for floor washing is also estimated. The wastewater generation from processes and from domestic usage is estimated to be around 7 to 9 KLD , which will be treated in soak pit or portable STP and the treated water shall be used for green area development, dust suppression and the excess, if any, shall be discharged to streams. The total power requirement for Katlog CA and GP facility is estimated to be around 350 kVA with around 250 kVA for CA storage facility and around 100 kVA for GP unit. The required power for the project is proposed to be sourced from Himachal Pradesh State Electricity Board (**HPSEB**) after obtaining necessary approvals. Partial power backup during power failure is proposed to be met by silent DG sets of around 1x200 kVA (for CA) and 1x82.5kVA (for GP) capacity. All the solid waste generated from the CA stores & GP unit shall be disposed as per the Solid Waste Management Rules, 2016. The proposed project of CA stores and G&P unit shall not involve use of any toxic/harmful chemicals during the processing and storage activities. The plant also does not release any

harmful gases in to the atmosphere during the operations. Hence around 2 km of study area is identified all around the project site to collect the baseline data for air, water, soil, noise, ecological and social considerations etc., and the environmental impacts expected to be identified for the project is also reported within the 2 km of study area.

Environmental Site Assessment:

Description: New site at Katlog (Chachyot) village, Chachyot tehsil, Mandi district, Himachal Pradesh state. (Geo-coordinates: Latitude & Longitude 31°33'49.80"N, 77° 1'19.90"E – (tentative centre location).

S.no	Criteria	Sub-criteria	Evaluation (with relative classes)	Site characters, environmental conditions, resources and others, evaluation class & justification
1	**Topography**	**Elevation**	Class-A: More than 3000 m amsl Class-B: Between 1000 to 3000 m Class-C: Less than 1000 m	• Class B (Fair) **Elevation:** 1308 m Avg. (AMSL)
		Slope	Class-A: More than 45° angle Class-B: Between 25 to 45° Class-C: Less than 25°	• Class-C (Good) **Slope:** 15°
2	**Land use/land cover**	--	Class-A: Residential, industrial, prime agriculture land area, forest (reserved forest or protected forest), gullied or ravenous land, waterlogged area. Class-B: Earlier developed area or containing suitable civil structures. Class-C: Agriculture fallow land, open land, wasteland.	• Class-C (Good) **Landuse:** Agriculture land
3	**Hydrology**	**River/lake**	Aerial distance: Class-A: Less than 200 m distance Class-B: Between 200 to 300 m Class-C: More than 300 m	• Class- C (Good) **River:** Beas River-11km NE. **There is Nala named Juni khad (rivulet) which is tributary of Beas river and it is around 80 m from the site. It is seasonal water body which is dry during most of the year and has no potential or record for flooding even during monsoon. Elevation difference

				between site and Juni Khad is 12 m.
4	**Geology**	**Seismic area**	Class-A: Earthquake zone – IV & V Class-B: Earthquake zone – III Class-C: Earthquake zone – II	• Class-A (Poor) **Earthquake Zone:** V **Although in hazard area, all the civil structures will be designed as per earthquake resistant design of features of new structures and/or strengthen existing structures.
5	**Ecological and/or sensitive areas**	--	Class-A: Within protected area and ecological sensitive zone (ESZ). Class-B: Away from ESZ. Class-C: Not within 10 km.	• Class-B (Fair) **WLS:** Shikari Devi Wildlife Sanctuary -9km (around)-SE
6	**Transport system**	**Roadway**	Class-A: National highway (NH), state highway (SH), HPPWDs scheduled road and bye-pass road <15 m; District road < 10 m; Non-schedule and municipal road < 3 m distance. Class-B: National highway (NH), State highway (SH), HPPWDs (Himachal Pradesh Public Works Department) scheduled and bye-pass road =15 m; District road = 10 m; Non-schedule and Municipal road = 3 m distance. Class-C: National highway (NH), state highway (SH), HPPWDs scheduled and bye-pass road >15 m; District road >10 m; Non-schedule and municipal road >3 m. Distance is from center line of road.	• Class-C (Good) **Transport:** ➢ NH-3, 12km-North ➢ SH-13, 10km–West ➢ Other road is around 55 m (SW)
7	**Habitation**	**Town/ village/ hamlet**	Class-A: Less than 500 m distance Class-B: Between 500 to 600 m Class-C: More than 600 m	• Class-A (Poor) **Habitation:** Katlog Site is around 200 m (NW) from village which is approximately at 50 m height from site. **Useful intervention facility, if seen from the

				perspective of easy of doing business having facility with sufficient land area and road-transport accessibility for vendors and customers also employees and labour.

Note: -
(i) Relative classes and grades for evaluation: Class-A (Poor), Class-B (Fair), Class-C (Good).
(ii) Used acronyms of units/abbreviations: m=metre, km=kilometre, amsl= above mean sea level; direction: N for North, E for East, S for South, W for West, NE for Northeast, NW for Northwest, SE for Southeast and SW for Southwest; HPPWD = Himachal Pradesh Public Works Department of Government of Himachal Pradesh, India

Evaluation:	**Class score:**	**Class-A**	**Class-B**	**Class-C**
		2	2	4
Comments:	**Overall rank & analysis report**	**Good** As per the analysis of detailed screening criteria, the proposed project can be accepted for establishment in the identified site from both social & environmental perspectives		

Used references:

(i) Topography, slope angle limit, as per document of Himachal Pradesh Town and Country Planning Rules-2014 amended 2016, Department of Town and Country Planning, Shimla, Government of Himachal Pradesh state, India. http://ud-hp.in/pdf/tcp_plans_2014.pdf

(ii) Land cover, as per environmental guidelines for industries of Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. http://moef.gov.in/wp-content/uploads/2017/06/moef_gov_in_citizen_specinfo_enguin_html.pdf

(iii) Hydrology: setback distance to flood plain extent, flood plain of riverine systems, environmental guidelines for industries of Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. http://moef.gov.in/wp-

(iv) Seismic area, earthquake hazard map of Himachal Pradesh, Himachal Pradesh State Disaster Management Authority of Government of Himachal Pradesh, India. https://hpsdma.nic.in//admnis/admin/showimg.aspx?ID=1225

(v) Ecological and/or sensitive areas, siting guidelines for industries, Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India. http://moef.gov.in/wpcontent/uploads/2017/06/moef_gov_in_citizen_specinfo_enguin_html.pdf

(vi) Transport system–roadway: (a) setback distance of structures from road, Himachal Pradesh Town and Country Planning Rules-2014 amended 2016, Department of Town and Country Planning, Government of Himachal Pradesh state, India. http://ud-hp.in/pdf/tcp_plans_2014.pdf

(b) Setback distance of structures from road, for city roads is 7 metres and non-schedule roads and municipal roads is 3 metres for apartments regulations, draft development plan of Shimla city of Shimla district in Himachal Pradesh state, Department of Town and Country Planning, Government of Himachal Pradesh state, India. http://tcp.hp.gov.in/Application//uploadDocuments/devlopmentPlan/PlanDoc020150127_173301.pdf

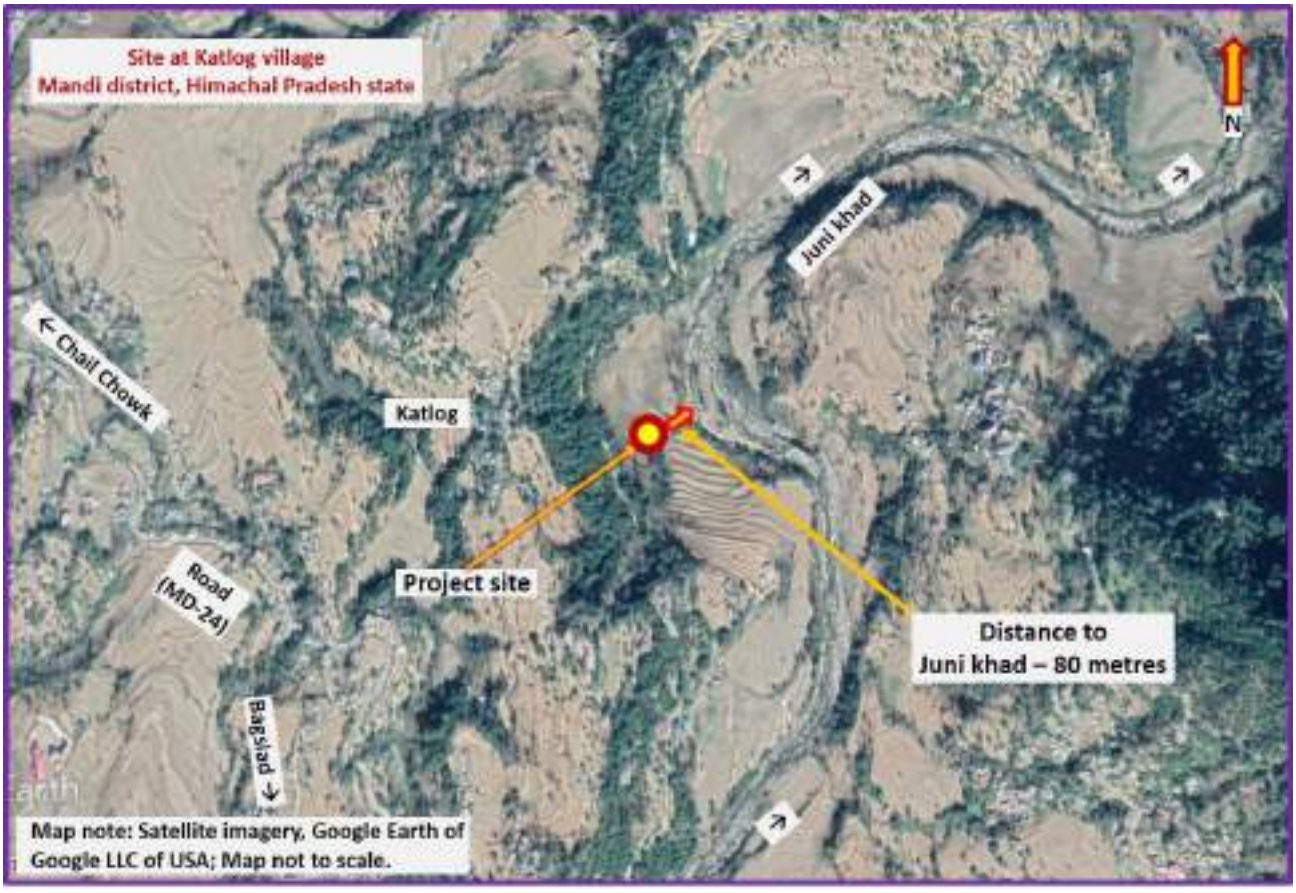
(vii) Habitation, distance to habitation, Manual of Swachh Bharat Mission, National Institute of Urban Affairs, Ministry of Urban Development, Government of India. https://smartnet.niua.org/sites/default/files/resources/Book2.pdf

Site Selection Criteria

The enviornmental site assessment was carried out by considering the parameters like topography, hydrology, geology, ecological or sensitive areas, transport system and habitation keeping in view of the site infra available. The available guidelines and notifications from Ministry of Environment and Forest, and HP Town & Country Planning Rules were refered to identify the suitability of the site.

The overall rank assigned for proposed project site for establishment of CA & GP faciliteis is marked "Good". Hence, as per the analysis of detailed screening criteria, proposed mitigations and project site meeting the site specific requirements, the proposed project of Controlled Atmosphere storage and Grading & Packing Facility at Katlog, (Chachyot) site can be accepted for establishment in the proposed identified site, from both social & environmental perspectives.

Location Map of Proposed Site – Katlog (Chachyot) CA Storage and Grading & Packing Units



Environmental Screening and Classification

(A) Impact Identification

Has sub-project a tangible impact on the environment?	The Controlled Atmosphere Storage and Grading & Packing Facilities at Katlog (Chachyot) Village, Mandi District, Himachal Pradesh, is proposed to be constructed to enhance the quality of the production. Some of the common equipment in the proposed plants facilities are compressor, pumps, nitrogen control unit, temperature control unit, Oxygen and Carbon Dioxide control unit, conveyors, washing unit, storage tanks, brushing line, blowers for drying etc. The air pollution identified from within these facilities are mainly due to DG sets, pumps, vehicles etc. The environmental management plan will be designed to reduce or minimize the air emissions and will restrict the concentration levels within the threshold limit values so that they will not exceed the regulatory standards. Similarly, the liquid effluents generated from the facilities are mainly comprised of organic pollutants which will be treated in a suitable waste water treatment method, to meet all the specified parameters for discharge. The solid waste generated during all the unit operations is collected properly and segregated into organic and inorganic materials. The recyclables like plastics, packaging materials etc., are disposed to authorized recyclers/agents. The organic matter segregated is further processed by either composting or anaerobic treatment methods. By adopting suitable environmental management plan and treatment techniques, the environmental impacts arising out of the CA Storage and Grading & Packing facilities will be minimized to acceptable limits. Thus, there will not be any impact on the surrounding environment due to the proposed up method of operation, technology, maintenance of CA storage and Grading & Packing units at Katlog (Chachyot).

What are the significant beneficial and adverse environmental effects of the sub- project?	The anticipated environmental effects of the sub-project include: • Air pollution • Water pollution • Solid waste generation • Noise pollution • Soil pollution • Flora and Fauna disturbances The liquid effluents mainly consist of suspended matter, BOD and COD, and the main source of solid waste from grading & packing unit is inherent losses besides material spillages, leakages, defective/returned/culled product (apples) are treated in a suitable treatment plant to minimize the adverse impacts on the environment. The solid waste generated during all the unit operations are collected properly and segregated into organic and inorganic materials. The recyclables like plastics, packaging materials etc., are disposed to authorized recyclers/agents. As determined to construct the CA storage and Grading & Packing units with advanced facilities, sophisticated instruments there is an expected significant improvement in quality of the product and also in overall environmental aspects related to the proposed facilities. The people who are involved in the project will get benefited in terms of Environmental Health & Safety improvements made within the project activities. The quality and standard of living of the people is also expected to improve along with the benefits to economy of the region, due to the proposed project. Substantial mitigation measures to abate environmental instabilities have been proposed, and are discussed in the following sections and Environmental and Social Impact Assessment (ESIA) report.

Does the sub-project have any significant potential impact on the local communities?	The establishment of CA storage and Grading & Packing units at Katlog (Chachyot) is mainly to introduce the modern technology which will enhance the capacity, cooling efficiency and also reduce the environmental effects on the human population working within the industry. The advanced technologies adopted will increase the cooling efficiency, produce best quality apples and it will raise the Environmental Health & Safety aspects of the workplace. Even though the advanced technology involves in operation process, it creates an employment for the surrounding inhabitants in maintenance and operational division. As the employment potential increases, the local communities are benefitted economically and the quality of life of communities will be enhanced. The environmental management plan prepared for CA storage and Grading & Packing units at Katlog (chachyot) by introducing BATNEEC systems will significantly improve the environmental conditions within the process locations and reduce the environmental impacts in the surrounding working areas. The proposed project might provide transportation mode facilities if needed for the purpose of the proposed facilities to be served, which would eventually meet the demand of localities. Hence, the proposed project will not have any significant potential adverse impacts on the local communities. However, the following minor impacts may be envisaged: • The project would increase floating population and influx of labor and may adversely spread certain communicable diseases, if not checked. • Similarly, the frequent movement of vehicles would create problems related to traffic congestion. It may also lead to air and noise pollution in the local dwellings. • No acquisition of local land is envisaged for the expansion of the project and hence no Rehabilitation & Resettlement (R&R) issues are envisaged. • There may not be any adverse impact on indigenous population and their livelihoods due

	to the project. • The project would result in creation of jobs for the local people and also leads to the growth of ancillary services in the local areas.
What impact has the sub-project on the human health?	The CA storage and Grading & Packing units generates minimal liquid and solid waste from different sections like floor cleaning, , fruit collection, washing, processing areas, and conveying from other unit operation areas. The environmental control measures to be provided and advanced modern equipment to be introduced in the CA storage and Grading & Packing units will drastically reduce the air emissions, leakages etc. Closed pipeline systems are used to carry the liquid effluents to the treatment plant for final disposal which helps in eliminating emission of bad odor. In addition to the above, all the personal protective equipment in terms of masks, eye protective, hand gloves, leg boots, specified aprons, helmets etc. will also protect the workers' health to a great extent to minimize the exposure to cell pollutant parameter. The environmental management protection equipment of the CA storage and Grading & Packing areas will meet the regulatory standard levels for the workers. The fresh air circulation by providing proper ventilation, cross ventilation to let go the emitted air and let in the fresh air, sufficient lighting, by regularly monitoring using the lux meter will also improve the in-house working area's atmosphere for the entire workforce. Regular health checkups by the project management will be practiced at the CA Storage and Grading & Packing units for all categories of workers, to update the health data and to identify any health issues in advance so that proper mitigation steps can be taken. The project would also have some ill effects on health of local communities due to water contamination, emissions, dust and traffic pollution during the construction and operational phases which will be nullified by implementing a proper environmental management plan.

(B) Impact Mitigation

What alternatives to the sub-project design have been considered and what mitigation measures are proposed?	• The CA storage and Grading & Packing units identifies some of the key areas that can ensure the safety of operations • Improved CA storage and Grading & Packing facility safety systems • Robust traceability systems • Crisis management system • Risk identification and communication system • Best available techniques not entailing excessive cost (BATNEEC) system will be adopted wherever possible to minimize the adverse impacts of the CA Storage and Grading & Packing unit operations. The system will use the most efficient pollution control techniques maintaining the balance between the economic costs and environmental costs. These techniques will considerably benefit the facility in optimizing the storage capacity and environmental impacts. • Appropriate mitigation measures are suggested to control of air, water, noise pollution, solid waste generation etc. are discussed in detail in the following sections and ESIA report. • The workers are suggested to be provided with necessary Personal Protective Equipment while working in facilities and periodic health check-ups for the workers and local communities are suggested. • Project execution team needs to be educated about rights and duties towards direct workers and contract workers • Skill gap analysis is suggested to create employment opportunities to the local people based on priority, educational qualification and skill set • Provision of infrastructural facilities for workers' recreation, sanitation, health and hygiene is suggested.

	• Sewerage and storm water systems to be provided based on maximum rainfall and maintained properly with regular checks for smooth flow of water • Training programs for workers on efficient handling of waste, safety at work, gender mainstreaming, child labour and rights of indigenous people & livelihoods.
Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in sub- project preparation?	Extensive stakeholder dialogues were conducted through different social tools like Focus Group Discussions (FGDs), participatory rural appraisal covering local farmers, workers, staff, self-help groups, community based organizations, NGOs and cooperative societies.

(C) Categorization and conclusion

Conclusion of the environmental screening:

- ✓ Sub-project is declined □
- ✓ Sub-project is accepted ■ Yes

- ✓ Sub-project is classified as environmental Category B and needs EMP ■ Yes

- ✓ Sub-project is classified as environmental Category C and does not need EMP □

Social Screening

Social safeguards screening information		Yes	No
1	Is the information related to the affiliation, ownership and land use status of the sub-project site available and verifiable? (The screening cannot be completed until this is available)	Yes	
2	Will the sub-project reduce people's access to their economic resources, such as land, pasture, water, public services, sites of common public use or other resources that they depend on?		No
3	Will the sub-project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?		No
4	Will the sub-project result in the temporary or permanent loss of crops, fruit trees and household infrastructure (such as ancillary facilities, fence, canal, granaries, outside toilets and kitchens, etc.)?		No
If answer to any above question (except question 1) is "Yes", then OP/BP 4.12 Involuntary Resettlement is applicable and mitigation measures should follow this OP/BP 4.12 and the **Resettlement Policy Framework**			
Cultural resources safeguard screening information		**Yes**	**No**
5	Will the sub-project be implemented in the vicinity of a cultural heritage site?		No
6	Will the sub-project require excavation near any historical, archaeological or cultural heritage site?		No
If answer to question 5 is "yes", then **OP/ BP 4.11 Physical Cultural Resources** is applicable. In this case, sub-project proponent must provide evidence that consultation was held with and an agreement on this sub- project was obtained from an authorized representative of culture and heritage protection authority. If answer to question 6 is "Yes", then **OP/BP 4.11 Physical Cultural Resources** is applicable and possible chance finds must be handled in accordance with OP/BP and relevant procedures provided in this EMF.			

Environmental Management Plan

Part A: General Project and Site Information

Institutional & Administrative			
Project title	Conducting ESIA studies and preparation of ESMP for moderate to high risk activities under - HPHDP		
Sub-Project title	Environmental & Social Impact Assessment Report for Controlled Atmosphere Storage and Grading & Packing Facilities at Katlog (Chachyot), Mandi District, Himachal Pradesh		
Scope of site-specific activity	• Undertaking survey through field visits to study project interventions requiring EIA/ESIA • Social impact assessment in consultation with stakeholders to identify and rank key issues and suggestive measures to address the concerns of all stakeholders • Assessing Current state of environmental and socio-economic conditions in the project site area • Identifying and evaluating the environmental and social impacts expected due to the project activity. • Evaluation of alternatives to avoid and/or minimize high risk impacts. • Identifying needs or existing gaps in the socio-economic conditions of the project. • Preparation of Intervention specific socio-environment Baseline Survey Report. • Increase quality of life for workers, improved sanitation, transportation and recreational facilities in the work place. • Suggest necessary capacity building and awareness as per identified needs. • Create awareness among project workers regarding terms and conditions of employment, gender inclusivity and also generate more employment opportunities to the indigenous/local people.		
Institutional arrangements	Task Team Leader: HPHDP	Safeguards Specialist: HPHDP	
Implementation arrangements (Borrower)	Implementing entity: HPHDP	Works supervisor: PCU - HPHDP, PIU – HPMC	Works contractor: RESPL
Site Description			
Who owns the building to be constructed / extended / reconstructed?	Horticultural Produce Marketing and processing corporation limited. – HPMC		

Who owns the land allocated for sub-project? Who uses the land (formal/informal)?	Horticultural Produce Marketing and processing corporation limited. – HPMC Farmers Organization, societies and private entrepreneurs
Description of physical and natural environment, and of the socio-economic context around the site	The salient physical features of the project and details of natural environment are given below: • Location : Katlog (V), Chahyot (T), Mandi (D), HP • Geographical co-ordinate: 31°33'49.80"N, 77° 1'19.90"E • Elevation : 1308 m Avg. (AMSL) • Nearest railway station : Shimla Railway Station-53 km-S (aerial distance) • Nearest highway : NH- 3 (12km) N, SH-13 (10km) W • Nearest water body : Juni Khad (Jayuli Channel)- 0.08 km-E • National parks/Wildlife sanctuaries: Shikari Devi Wildlife Sanctuary -9km (around)-SE The prevailing socio-economic aspects of people inhabiting villages in the core and buffer zone of the proposed project facility, as per 2011 census: The study area consists of around 693 people out of whom male population is 362 and female population is 331. Working and non-working population percentages of the village is 21.3 and 78.
Which of the project intervention sites does sub- project related to and how?	The sub project is related to Controlled Atmosphere storage and Grading & Packing facilities, Katlog, Chachyot, Tehsil, Mandi, Himachal Pradesh.
Legislation	
National & local legislation & permits that apply to sub- project activity	The sub-project is required to comply with the relevant Laws and Regulations of the State Pollution Control Board.
Public Consultation	
When / where the public consultation process took / will take place	Extended public consultations were conducted in the project area and nearby villages through FGDs, participatory rural appraisal techniques. These consultations covered issues of local farmers, women & migrant workers, staff, community based organizations, NGOs and cooperative societies.
Attachments	
Attachment – 1	Eco Sensitive Map

