



Environmental Sustainability Plan (ESP)

Project Title: Establishment of Secondary Agriculture Unit for Skill Development in Students and Farmers at NAU, Navsari (CAAST)

Name of the AU: Navsari Agricultural University

Date of project implementation: March, 2017

Name of Nodal Officer (NO): Dr. Shailendra Vijol

Contact Number of NO: 9898842199

Environmental Sustainability Plan (ESP) CAAST Navsari Agricultural University						
Sr. No	Proposed Interventions/ Activities	Compliances applicable	Possible Environmental Impacts	Mitigation Measures	Scope for the integration of environmental Sustainability concerns	Resources Required (budget, technical support etc.)
1	Capacity building of PG students on Secondary agriculture (Seminar/ Symposium/ Conference etc) Topics may be Post harvest technology, Dairy products, Pesticide residue analysis Forest product utilization etc.				<ul style="list-style-type: none"> Adequate integration of topics of environmental science/climate change in syllabus. Celebration of various Days of Environmental Importance Workshops/seminar/ conference on pro environmental themes Orientation programme about Fire safety to participants Orientation about the Acts, Rules etc (Environment Act (1986), National Building 	Funds will be utilized from the sanctioned grant of operational cost in the on-going NAHEP-CAAST sub-project at NAU, Navsari
2	Capacity building of Faculties					
3	Capacity building of PG students and					

	faculties of other SAU's. Topics may be Post harvest technology, Dairy products, Pesticide residue analysis Forest product utilization etc.				Code of India (2005), E-waste rule (2011) etc	
4	Strengthening of existing facilities and building by repair, renovation and refurbishing	<ul style="list-style-type: none"> Construction & Demolition Waste Management Rules, 2016 – Notification 	<ul style="list-style-type: none"> Generation of Debris. Risk Due to lack of safety measures Noise pollution 	<ul style="list-style-type: none"> All debris will be used as alternative purpose such as landfilling. <p>Will follow constructional operations:</p> <ul style="list-style-type: none"> Operations like mixing raw material will be done in areas where people's movement is less workers should use masks. Construction equipment that emits noise will not be used in residential areas during night or near schools and hospitals. 	<ul style="list-style-type: none"> Waste segregation boxes LED lights etc Rainwater harvesting Solar PV (Already installed) 	Funds will be utilized from the sanctioned grant of operational cost in the on-going NAHEP-CAAST sub-project at NAU, Navsari

			<ul style="list-style-type: none"> • Irregular supply and fluctuations in electricity may hazard for human and equipment safety. 	<ul style="list-style-type: none"> • The workers will be provided with gloves, masks, helmets etc. • No child labour will be used (to be ensured with contractor). • Fire extinguishers will be kept. • Provision of standby source for power supply to sensitive and costly equipment. • Ground all sources of power supply for human and equipment safety. 		
5	Establishment of museum for NTFPs & MAPs			<p>Positive Impacts:</p> <ul style="list-style-type: none"> • The established museum will create awareness about NTFPs and MAPs to students and farmers. 		



6	Refinement in existing fruits and vegetable processing techniques		<ul style="list-style-type: none"> • Generation of vegetable/fruit waste/ by-products. • Small quantity of liquid waste will be generated. 	<ul style="list-style-type: none"> • Most of the waste/by-products generated in these activities can be utilized as animal feed/manure after composting. 		
7	Development of new products from fruits and vegetables and their waste utilization					
8	Research and development of new products i.e. fruit based ice cream, nutraceutical-based food products using spray dryer					
9	Development of Banana pseudostem and other agro waste paper articles	Solid Waste Management Rules (SWM), 2016	<ul style="list-style-type: none"> • Generation of Solid waste 	Used as manure after decomposing or utilized by other suitable way. Positive Impacts: <ul style="list-style-type: none"> • Banana pseudostem waste (Agriculture waste) is converted into organic nutrient and other useful products (paper articles etc). 	<ul style="list-style-type: none"> • NAU have patent on manufacturing and processing of Organic liquid nutrient from banana pseudostem sap. 	
10	Development and Refinement of banana pseudostem based organic liquid nutrients and banana waste utilization machineries					
11	Value addition and processing of Few Tree Born Oil seeds	Solid Waste Management Rules (SWM), 2016	<ul style="list-style-type: none"> • Generation of Solid waste 	<ul style="list-style-type: none"> • Used as manure after 		

12	Preparation of innovative articles from wooden and bamboo wastes			decomposing or utilized by other suitable way.		
13	Value addition of tree bark and saw dust			<p>Positive Impacts:</p> <ul style="list-style-type: none"> This is positive effect as waste like tree bark, wood waste, bamboo waste will be converted into innovative articles 		
14	Development of climate resilient automated dairy unit		<ul style="list-style-type: none"> Generation of Liquid Waste 	<ul style="list-style-type: none"> Waste from the dairy plant will be compost and used as manure in crop production. 	<ul style="list-style-type: none"> Fire safety instruments Waste segregation boxes LED lights etc First aid boxes 	
15	Development of milk-based products		<ul style="list-style-type: none"> Generation of Liquid Waste/kitchen waste 	<ul style="list-style-type: none"> Following FSSAI regulations 		
16	Research activities pertaining to pesticide residue analysis from food/ environmental matrices at Food Quality Testing Laboratory (FQTL)			<ul style="list-style-type: none"> Waste generated by FQTL and will be disposed as per the NABL guidelines. 	<ul style="list-style-type: none"> Food Quality Testing Laboratory at NAU is NABL accredited. 	



17	Class room and Laboratory used for CAAST/ Miscellaneous	<ul style="list-style-type: none">Laboratory Safeguards	<ul style="list-style-type: none">Lack of safeguards poses risk of exposure to harmful chemicals and accidents	<ul style="list-style-type: none">Follow proper laboratory safeguardsNABL Guideline	<ul style="list-style-type: none">Replacement of old lights to LED lights for energy conservations.First aid boxesSign boards of Environmental awarenessWaste segregation bins	Funds will be utilized from the sanctioned grant of operational cost in the on-going NAHEP-CAAST sub-project at NAU, Navsari
		<ul style="list-style-type: none">E-waste (management and Handling) Rules, 2016	<ul style="list-style-type: none">Radiation and Heavy metal contamination of ground water /soil	<ul style="list-style-type: none">Any E – Waste generated will be channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer.Will maintain records of e-waste items.		

Signature of Principal Investigator

Date:

Signature of Nodal Officer

Date: