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ENVIRONMENT MANAGEMENT FRAMEWORK

for

Telangana Rural Inclusive Growth Project (TRIGP)

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By Society for Elimination of Rural Poverty (SERP), Telangana State

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Executive Summary

Introduction:

The Telangana Rural Inclusive Growth Project (TRIGP), supported by financial assistance from the World Bank, aims at supporting the Government of Telangana's goal of making the State poverty free by 2017 through a strategy of including the poor in the benefits of economic growth and human development outcomes. The project is also aligned with the Government of India's XII Five Year Plan for a 'faster, sustainable and more inclusive growth' and growth target of 8.2 percent.

The objective of the project is 'to enable selected poor households to enhance incomes and secure increased access to human development services and social entitlements'.

This would be achieved by supporting GoT in scaling up the rural poverty reduction initiatives and the existing institutional platforms of the rural poor with an emphasis on inclusive economic growth and access to human development and social development services. The project will integrate the small and marginal producers to urban markets by making them competitive through value addition and creating jobs for the youth in semi-urban and urban locations. Improving access to services such as education, nutrition, etc. and increased coverage of social safety net and social risk management programs help poor to share benefits of economic growth.

The programs will be implemented in selected geographies (about one third of the state) based on social stratification, value chain potential, and inclusion deficit in HD indicators and access to services and entitlements. Lessons from this project will be concurrently taken to other Mandals in the State which have better outcomes in terms of HD indicators and enhanced income for small producers.

The project has the 5 following components and sub components:

1. Value chain enhancement through producer organizations.
    a. Rural value Chains
    b. Rural retails Chains
2. Human Development
    a. Strengthening the supply of key nutrition, health and pre-school education services
    b. Strengthening the demand for quality nutrition, health, sanitation and pre-school education services
    c. Establishing linkages with value chains
3. Access to entitlements
    a. Improved delivery of service and entitlements
    b. Improved access to productive safety nets
    c. Improved access to vulnerability services
4. TA, ICT & Partnerships
    a. Information and Communication Technologies (ICT)
    b. Partnerships
    c. Technical Assistance to line departments
    d. Centre of Excellence and Knowledge Management
5. Project Implementation Support

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Environment Assessment Study:

The Society for Elimination of Rural Poverty (SERP) has undertaken an Environmental Assessment (EA) of the project to ensure that the planned activities are environmentally sustainable. The study was conducted with an objective of understanding environmental implications of project activities, and to define remedial measures to mitigate any negative impacts, in line with the national and state legal and regulatory framework and the World Bank Operational Policies.

The environment assessment study identified the following key potential environmental issues related to the project interventions

- Possible over exploitation of resources such as ground water for irrigation
- Introducing high yielding varieties which need intensive irrigation and which could result in loss of indigenous varieties
- Increased fertilization that can have negative impact on soil and water
- Setting up mills, processing units and storage structure which need high energy requirement and may release toxic wastes to the environment
- Use of chemicals, waste disposal and energy use in micro enterprises and possibility of health hazards.
- Possibility of contamination of the surrounding environment due to drinking water and sanitation interventions when environment guidelines are not followed

Environment Management Framework:

The objective of Environmental Management Framework EMF is to Ensure Environmental Sustainability of Value chain and Human Development interventions proposed under TRIGP and to contribute to economic enhancement by accessing premiums through Climate friendly practices in value chains and KRuSHE enterprises. The EMF provides a strategy to manage negative environmental impacts of the value chain and human development activities there by sustaining the benefits of these interventions. It also provides the institutional mechanism to operationalise the EMF which contains guidelines, systems and procedures for ensuring environmental sustainability during project implementation. The project triggers the following Operational Safeguard policies of the World Bank: Environmental Assessment (OP 4.01); Forests (OP 4.36); Natural habitats (OP 4.04) and Pest Management (OP4.09). The necessary measures to ensure compliance with these laws, regulations, and policies are included in the negative list and environmental guidelines are developed as part of the EMF.

The EMF is applicable to the following components of TRIGP. The negative impacts need to be addressed or can be avoided by opting for an environment friendly alternative available:

Components	**Applicability of EMF**
Component 1 – Value chain enhancement through producer organizations.	The value chain enhancement has several steps like productivity enhancement, processing, manufacture, storage etc. EMF is applicable at every stage of value chain.
Component 2- Human	Environmental guidelines for interventions in water and sanitation, nutrition etc.
Component 4 – ICT and Partnerships	Guidelines for E waste management. 'Innovation forum' under Partnership component for

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	'Green Business Opportunities'

EMF identifies the possible environmental implications of each interventions proposed under each component and sub component and suggests environment friendly alternatives or mitigation measures for each. It includes 'environment guidelines' or 'environment friendly alternatives' for all the components. It also encourages Green Business Opportunities on the critical environmental issues indentified in the proposed activities through 'innovation forums' 'solution market places' and 'knowledge events' under partnership component.

The EMF implementation strategy is to integrate activity specific environment guidelines (greening of the plans) into the business plans and business proposals (rural chains and retail chains) and Human Development plans right at the inception stage. The system of Environment Appraisal will ensures compliance with applicable laws and regulations of the GoI and the triggered safeguard policies of the World Bank and integration of environment guidelines. The EMF also provides strategy for promoting Green Business Opportunities through innovation forum and strategy to enhance economic benefits by green audits and third party certification of value chain products.

The EMF was prepared in close consultations with key stakeholders on relevant components and EMF implications through discussions at SERP and workshops in select locations – Karimnagar and Rangareddy.

The key implementation arrangements include

- Institutional arrangements: The institutional arrangements are the key for effective implementation of EMF at cluster, district and state levels. The roles and responsibilities of key staff at different levels are provided. However the staffing costs are not included in budget as it would be included as part of Project management costs.
- Monitoring strategy: The focus of monitoring is to ensure the implementation of EMF and also to help in accessing the premiums by green ratings and certification. Internal and external audit mechanisms are planned for the same which are detailed in the EMF.
- Capacity Building Plan: Capacity building plan for staff at various levels with the suggested curriculum and mode of delivery is designed in order to strengthen the capacities of the staff and community at different levels.
- Implementation time line: The implementation timeline is provided with tasks spread across 5 years with 6 monthly intervals.
- Budget: The estimated budget (tentative) for implementation is Rs. 3, 70, 60,000 (rupees three crore seventy lakh sixty thousand only).

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Chapter I

1. Telangana Rural Inclusive Growth Project (TRIGP)

1.1. Background of the project:

Government of Telangana, Proposes Telangana Rural Inclusive Growth Project (TRIGP) which aims at supporting the GoT's goal of making the State poverty free by 2017 through a strategy of including the poor in the benefits of economic growth and human development outcomes. The project is also aligned with approach for XII Five Year Plan for a 'faster, sustainable and more inclusive growth' and growth target of 8.2 percent.

The overall strategy is to look beyond growth and focus on generation of employment to the millions of the youth in the State. This would eventually result in a faster reduction in unemployment and poverty through skill development and also help bridging multiple divides. The project is consistent with proposed CPS (FY 2013-2017) contributing to two main engagement areas viz. spatial transformation, and social inclusion.

The project will integrate the small and marginal producers to urban markets by making them competitive through value addition and creating jobs for the youth in semi-urban and urban locations. Improving access to services such as education, nutrition, etc. and increased coverage of social safety net and social risk management programs help poor to share benefits of economic growth. Finally, the project also supports the Government of India's "Finance Plus" approach by investing in building community institutions that can foster higher order impacts. Firstly, it will aim to bring various schemes together on to one synergistic platform (gender, nutrition health and livelihoods leveraging major govt. scheme such as ICDS and NRHM). Secondly, it will invest in ICT and social accountability mechanisms for improving service delivery in a sustainable manner. Finally, innovations such as, alternate service delivery models, Public-Private-Community-Partnerships (PPCP) will be the key drivers of this project.

1.2. Project Development Objective:

The objective of Telangana Rural Inclusive Growth Project (TRIGP) is 'to enable selected poor households to enhance incomes and secure increased access to human development services and social entitlements'.

This would be achieved by supporting Government of Telangana in scaling up the rural poverty reduction initiatives and the existing institutional platforms of the rural poor under previous IDA supported APDPIP and APRPRP with an emphasis on inclusive economic growth and access to human development and social development services. These programs will be implemented in selected geographies (about one third of the state) based on social stratification, value chain potential, and inclusion deficit in HD indicators and access to services and entitlements. Lessons from this project will be concurrently taken to other Mandals in the State which have better outcomes in terms of HD indicators and enhanced income for small producers.

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1.3. Project Components:

The project has the 5 following components.

1.3.1. Component 1: Value Chain Enhancement through Producer Organizations (US $ 30 million):

The objective of this component is to increase income of 2,50,000 small and marginal farmers by at least 50% through livelihood diversification, productivity enhancement and improved market access. This component will work with those small and marginal producers who have built up productive assets and have previously participated in productivity improvement, cropping technology and market access programs in select livelihoods/sectors. The project now proposes to work with these producers and help them move up the value chain and appropriate the growth opportunities. This will be achieved by organizing them into economic organizations (producer groups/organizations/companies); ensuring high service quality of support services like technology, credit, extension, marketing, etc.; and sustainable access to markets. Strengthening the market links, the project will facilitate value chain partnerships with leading market players and also support in creating local markets by connecting rural producers with shandis, rural haats, *kirana* shops, etc. In other words, the project will create ecosystem for inclusive growth of small and marginal producers.

The above approach will be adopted in key pro-poor sub-sectors/ commodities viz. Paddy, Red Gram, Milk, Poultry and small ruminants which have high potential to scale up and impact large number of poor households. The value chain development strategies center around the following two approaches (i) resource based approach or producer driven value chains based on pre-dominant activity in the area and building upon comparative advantage of poor producers around production systems, organic value chains, agri-nutrition linkages, etc.), and (ii) market induced approach or buyer driven value chains (for e.g. paddy, red gram, milk, etc.) for taking advantage of the emerging market opportunities in local and urban markets. Here the project will provide end-to-end solutions for helping poor access commodity and product markets. The project will systematically develop retail chains for connecting producers with consumers and trapping and appropriating value creation in local area. The component will have two sub-components viz. Rural Value Chains and Rural Retails Chains/Social Enterprises.

Rural Value Chains: As part of this sub component, the key activities to be undertaken would include; production planning along the production cycle; cost reduction through inputs aggregation; productivity enhancement through seed replacement and dissemination of improved package of practices through community managed extension; quality improvement of the produce through grading, sorting and packaging; creating local value addition infrastructure; higher unit value realization through aggregation and collective marketing to extract full value of the value chain intervention. The key investments to be supported under the sub-component include (i) Building and strengthening economic organizations of the small and marginal producers (ii) Establishing Community based Productivity Enhancement Systems (ii) Supply of planting material, seed and breed development services (iv) Creation of small scale productive infrastructure for improving labor productivity local value addition (v) Building financial sector linkages for producer organizations: and (vi) Technical assistance for organizing producer organizations, value chain relationships and building viable business model.

Rural Retail Chains: The objective of this sub-component is twofold. Firstly, it will systematically develop localized value chains that connect rural producers/producer groups and

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home-based enterprises with the rural poor consumers. This will include transforming the product mix and business models of nearly 7500 traditional rural retail *(kirana)* stores (existing traders belonging to SCs and STs and new small entrepreneurs) into social enterprises providing a range of products related to nutrition, hygiene and alternate energy and linking them with large social enterprises. These traditional stores and enterprises will be organized into a network of rural retail marts (Knitting Rural Self Help Enterprises (KRuSHE) Marts) and home-based enterprises (KRuSHE Enterprises). Secondly by transforming the *kirana* stores to provide counseling services and offer good quality, affordable, safe and socially relevant goods (with emphasis on nutritionally significant items, marketing affordable quality sanitary products, personal hygiene products, etc.) and other essential goods to the poorest households, the project will enhance and improve the quality of consumption of the poor households. Therefore, the success of this sub-component is intricately linked to the human development impacts that the livelihoods investments will generate. The key investments to be supported under the rural retail chain sub component include (i) Establishing a rural retail chain by transforming traditional *kirana* stores and building brand KRuSHE that will be positioned as convenient and affordable access points for good quality, safe and standard products; (ii) Promoting clusters of home based KRuSHE Enterprises with particular emphasis on processing and value addition of agriculture produce and manufacturing of nutrition products; (iii) Capacitation (entrepreneurship and retail management training) and business development services to KRuSHE Marts and KRuSHE Enterprises; (iv) Building association of KRuSHE Marts that are homogeneous in size and financial stature; (v) Investments in technology platforms like an e-commerce portal for KRuSHE products and IVRS and SMS based technologies to source, aggregate and execute orders.

1.3.2. Component 2 - Human Development (US $ 15 million):

Child development is influenced by both nutrition-specific interventions, such as maternal and child dietary supplementation and infant and young child feeding practices, that address the immediate causes of suboptimum growth and development, and by nutrition-sensitive interventions, such as livelihoods and social safety nets that address the underlying determinants of malnutrition. SERP, with its vast network of women's groups, has the potential to converge both nutrition sensitive and specific interventions at the village level, thus creating an enabling environment for optimum child development at scale and in a sustainable manner, where each household has access to both nutrition specific and nutrition sensitive interventions and programs.