Part B: Safeguards Information

Environmental /Social Screening			
Will the site activity include/involve any of the following?	**Activity/Issue**	**Status**	**Triggered Actions**
	A. Building rehabilitation	[✓] Yes [ ] No	See Section **A** below
	B. New construction	[✓] Yes [ ] No	See Section **A** below
	C. Individual wastewater treatment system	[✓] Yes [ ] No	See Section **B** below
	D. Historic building(s) and districts	[ ] Yes [✓] No	See Section **C** below
	E. Acquisition of land	[ ] Yes [✓] No	See Section **D** below
	F. Hazardous or toxic materials	[ ] Yes [✓] No	See Section **E** below
	G. Impacts on forests and/or protected areas	[ ] Yes [✓] No	See Section **F** below
	H. Handling / management of medical waste	[ ] Yes [✓] No	See Section **G** below
	I. Traffic and Pedestrian Safety	[✓] Yes [ ] No	See Section **H** below
	j. Renewable energy (optional)	[✓] Yes [ ] No	See Section **I** below

Activity	Parameter	Mitigation Measures Checklist
General Conditions	Notification and Worker Safety	• The workers are suggested to be provided with necessary Personal Protective Equipment while working in facilities and periodic health check-ups for the workers and local communities are suggested. • Project execution team needs to be educated about rights and duties towards direct workers and contract workers • Skill gap analysis to create employment opportunities to the local people based on priority, educational qualification and skill set • Provision of infrastructural facilities for workers' sanitation, drinking water, health & hygiene and recreation. • During construction, temporary sheds for accommodation of migrant workers and dispensary/health center within-premises are proposed for facility of the construction workers at site. • During site development, necessary firefighting and safety precautions such as sand buckets, sirens and sign boards will be deployed for the safety of workers, as per requirement
A. General Rehabilitation and /or Construction Activities	Air Quality	**Pre-Construction & Construction phase:** Most of the construction dust will be generated from the movement of construction vehicles on unpaved roads. Unloading and removal of soil material acts as a potential source for dust nuisance. The control measures proposed to be taken up are given below • Water sprinkling on main haul roads in the project area will be done, this activity will be carried out at least twice a day, as per the need, frequency will be increased on windy days. In this way around maximum dust reduction will be achieved from the exposed

Activity	Parameter	Mitigation Measures Checklist
		surface. • The duration of stockpiling of excavated mud will be as short as possible as most of the material will be used as backfill material for the open cut trenches for road development. • Temporary thin sheets of sufficient height (3m) will be erected around the site of dust generation or all around the project site as barrier for dust control. • Tree plantations around the project boundary will be initiated (where ever required) at the early stages by plantation of 2 to 3 years old saplings using drip irrigation or by regular watering so that the area will be moist for most part of the day. • Flue gases are emitted from DG set operations and fuel burning. • All vehicles carrying raw materials will be instructed to be covered with tarpaulin / plastic sheet, unloading and loading activity will be stopped during windy period. • To reduce the dust movement from civil construction site to the neighborhood, the external part of the building will be covered by plastic sheets. **Operation phase:** • DG sets are to be provided with a stack height of 30m as per MoEF&CC guidelines for proper dispersion of flue gases sulphur dioxide and oxides of nitrogen. • Internal roads will be concreted / asphalted to reduce dust emissions. • Vehicles are advised to have PUC certification for coming into the plant to avoid pollution through exhaust gases. • Speed restriction will be followed within the project area and speed breakers will be provided at entry and exit points with proper sign board.

Activity	Parameter	Mitigation Measures Checklist
		Odor: • Proper air flow control or negative air pressure within the storage unit, either through innovative design interventions, or installing odor control equipment will be maintained to abate odor. • Waste dump area will be delineated from the main activity area so as to eliminate potential public exposure to odor. • Odor control equipment as mist air dry fog odor suppression systems or atomizers can be installed at odor generation source. • Neutralizers such as sodium hypochlorite, potassium permanganate or commercial preparations as Ecosorb can be applied to control odor nuisance
	Noise	**Construction phase:** • Noise generating equipment will be used only during day time for brief period based on its requirement. • Proper enclosures will be used for reduction in noise levels. Where ever possible, the noise generating equipment will be kept away from the human habitation. • Temporary thin sheets of sufficient height (3m) will be erected around the noise generating activity or all around the project site as barrier for minimizing the noise propagation to surrounding areas. • All vehicles entering into the project will be informed to maintain speed limits, and not blow horns unless it is required. **Operation phase:** • Acoustic enclosures, noise barriers or shields will be provided for DG set and pumps etc.,