The project aims to bring about this convergence by building capacities and empowering village organizations (VOs) to demand and access services, while also investing in strengthening the capacity of systems to deliver. Therefore, the focus of project interventions is to enable the demand side to hold the supply side accountable for service delivery in the Human Development (HD) sector, as well as to improve HD service delivery by strengthening the existing public systems to deliver quality services. Clear linkages with the value chain component under the project, will further ensure social safety and livelihoods interventions are also appropriately tapped, contributing to optimum child development outcomes. The specific interventions to operationalize this approach include:

<u>Sub-component 1: Strengthening the demand for quality nutrition, health, sanitation and pre-school education services</u> by undertaking specific mobilization at the village level centred on HD outcomes including nutrition, sanitation, health and pre-school education. This component will

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build on the existing government human development convergence effort "*Maarpu*" (change) which is a convergence effort by the Health, Women's Development and Child Welfare, Panchayati Raj and Rural Development Departments, working along with the Self Help Groups (SHGs) and their federations, to bring about a quick decline in the Infant Mortality Rate (IMR), Maternal Mortality Ratio (MMR) and Malnutrition in the State. It focuses on implementation and monitoring of 20 key interventions to reduce MMR, IMR and malnutrition through convergent service delivery and behavior change communication at the habitation level and envisages active participation of Village Organisations (VOs) in this process, both as a means of awareness generation and creating demand side pressures for quality service delivery.

Specific activities under this component will include (a) Development and financing of village HD plans, where Village Level Coordination Committees (VLCCs) constituted under *Maarpu* will be capacitated develop HD action plans outlining the HD gaps and priorities of the village, provided an indicative menu of activities or actions that they can undertake to improve the HD status of their village, and guided on the implementation of these activities by CRPs. The focus of these activities will be on health, nutrition, water, sanitation, hygiene, and preschool education outcomes (b) communication for behavior and social change to support the above and (c) community monitoring for demand generation using tools such as community score cards.

In 50 pilot mandals, the development of village HD plans will be facilitated by a team of specially trained Community Resource Persons (CRPs) and the VLCCs in these mandals will be provided funds of up to Rs.1.5 Lakhs (TBD) to take up priority activities and gaps identified in the plan. In 50 additional mandals the same capacity building and orientation process for development of village HD plans will be followed, except no additional funds will be provided. Instead, VLCCs will be encouraged to access available government funds and solicit financial support, if required, from the Panchayats.

A robust evaluation will be designed to assess the impact and effectiveness of this approach and lessons from the first few years will be systematically documented. A mid-term evaluation will be carried out to assess the effectiveness of the two models (additional financing vs. no additional financing), to enable mid-course correction and provide concrete results for advocating further scale up by the government in the remaining mandals with its own resources.

Sub-component 2: Strengthening the supply of key nutrition, health and pre-school education services by introducing and improving mechanisms for community engagement, community monitoring and ICT based monitoring systems. This will entail (a) strengthening the training architecture under the departments of women and child development and health and family welfare, specifically on the issue of community mobilization, early childhood education and growth monitoring and promotion; and (b) supporting the establishment of community monitoring systems using an IT enabled system (tablet) as well as pictorial community monitoring tools under the existing convergence framework of *Maarpu* introduced by the government. The focus of these monitoring systems will be on developing an integrated/convergent management information system that incorporates key indicators associated with mother and child (including indicators of health, nutrition, sanitation and education) to enable better tracking of these vulnerable groups jointly by the departments of health, women and child development and rural development

Linkages with value chains: The project will also capitalize on the strengths of the livelihoods/agricultural projects that SERP has been implementing for a long period to change the household level food consumption patterns. These additional efforts with the agro-based projects will also contribute to enhancing the nutritional status of the community.

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1.3.3. Component 3 - Access to entitlements (US $ 7.5 million):

This component aims to improve the coverage and service delivery of social protection entitlements to 5,00,000 of poorest households mainly belonging to the SC/STs and particularly those with PWDs, and ensures that they are protected from risks and vulnerabilities through an integrated mission mode approach, while addressing the last mile issues.

1.3.4. Component 4: TA, ICT & Partnerships (US $ 15 million):

The objective of this component is to build an enabling ecosystem for innovation and transformation in delivering good quality services in the last mile. Recognizing that technology, innovation and entrepreneurship play critical role in addressing major development challenges the project seeks to bring together different stakeholders from the public private and civil society sectors and form partnerships with for customizing inclusive innovations in the project context. This engenders intensive use of ICT at levels of project governance and delivery, high performance project implementation and effective coordination mechanisms with supply/demand side partner institutions and social entrepreneurs and innovators by providing them technical assistance, strategic advisory and knowledge management services with national and international expertise.

The subcomponent partnerships include (i) *Solutions Marketplaces, Knowledge Events:* The project will organize solutions and innovations marketplaces for identifying high impact innovations and developing productive alliances between small and marginal producers and the public, private and social enterprise sector aimed at improving technical service provision and market linkages in the project areas (ii) *Financing Public-Private-Community Partnerships:* The project will encourage productive partnerships with public, private and social enterprise sectors to increase the integration of poor in performing and remunerative value chains.

1.3.5. Component 5: Project Implementation Support (US $ 7.5 million):

The objective of this component is to strengthen the project implementation and will finance dedicated staffing for the project activities that are attributable to outcomes of the project, consultancies, training and related material, office equipment, and operational costs. It will also support establishing Monitoring, Evaluation and Learning (MEL) systems, Financial Management systems, Procurement Management, Governance and Accountability Systems, Knowledge Management and Communication, etc.

1.4. Project Location:

The TRIGP will be implemented intensively in the villages of 150 selected Mandals of 9 districts to demonstrate the effectiveness of the comprehensive livelihood approach. The Mandals have been identified on the basis of high incidence of poverty and large number of rural poor, tribal population and pockets of acute poverty. The list of mandals is attached as *annexure 1.*

1.5. Environment Management Framework (EMF):

The EMF for the TRIGP is an integral part of the implementation arrangements related to activities concerned with environmental implication. An Environment study was undertaken and an Environment Management Framework has been developed for the TRIGP to ensure that the project interventions are environmentally sustainable and are in compliance with applicable laws

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and regulations and policies of the Government of India, the Government of Telangana and triggered safeguard policies of the World Bank.

1.5.1. Applicability of EMF to TRIGP:

The EMF is applicable to 3 components of the project, component 1 – Livelihood Promotion and Component 2 - Human Development as the activities proposed under these 2 components are likely to have a bearing on the surrounding environment. EMF is also applicable to the component - 4 ICT and partnerships as an innovation forum is proposed on 'Green Business Opportunities'.