Activity	Parameter	Mitigation Measures Checklist
		and wherever possible they will be mounted on anti-vibration pads to minimize the noise. • Regular maintenance will be carried out as per the schedule prescribed by the manufacturer for smooth functioning.
	Water Quality	**Construction phase:** • The total water required for construction is proposed to be sourced from Irrigation and Public Health department (IPH) after obtaining necessary approvals. No ground water shall be used for the project as per notification No. IPH-P&I-II-EE(M)-GWA/2019-20 1167-76 Dt. 20.12.2019 • The raw water received is stored in a tank and used for construction activities. • During site development necessary precautions will be taken, so that the runoff water from the site gets collected to working pit and if any over flow is, will be diverted to nearby greenbelt / plantation area. **Operational phase** • The source of water met with Himachal Pradesh Irrigation and Public Health Department, (HPIPH), the required fresh water is 12 to 14 KLD for processing and domestic purposes. Moreover it is estimated that water of 40 KL per annum for fire hydrant and 15 KL per annum for floor washing is required. The wastewater generated accounts for around 7 to 9 KLD, is proposed to be treated in soak pit or portable STP and the treated water shall be used for greenbelt, dust suppression and the excess shall be discharged to streams. The raw water received is stored in a collection/storage tank and used for process and domestic activities • The raw water received is stored in a collection/storage tank and used for process and domestic activities

Activity	Parameter	Mitigation Measures Checklist
		• The treated water shall be reused for greenbelt, dust suppression and the excess shall be discharged to streams. • Water used for domestic activities should meet IS 10500:2012 drinking water standards and water quality criteria as per CPCB updated on 11 September, 2017. • The rooftop runoff can be used for ground water recharge through recharge pits.
	Waste management	**Construction phase:** • Waste produced from the construction activities within the facility area will be regularly collected in bins and kept in a storage area and protected with proper sheets to prevent any potential waste scatter • Attempts will be made to keep the waste segregated into different heaps as far as possible so that their further gradation and reuse is facilitated. • Materials, which can be reused for purpose of construction, leveling, making roads/ pavement will also be kept in separate heaps from those which are to be sold or land filled. • Construction waste generated will be deposited at collection center made by local body or handed over to the authorized processing facilities of construction and demolition waste. • Construction activities may generate some quantity of muck, which is managed by mixing it with straw, stone dust or rice husk, to reduce the adverse impacts. **Operation phase:** • The domestic solid waste generated will be collected from processing area and brought

Activity	Parameter	Mitigation Measures Checklist
		to one place, and it will be segregated into recyclable, organic and inorganic shall be treated as per MSW management rules 2016. • The recyclables will be disposed to local vendors and compostable (rotten fruit waste) will be converted to the vermin compost in the dump yard or by Organic Waste Converter (OWC), whereas the non-compostable solid waste will be disposed into local municipal bins. There will be a minimal waste from the project site.
B. Individual wastewater treatment system	Waste Water Quality	A total wastewater of 5KL generated will be collected and diverted to soak pit or portable STP. The treated water will be used for gardening and dust suppression; excess will be discharged to streams.
C. Historic building(s)	Cultural Heritage	There exists no historical building representing cultural heritage within 2km radius study area.
D. Acquisition of land	Land Acquisition Plan/Framework	The land acquisition activities are the responsibilities of HPMC for this sub-project
E. Toxic Material	Toxic / hazardous waste management	All the project processing activities are mainly involved in storing the fruits and final products & subsequent final product and mainly comprises of organic in nature. There are no toxic components or materials involved in Katlog (Chachyot) project operations. Hence, there will not be any toxic materials arising out of this project.
F. Affected forests, wetlands and/or protected areas	Protection	A wild life sanctuary is located at a very far i,e; around 10Km distance from Katlog (Chachyot) project site. Nevertheless all necessary mitigation measures will be implemented as per environmental management plan. The proposed project do not envisage any major trees cutting and moreover greenbelt development will be carried out as per site specifications. However the project will have a very minimal impact on the surrounding flora and fauna.
G. Disposal of medical waste	Infrastructure for medical waste management	Medical waste is usually not envisaged in the facility. Any minor medical waste generated through use of first aid kit due to any injuries will be sent to appropriate bio-medical waste handlers as per the Bio-Medical Waste Management Rules, 2016 and its amendments.

Activity	Parameter	Mitigation Measures Checklist
H Traffic and Pedestrian Safety	Direct or indirect hazards to public traffic and pedestrians by construction activities	Vehicular emissions are the major source of air quality impacts in the study area. The principal cause of air pollution during the construction phase is the diesel-powered vehicles used in haulage of aggregates, earth and other construction material. Gaseous emissions like NO_X, CO and Hydro Carbon might be released from the vehicular movement, which has a direct impact on the environment. Increase in the traffic in the study area has a direct impact on the existing natural environment such as air quality and the ambient noise levels as a heavy release of automobile exhaust and vehicular noise generation is envisaged. **Impacts:** ➢ Minor effects on health of nearby residents such as headache, cough and respiratory problems etc. ➢ Increase in accidents due to the speed of the vehicles may be observed. **Mitigation measures :** ➢ Existing roads have to be repaired; new roads and road intersections have to be laid. ➢ The construction material should be transported during non-peak hours for avoiding heavy traffic. ➢ The construction material must be placed inside the boundary of facility without causing inconvenience to the pedestrians and avoiding unnecessary traffic jam ➢ Only trained and licensed drivers should be allowed to access vehicles used for transport of materials to project site. However the present road due to the establishment activity and increase in the number of vehicles that visit the site, the traffic is not going to increase drastically. This implies that traffic will not have a major impact due to the proposed establishment.