1.5.2. Objective of EMF and Approach:

The objective of EMF for TRIGP is:

To Ensure Environmental Sustainability of Value chain and Human Development interventions proposed under TRIGP and to contribute to economic enhancement by accessing premiums through Climate friendly practices in value chains and KRuSHE enterprises.

The approach is:

- Greening of the value chains and promotion of Green Business Opportunities
- Integrating environmental management into relevant activities under the Human Development and ICT & partnerships components

1.6. Overview of the EMF Report:

The structure of the report is as follows.
Chapter 1 provides an overview of the Objectives and components of TRIGP.
Chapter 2 provides legal and regulatory framework that is applicable to the project activities and Chapter 3 discusses applicability of EMF to project components and provides the Environment Guidelines for the Value chains, Human Development interventions.
Chapter 4 provides Environnent Management Framework. It provides technical and institutional strategy and procedures for environment planning.

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Chapter – II

2. Legal and Regulatory Framework for TRIG Project

The objective of the project is to bring in value addition interventions into different Value chain and Human Development activities that would help the producer groups and federations to increase their household incomes and attain quality life. Meanwhile it is very important to keep in mind that all the interventions by the producer groups and federations should be compliant with the laws and regulations of the country and the state i.e. the legal and regulatory frameworks based on Government of India and Government of Telangana (erstwhile Andhra Pradesh) and Safeguard policies of World Bank. Compliance with these rules and regulations ensure alignment of these investments with sustainable management of concerned natural resources.

This chapter lists out the applicable Acts, Rules and Regulations of Government of India and Government of Telangana. A negative list of activities is developed based on the Legal and Regulatory framework applicable to TRIGP which is provided as *Annexure 2*.

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Table: 1 – Legal and Regulatory Framework applicable for TRIGP.

S. No	Act, Policy or Government Order	Relevance to TRIGP	Status
1	Environment (Protection) Act, 1986 and EIA Notification, 2006 Amended: 1991	Emission or discharge of pollutants beyond the specified standards is not permissible. (Environmental Impact Assessment (EIA) is required for specified categories of food processing industries. To provide for the protection and improvement of the environment. It empowers the Central Government to establish authorities {under section 3(3)} charged with the mandate of preventing environmental pollution in all its forms and to tackle specific environmental problems that are peculiar to different parts of the country.	Applicable. TRIGP will promote setting up of food processing units where necessary permissions are to be taken as applicable.
2	Wildlife (Protection) Act, 1972 Amended: 1993 and No.16 of 2003, (17/1/2003) – The Wild Life (Protection) Amendment Act, 2002	Destruction, exploitation or removal of any wild life including forest produce from a sanctuary of the destruction or diversification of habitat of any wild animal, or the diversion, stoppage or enhancement of the flow of water into or outside the sanctuary is prohibited without a permit granted by the Chief Wildlife Warden. The Act provides for protection to listed species of flora and fauna and establishes a network of ecologically-important Protected Areas (PAs)	Applicable.
3	Forest (Conservation) Act, 1980 The Act is an interface between conservation and development. Permits judicious	The TRIGP is unlikely to involve diversion of forest land for non-forest purposes. However, while supporting activities related to establishment of storage structures, processing centres or procurement centres, it is necessary to ensure that that land is not forest land.	Applicable. The TRIGP is unlikely to involve diversion of forest land for non-forest purposes. However, while supporting activities related to establishment of storage structures, processing centres or procurement centers, it will be done in

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	and regulated use of forest land for non-forestry purposes.		accordance with Forest Rights Act given below.
4	Forest Rights Act 2006. Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.	The Act seeks to recognize and vest certain forest rights in the forest dwelling Scheduled Tribes and other traditional forest dwellers such as collection of Minor forest produce, access to grazing grounds and water bodies, traditional areas of use by nomadic or pastoral communities. The Central Government can provide for diversion of the forest for infrastructural facilities managed by Government which involve felling of trees not more than 75 per ha such as schools, hospitals, fair price shops, drinking water, irrigation, water harvesting structures, non conventional sources of energy, roads, vocational and skill training centres, community centres etc.	Applicable. Activities like infrastructure facilities, irrigation and water conservation structures are likely to happen under TRIGP as part of Value chain enhancement through Producer Organisations and Human Development components.
5	Insecticides Act, 1968 Amendment: Insecticides (Amendment) Act, 1977 (24 of 1977)	A license is required for the sale, stock or exhibition of sale or distribution of any insecticide. The use of certain insecticides are prohibited or restricted under this Act. To regulate the import, manufacture, sale, transport, distribution and use of insecticides with a view to prevent risk to human beings or animals, and for matters connected therewith.	Not Applicable. TRIGP will not involve in activities like procurement, stocking and sale of insecticides as all the crop productivity enhancement is planned through non chemical methods.
6	The Fertilizer (Control) Order, 1985	Registration is required for selling fertilizer at any place as wholesale dealer or retail dealer.	Applicable. The Non Chemical Pest Management Shops may involve in selling of fertilisers at a very small scale. Also applicable where collective procurement and distribution happens through Producer Groups.
7	The Seed Act, 1966	Selling, bartering or otherwise supplying any seed of any notified kind or variety, requires that –	Applicable. TRIGP will promote seed

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		a) Such seed is identifiable as to its kind or variety b) Such seed conforms to the minimum limits of germination and purity specified c) The container of such seed bears in the prescribed manner, the mark or Label containing the correct particulars. To provide for regulating the quality of certain seeds for sale, and for related matter	production farms at village or mandal level that supply seeds to all member farmers of Producer Groups. Also applicable in cases where mass procurement and distribution of seed is done through Producer Groups.
8	The Air (Prevention and Control of Pollution) Act, 1981 Amended: 1987, 1992 and 2003	To provide for the prevention, control and abatement of air pollution in India.	Applicable. TRIGP will involve in setting up of processing mills and food processing units which may require following prescribed standards as per the Act.
9	Public Liability Insurance Act, 1991 Amended: 1992	To provide for public liability- insurance for the purpose of providing immediate relief to the person affected by accident occurring while handling any hazardous substance and for matters connected therewith or incidental thereto.	Not Applicable. Activities under TRIGP are not likely to involve in handling of any hazardous substances.
10	Noise Pollution (Regulation & Control) Rules, 2000	To regulate and control noise producing and generating sources with the objective of maintaining the ambient air quality standards in respect of noise.	Applicable. Activities under TRIGP such as mills and processing units and construction activities shall take into consideration all aspects of noise pollution to avoid noise menace.
11	Indian Forest Act, 1927	To consolidate the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce. No fresh clearings for cultivation or for any other purpose shall be made in such land except in accordance with such rules as may be made by the State Government in this behalf. In the case of a claim relating to the practice of shifting cultivation, the Forest Settlement-officer shall record a statement setting forth the particulars of the claim and of any local rule or order under which the practice is allowed or regulated, and submit the statement to the State Government, together with his	Applicable. Applicable to TRIGP where shifting cultivation is in practice by beneficiary members.