Activity	Parameter	Mitigation Measures Checklist
I. Renewable Energy	Production of green energy for minimization of carbon footprints	Solar Grid on rooftops for power generation to supplement partial power requirement of the project and solar street lighting are proposed as they are renewable sources of energy which would reduce the carbon footprint through green energy production which will be recommended as per site specifications.

Part D: Monitoring Plan

Potential impact of sub-project	**What** (Is the parameter to be monitored?)	**Where** (Is the parameter to be monitored?)	**How** (Is the parameter to be monitored?)	**When** (Define the frequency / or continuous?)	**Why** (Is the parameter being monitored?)	**Who** (Is responsible for monitoring?)
Air quality	PM_{10}, $PM_{2.5}$, SO_2, NO_x, and CO	Ambient air quality within the premises of the facility to be monitored.	As per the CPCB/SPCB guidelines and standards	Every quarter/ once in a month as per CFE/CFO conditions issued by SPCB	The parameters are monitored to observe any deviation with the specified standards and propose the respective control measures to maintain the levels well within the standards.	Plant Manager
Noise quality	Noise levels (day and night equivalents)	Noise levels within the premises of the facility to be monitored.	As per the AAQ Standards in respect of Noise SO 123 E dt. 14th Feb 2000 standards	Daily till the construction activities are completed /once in a month during operation phase as per CFE/CTO conditions given by SPCB	The noise levels are monitored to observe any deviation with the specified standards and propose the respective control measures to maintain the levels well within the standards.	Plant Manager / Site In charge

Potential impact of sub-project	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
Water quality	Physico-chemical and Biological parameters such as Colour, pH, TDS, EC, *E. Coli* etc.	Monitoring ground & surface water quality in the project site.	As per IS – 10500:2012 and IS 2296–1992 Inland surface water standards	Once in a quarter/ as per CFE/CTO conditions given by SPCB	To monitor, analyze and observe any deviation from the standards and taken measures to avoid contamination of ground and surface water.	Plant Manager / Site In charge
Soil quality	Physico-chemical parameters such as Colour, Texture, NPK, heavy metals etc.	Monitoring of soil quality in the project site	As per the standard soil classification – Indian Council of Agricultural Research, New Delhi	Once in a quarter/ as per CFE/CTO conditions given by SPCB	For maintaining the soil quality in and around the project site and to protect topsoil.	Plant Manager / Site In charge
Waste Management	Solid waste/ Hazardous Waste	Within the facility	As per Waste Management rules 2016	Once in a month/ as per CFE/CTO conditions given by SPCB	For reducing the quantity of waste generation, reusing and recycling.	Plant Manager / Site In charge
Health	All relevant parameters of occupational health	Health check-ups for employees within the facility	Applicable rules of Occupational health and	Once in a six months as per CFE/CTO conditions given by	Maintaining health and safety at workplace and	Plant Manager / EHS Manager

Potential impact of sub-project	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
	such as immunization, vaccination etc.	and specially for migrant labour and women workers	Factories act, 2016	SPCB and Factories act, 2016	reducing the risk of exposing to hazard.	
Social aspects - Workers	Workers, including women, migrant workers and contract workers and child labour (if any)	Migrant workers passbooks to be maintained, employment health records to be maintained. Likewise, physical verification of birth certificates and others to check	Applicable rules of inter-state migration act, child labour prevention act and other applicable labour Laws	Once in an year, before the commencement of season especially.	Protection of project workers - women, migrant workers, contracted workers etc.	Plant Manager / EHS Manager
Community Health	Water-borne, vector-borne diseases, and communicable and non-communicable diseases	periodic Health camps for workers, truck drivers and local community	As per the applicable labour laws and international standards and social management framework	Once in six months and continuous monitoring of premises and floating population to facility	Anticipate and avoid adverse impacts on the health of workers and communities.	Plant Manager / EHS Manager

Potential impact of sub-project	**What** (Is the parameter to be monitored?)	**Where** (Is the parameter to be monitored?)	**How** (Is the parameter to be monitored?)	**When** (Define the frequency / or continuous?)	**Why** (Is the parameter being monitored?)	**Who** (Is responsible for monitoring?)
Traffic risks	Road safety risks to workers, local communities and other road users	Conducting periodic Road safety assessment to monitor and preparation of regular reports for the nearer NH- 3-12km-N, SH-13-10km –W.	As per the applicable regulations and international standards	Once in an year	Minimize workers and community exposure to project specific traffic risks	Plant Manager / EHS Manager

Eco sensitive map of Katlog (Chachyot) site of CA Storage and Grading & Packing Facility (2Km radius)