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		opinion as to whether the practice should be permitted or prohibited wholly or in part. In the case of a claim to rights of pasture or to forest-produce, the Forest Settlement-officer shall pass an order admitting or rejecting the same in whole or in part.	
12	The Water (Prevention and Control of Pollution) Act 1974 Amended: 1988.	To provide for the prevention and control of water pollution, and for the maintaining or restoring of wholesomeness of water in the country. No person shall knowingly cause or permit any poisonous, noxious or polluting matter determined in accordance with such standards in to stream or well or sewer or on land. No person shall cause or permit to enter into any stream any other matter which may tend, either directly or in combination with similar matters, to impede the proper flow of the water of the stream in a manner leading or likely to lead to a substantial aggravation of pollution.	Applicable. Applicable to activities under TRIGP where water from small scale industries and food processing units release wastes that have pollutants that are likely to enter into water bodies.
13	The Biological Diversity Act, 2002	To provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.	Applicable. Applicable to TRIGP where collection of minor forest produce and processing is involved.
14	The National Green Tribunal Act, 2010	The National Green Tribunal Act 2010 is approved by the President of India on June 2, 2010. It provides for establishment of National Green Tribunal- a special fast-track court for speedy disposal of environment-related civil cases. Industrial operations and processes shall be carried out as per the safeguards under Environment Protection Act 1986. Compensation and relief for any damage to people (death or injury), property and environment.	Applicable. Applicable in areas where damage to property, environment happens due any to development activities.
15	Fruit Product Order (FPO) 1955.	Fruit Products Order -1955, is promulgated under Section 3 of the Essential Commodities Act - 1955, with an objective to manufacture fruit & vegetable products maintaining sanitary and hygienic conditions in the premises and quality standards laid down in the Order. It is mandatory for all manufacturers of fruit and vegetable products including some non fruit products like	Applicable. Applicable to any fruit based processing units will be planned under TRIGP.

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		non fruit vinegar, syrup and sweetened aerated water to obtain a license under this Order. Following minimum requirements are laid down in the Fruit Product Order for hygienic production and quality standards: (i) Location and surroundings of the factory (ii) Sanitary and hygienic conditions of premises (iii) Personnel hygiene (iv) Portability of water (v) Machinery and Equipment with installed capacity (vi) Quality control facility and Technical staff (viii) Product Standards (viii) Limits for preservatives and other additives	
16	Fruit Product Order (FPO) 1955.	Fruit Products Order -1955, is promulgated under Section 3 of the Essential Commodities Act - 1955, with an objective to manufacture fruit & vegetable products maintaining sanitary and hygienic conditions in the premises and quality standards laid down in the Order. It is mandatory for all manufacturers of fruit and vegetable products including some non fruit products like non fruit vinegar, syrup and sweetened aerated water to obtain a license under this Order. Following minimum requirements are laid down in the Fruit Product Order for hygienic production and quality standards: (i) Location and surroundings of the factory (ii) Sanitary and hygienic conditions of premises (iii) Personnel hygiene (iv) Portability of water (v) Machinery and Equipment with installed capacity (vi) Quality control facility and Technical staff (viii) Product Standards (viii) Limits for preservatives and other additives	Applicable. Applicable to any fruit based processing units will be planned under TRIGP.

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17	The Food Safety and Standards (Food Products Standard and Food Additives) Regulations 2011	The Food Safety and Standards Authority of India (FSSAI) has been established under the Food Safety and Standards Act, 2006 as a statutory body for laying down science based standards for articles of food and regulating manufacturing, processing, distribution, sale and import of food so as to ensure safe and wholesome food for human consumption.	Applicable. Applicable to food manufacture and processing units under TRIGP.
18	Prevention of Food Adulteration Act, (PFA) 1954	Broadly, the PFA Act covers food standards, general procedures for sampling, analysis of food, powers of authorized officers, nature of penalties and other parameters related to food. It deals with parameters relating to food additives, preservative, colouring matters, packing and labelling of foods, prohibition and regulations of sales etc.	Applicable. Applicable to food manufacture and processing units and KRuSHE marts selling food products under TRIGP.
19	Agricultural Produce (Grading and Marking) Act, 1937 (Act No. 1 of 1937) (as amended up to 1986)	To Provide for the grading and marketing of agricultural and other produce.	Applicable. Applicable to agricultural produce marketing under TRIGP.
20	The Bureau of Indian Standards Act 1986.	An Act to provide for the establishment of a Bureau for the harmonious development of the activities of the standardisation, marking and quality certification of goods and for matters connected thereto.	Applicable Applicable to agricultural produce marketing under TRIGP.
21	The Export Inspection Council of India and the Export (Quality Control and Inspection) Act 1963	The Export Inspection Council (EIC) was set up by the Government of India under Section 3 of Export (Quality Control and Inspection) Act, 1963 (22 of 1963), in order to ensure sound development of export trade of India through Quality Control and Inspection and for matters connected thereof.	Applicable. Applicable to value chains where export of commodities or processed products is planned under TRIGP.
22	Hazardous Waste (Management & Handling)	It is mandatory under the provisions of the Hazardous Waste (Management & Handling) Rules, 1989 framed under section 6, 8 and 25 of Environment (Protection) Act, 1986 for any person	Applicable. Applicable to small scale enterprises under TRIGP which may involve

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	Rules1989.	handling hazardous wastes, as categorized in the Schedule-I & II to obtain authorization of the State Pollution Control Board for collection, reception, storage, transportation, treatment and disposal of such wastes.	handling of Wastes from Dyes and Dye intermediate containing organic chemical compounds (50 kgs per year), waste oils and oil emulsions (100 kgs per year) phenols (5 kgs per year), acid alkaline slurry (200 kgs per year). The list of banned dyes is attached as *Annexure 3.*
23	Plastics Wastes Rules, 1999	Manufacture, sale and use of recycled and coloured plastic carry bags less than 20 microns in thickness in the state is banned and levying penalties for violation under Environment Protection Act, 1986.	Applicable. Applicable to Rural marts where use of plastic bags is possible during sale of provisions etc.
24	e-waste (management and Handling) Rules, 2011	Consumers or Bulk consumers of electrical and electronic Schedule I shall ensure that e-waste generated by them is channelized to the authorised collection centre(s), or registered dismantler(s) or recycler(s) or is returned to the pick up or take back service provided by the producers; and bulk consumers shall maintain record of e-waste generated by them in the Form 2 and make such record available for scrutiny by the State Pollution Control Board or the Pollution Control Committee concerned.	Applicable to TRIGP as tablets will be purchased under ICT component.
25	Classification of industries for consent management [Red, Orange & Green Categories]	Consent is required for setting up and operation of different categories of industries from State Pollution Control Board. Category wise list placed in *Annexure 4.*	Applicable. Applicable to TRIGP where mills, processing units and small scale enterprises will be set up.
26	The Disaster Management Act, 2005	An Act to provide for the effective management of disasters.	Applicable. Applicable to small scale enterprises and construction projects that need prescribed standards.
National Policies			
27	National Forest Policy 1988	To ensure environmental stability and maintenance of ecological balance (direct economic benefits being considered) • Area under forests	Applicable.

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		• Afforestation, social forestry, and farm forestry • Management of state forests • Rights and concessions • Diversion of forest lands for non-forest purposes • Wildlife conservation • Tribal people and forests • Shifting cultivation • Damage to forests from encroachments, fires and grazing • Forest-based industries • Forest extension • Forestry education • Forest survey and database • Legal support and infrastructure development • Financial support for forestry	
28	National Water Policy, 1987 and 2002	To ensure that planning, development and management of water resources are governed by national perspectives.	Applicable.
Environmental safeguard policies of the World Bank			
29	Environmental Assessment (OP 4.01)	The Bank requires environmental assessment (EA) of projects proposed for Bank financing to ensure that they are environmentally sound and sustainable, and thus to improve decision making.	Applicable.
30	Natural Habitats (OP 4.04)	The Bank does not support projects that, in the Bank's opinion, involve the significant conversion or degradation of critical natural habitats.	Applicable. Applicable TRIGP where value chain and Human Development activities happen in tribal areas.
31	Pest Management (OP 4.09)	In Bank-financed agriculture operations, pest populations are normally controlled through integrated pest management approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank does not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if (a)	Applicable. TRIGP will not finance pesticide procurement, but there is possibility of pesticide use by farmers as part of productivity enhancement efforts. The commonly used pesticides in India and their status as per WHO

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		the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.	classification list is attached as *Annexure 5.*
32	Forests (OP 4.36)	The Bank distinguishes investment projects that are exclusively environmentally protective (e.g., management of protected areas or reforestation of degraded watersheds) or supportive of small farmers (e.g., farm and community forestry) from all other forestry operations. Projects in this limited group may be appraised on the basis of their own social, economic, and environmental merits. The Bank finances plantations only on non-forested areas (including previously planted areas) or on heavily degraded forestland.	Applicable. Applicable TRIGP where value chain and Human development related interventions happen in tribal areas located near forests.
State Regulations			
33	The Andhra Pradesh Forest Act 1967.	The Government may constitute any land as reserved forest by publishing a notification in the Andhra Pradesh Gazette and in the District Gazette concerned specifying the details of the land, declaring the proposal to make it reserved forest, and appointing a Forest Settlement Officer to consider the objections against the declaration and to determine and settle the rights claimed to the land or to any forest produce of that land. During the interval between the publication of a notification in the Andhra Pradesh Gazette and the date fixed in the notification, without the written permission from the Forest Settlement Officer, in the land specified: • No right shall be acquired by any person in or over the land except by succession or under a grant or contract by the Government or any person who had such a right before the publication of the notification of the land to be reserved. • No new house shall be built or plantation formed, no fresh clearing for cultivation or for any other purpose shall be made, and no trees shall be cut for the purpose of trade or manufacture. Also, no person shall set fire or kindle or	Applicable. Applicable to TRIGP in tribal areas where the activities involve interaction with reserve forest areas for any of the activities under value chains.

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		leave burning any fire in such manner as to endanger or damage such land or forest produce. • No patta in such land shall be granted by the Government. • If the claim relates to a right of way, right to watercourse or to use of water, right of pasture, or a right to forest produce, the Forest Settlement Officer may admit or reject the claim. If the claim is admitted, the Forest Settlement Officer may ensure the continued exercise of the rights subject to certain conditions agreed upon with due regard to the maintenance of the reserved forest. The following are prohibited in reserved forest (except if the act is done with the written permission of the Divisional Forest Officer or if it is done as part of the exercise of rights ensured by the Forest Settlement Officer): • Set fire, kindle fire or leave any fire burning in such manner as to endanger such forest • Kindle, keep or carry any fire except at seasons and conditions specified by the Divisional Forest Officer • Trespass, pasture cattle or allow cattle to trespass • Cause any damage, either wilfully or negligently in felling or cutting any trees or dragging any timber • Fell, girdle, lop, tap or burn any tree or strip off the bark or leaves from or otherwise damage the same • Quarry stone, burn lime or charcoal • Collect or subject to any manufacturing process, any forest produce • Clear or break up or plough any land for cultivation or for any other purpose • Hunt, shoot, fish, poison water or set traps or snares • Damage, alter or remove any wall, ditch embankment, fence, hedge, or railing, or • Remove any forest produce It prohibits absolutely or regulates, subject to such conditions in	

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	The Andhra Pradesh Forest (Amendment) Act, 1997	the entire state of Andhra Pradesh or within such local limits as may be specified, the establishment of pits or machinery for sawing, converting, cutting, burning, concealing or making of timber, the altering or effacing of any marks on the same, of the possession or carrying of hammers or other implements used for marking timber.	
34	Andhra Pradesh Protected Forest Rules, 1970	The following are prohibited in a protected forest (except when the act is done in accordance with any Government order or with permission of the Chief Conservator of Forests, Conservator or Forests or Divisional Forest Officer): • Clearing, ploughing or breaking up of land for cultivation or any other purpose • Kindling of fire • Cutting, sawing, conversion and removal of trees and timber and collection and removal of natural produce • Quarrying of stone, the boiling of catechu or the burning of lime or charcoal • Cutting of grass, or the pasturing of cattle, and • Hunting, shooting, fishing, poisoning of water and setting of traps or snares Persons belonging to scheduled tribes are eligible for the following concessions: The removal of timber, bamboos, and forest produce from the protected forests for domestic and agricultural purposes on payment of the fee fixed for the purpose. Agricultural purposes includes the use of: • Timber for agricultural implements • Poles and thorns for hedges • Bamboo for fencing and roofing of huts and sheds in fields, and • Leaves for green manure	Applicable. Applicable to TRIGP in tribal areas where the activities involve interaction with protected forest areas for any of the activities under value chains.

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		Domestic purposes includes the use of: • Fuel for heating and cooking • Timber and other forest produce for the erection and repair of permanent and temporary dwellings, cattle sheds, pandals and fencing of compounds and fields	
35	The Andhra Pradesh Water, Land and Trees Act, 2002 and the Andhra Pradesh Water, Land and Trees Rules, 2002.	The Andhra Pradesh Land, Water and Trees Act and Rules, 2002 are to promote water conservation and tree cover and to regulate the exploitation and use of ground and surface water for protection and conservation of water sources and land. State, District and Mandal authorities are constituted under these rules. The Ex-Officio Chairman of the District Authority is the District Collector and the Ex-Officio Member Secretary is the Project Director, Drought Prone Area Programme / District Water Management Agency. The Ex-Officio Chairman of the Mandal Authority is the Mandal Revenue Officer and the Ex-Officio Member Secretary is the Assistant Executive Engineer, Rural Water Supply.	Applicable.
	Ground Water Protection Measures.	Owners of all wells (including those which are not fitted with power driven pumps) and water bodies in the State shall register their wells/water bodies with the Village Secretaries of the Gram Panchayats. No person shall sink any well in the vicinity of a public drinking water source within a distance of 250 metres, without permission from the Authority, and if the well is to be used with a power driven pump, without permission from TSTRANSCO. Sinking of any well for public drinking purpose and hand pump for public or private drinking water purpose is exempted from this. In areas declared as overexploited by the Authority, no person shall sink a well without the permission of the Authority. Every rig owner shall register his machinery with the Authority.	Applicable. Applicable to productivity enhancement activities under agriculture commodity value chains where interventions may involve sinking of bore wells, and Human Development interventions involving drinking water supply.
	Land and Soil	No brick manufacturing shall be taken up in areas where the soil is prone to erosion and depletion. Sand mining shall not be carried out within 500 metres of any existing structure (such as bridges, dams, weirs, or any other	Not Applicable. No brick manufacture or sand mining related activities are proposed under TRIGP.

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		cross drainage structure) and within 500 metres of any groundwater extraction structures (either for irrigation or drinking water purposes).	
	Surface Water	No undesirable wastes including liquid wastes shall be allowed to be dumped in the water bodies by any person or organization.	Applicable. Applicable to TRIGP activities such as food processing, milk chilling units and small scale enterprises that may involve disposal of wastes into surface water bodies.
	Trees	Tree plantation and landscaping shall be adopted in all public and private premises. No felling of the trees or branches is permitted without prior permission of the Authority. Compulsory planting in residential areas, commercial/institutional areas and industrial areas as per the following details is to be taken up: **For residential areas with an area of:** Below 100 sq. metres 3 trees 101 to 200 sq. metres 5 trees 201 to 300 sq. metres 10 trees More than 301 sq. metres 10 trees, plus 5 trees for every increase of 100 sq. metres **For commercial and institutional areas with an area of:** Below 200 sq. metres 2 trees 201 to 500 sq. metres 4 trees 501 to 1000 sq. metres 6 trees, plus 2 trees for every increase of 100 sq. Metres	Applicable. Applicable to TRIGP where felling of trees may happen for infrastructure provision – procurement centres, storage godowns, mills and processing units.
36	The Andhra Pradesh Saw Mills (Regulation) Rules, 1969	No person shall install, erect or operate a Saw Mill (mechanical contrivance for sawing, cutting or conversion of timber with the aid of electrical or mechanical power) for cutting, converting or sawing of timber without obtaining a licence for such installation from the Divisional Forest Officer. No licence for setting up fresh saw mills within a distance of 5	Not applicable. TRIGP will not support any saw mills.

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		km. from the boundary of any Forest under the control of the Forest Department shall be granted.	
37	Andhra Pradesh Forest Produce Transit Rules, 1970	No forest produce shall be moved into or from or within the State by land or water unless such produce is accompanied by a permit. Timber exceeding 25 cm in girth at its thickest part and one metre in length, except timber sawn into sizes shall not be moved into or from or within the State of Andhra Pradesh, unless such timber bears a distinguishable Government transit mark authorizing the transit. (Firewood means all timber below 25 cms in girth at it thickest end and one metre in length.)	Applicable. Applicable to the activities which involve transport of forest produce or fuel wood for any manufacture, processing units or small scale enterprises.
38	The Andhra Pradesh Minor Forest Produce (Regulation of Trade) Act, 1971	Minor Forest Produce means any forest produce other than timber, trees (excluding bamboos) and charcoal. No person other than the Government or an authorized officer of the Government or an agent appointed by the Government shall sell or purchase or cure or otherwise process or collect or store or transport any minor forest produce. Any sale to or purchase from the Government, the authorized officer or the agent appointed by the Government of a minor forest produce is permitted. Every grower, other than the Government, shall, if the quantity of the minor forest produce grown by him during a year is likely to exceed such quantity as may be prescribed, get himself registered with the Divisional Forest Officer. A registered grower may collect any minor forest produce from any land belonging to him on which such produce is grown and may transport the minor forest produce to the nearest depot. No grower shall carry on any trade or business in or any industry with the use of the minor forest produce except in accordance with the provisions of this Act and the rules made there under. Every manufacturer of finished goods using minor forest produce, and every exporter of minor forest produce shall get himself /herself registered.	Applicable. Applicable to small scale enterprises under TRIGP based on Minor Forest produce.
39	The Andhra Pradesh Scheduled Areas Minor	The object and purpose of the Regulation was to create a State monopoly in the trade of minor forest produce in Scheduled Areas through Andhra Pradesh.	Applicable. Applicable to activities involving collection and sale of minor forest

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	Forest Produce (Regulation of Trade) Regulation, 1979.	No person other than the Girijan Cooperative Corporation, Ltd, shall sell or purchase or cure or otherwise process or collect or store or transport any minor forest produce. Any sale to or purchase from the Corporation of a minor forest produce is permitted.	produce.
40	The Andhra Pradesh Preservation of Private Forest Rules, 1978.	The Forest area situated in Patta land is a Private Forest. No permission for felling of the following prohibited trees is granted: 1. Vepa (*Azadirachta indica*) 2. Ippa (*Madhuka latifolia*) 3. Mamidi (*Mangifera indica*) 4. Kunkudu (*Sapindus emarginatus*) 5. Mushti (*Strychnos nuxvomica*) 6. Chinta (*Tamarindus indica*) 7.Panasa (*Artocarpus integrifolia* and *Artocarpus hirsuta*) 8. Karaka (*Termalia chebula*) 9. Tuniki (*Diospyrosmalonaxylon*) 10. Kanuga (*Pongamia glabra*) Permission to cut the following reserved trees shall not be granted unless the trees exceed 120 cm in girth at 1.3 m height from ground level (Also, the felling should be as close to the ground as possible): 1. Bandaru (*Adina cordifolia*) 2. Billudu (*Chloroxylon swietenia*) 3. Jittegi (*Dalbergia latifolia*) 4. Yepi (*Hardwickia binata*) 5.Raktachandanam (*Pterocarpus santalinus*) 6. Yegisa (*Pterocarpus marsupium*) 7. Chandanam (*Santalum album*) 8. Salwa (*Shorea robusta*) 9. Kusum (*Schleichera trijuga*) 10. Teku (*Tectona grandis*) 11. Maddi (*Terminalia tomentosa*) 12.KondaTangedu (*Xylya dolabriformis*)	Applicable. Applicable to infrastructure related activities that require cutting of trees for construction.

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41	Andhra Pradesh (Protection of Trees and Timber in Public Premises) Rules, 1989.	Public premises means any area under the control of Government Department and includes road sides; premises of institutions and public buildings, public gardens, porambokes, barren lands, panchayat lands, irrigation project sites and canal banks, tank bunds, tank spread and foreshores, etc. Unless it is in accordance with any order issued by the Government or with prior written permission of the Forest Officer, the following is not allowed in public premises: • Felling, girdling, lopping, tapping or burning of any trees • Stripping off the bark or collecting leaves or otherwise damaging a tree • Removing any produce from such trees existing in public premises • Damaging, altering, removing any fence or live hedge fence	Applicable. Applicable to infrastructure related activities that require cutting of trees for construction, and manufacture or processing activities that require fuel wood.
42	The Andhra Pradesh Charcoal (Production and Transport) Rules, 1992	No person shall make charcoal, or cut or cause to cut trees for the purposes of making charcoal, without the previous written permission of the Divisional Forest Officer concerned.	Not Applicable. No charcoal related activities are proposed under TRIGP.

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Chapter – III

3. Applicability of EMF to TRIGP Components - Environment Impact of Activities under TRIGP and Environment Friendly Alternatives

This section discusses applicability of EMF to the components of TRIGP, presents environmental issues that might arise from the proposed activities under TRIGP and the recommendations/mitigation measures to be put in place to address the negative impacts. The environment guidelines to help in bringing in sustainability to project activities are provided.

EMF is applicable to 3 components of TRIGP.

Component	Applicability of EMF
Component 1 – Value chain enhancement through producer organizations.	The value chain enhancement has several steps like productivity enhancement, processing, manufacture storage etc. EMF is applicable at every stage of value chain
Component 2- Human Development	Environment guidelines in Water and Sanitation, Nutrition interventions etc.
Component 4 – ICT and Partnerships	Guidelines for E waste management. 'Innovation forum' under Partnership component for 'Green Business Opportunities'

3.1. Component 1: Value Chain Enhancement through Producer Organizations:

This component has two sub-components viz. Rural Value Chains and Rural Retails Chains/Small Enterprises.

3.1.1. Subcomponent 1 – Rural Value Chains

The component will focus on adding value through investment in economic organizations of small and marginal farmers like producer organizations and producer companies and investments in value addition, quality enhancement and partnerships with agribusiness enterprises in the private and cooperative sector. A *value chain approach* will be adopted in key sub-sectors like agriculture, plantation and horticulture crops, livestock and fisheries.
The sub component 'Rural Value Chains' deals with value chains of 2 agricultural commodities and 3 animal husbandry activities listed below:

1. Paddy
2. Red gram
3. Dairy
4. Small ruminants
5. Poultry

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The value chain activities will broadly include interventions for productivity enhancement, processing, storage and marketing. These interventions are likely to have a negative impact on environment by:

- Possible over exploitation of the resources such as ground water for irrigation to enhance the productivity
- Introducing high yielding varieties which need intensive irrigation, fertilization that have negative impact on soil and water
- Setting up mills, processing units and storage structure which need high energy requirement and may release wastes that are harmful to the environment.

The negative impacts need to be addressed or can be avoided by opting for an environment friendly alternative available. The 'environment guidelines' or 'environment friendly alternatives' for the commodity value chains are presented hereunder:

3.1.1.1. Environmental Guidelines for Agriculture Commodity Value Chains (Rural Value Chains)

Table 2: Agriculture Commodity Value Chains: Environmental issues and best practices in Interventions for Productivity enhancement, Storage, Processing etc.

S. No	Interventions	Environmental Impacts	Measures
1	Commercial Seed Production through Seed village concept	Improper Varietal selection may have impact on local biodiversity besides input cost and yield. Replacement of traditional seed varieties with High Yielding Varieties could lead to loss of local biodiversity. Any technical lapse in seed production might lead to low quality germplasm or local land races might be contaminated when improved varieties are produced without proper precautions.	Suitable varieties based on soil and climatic conditions as recommended by Agriculture dept to be selected. Good yielding traditional varieties having demand in market to be encouraged with the help of suitable technical agencies. Seed replacement to be considered as a resort only when traditional varieties do not respond to improved cultural practices. In cases where traditional varieties are being replaced maintain gene banks of traditional varieties for any future use in the village with help of farmers and any interested NGOs or State Biodiversity Board. Partnering with institutions for technical support. Eg: KVK, Agriculture department at Mandal level etc.
2	Productivity enhancement	Interventions for productivity enhancement might lead to the following impacts: Excess use of ground water for intensive	Use water efficient methods of

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		cropping depleting the ground water resource. Increased use of pesticides in more quantities than desired leading to runoff into water bodies and polluting them and polluting environment, negative effects on health etc. Soil degradation due to fertilizer use in more quantities and high uptake of nutrients due to high responding varieties. Lack of information on weather updates may lead to untimely operations leading to crop loss due to unexpected dry spells or rains.	irrigation like drip especially for horticultural crops. Restrict to non chemical methods of Pest management. Avoid use of pesticides banned and restricted by World Health Organisation (WHO). Adopt organic manuring practices as far as possible. Any chemical fertilizer application should be based on soil testing. The member farmers can be linked with sms based weather update systems to avoid untimely operations. Eg: Strategic Pilot on Adaptation to Climate Change (SPACC) project.
3	Drying	Storage of grains and products like turmeric, red gram etc. needs drying to attain prescribed moisture level to avoid pest and disease infestation which may call for chemical use for management. Drying on open grounds may contaminate the produce with dirt, microbes etc. which will reduce the quality of produce will have an impact on health.	Dry the product to attain prescribed moisture level. Drying on cement platforms, mats etc. will protect the produce from contamination. Use solar dries wherever possible.
4	Storage	Storage facilities when not properly ventilated will attract pest and moisture which will spoil the produce. And pest infestation may lead to pesticide use which may leave harmful residues on produce. Storage pest infestation is a common problem during storage. Stored product pest control involves use of fumigants which leave residues on food products and are harmful for health. Chemicals stored along with food commodities may contaminate the produce or give off flavors.	Storage facility should be well ventilated and free of moisture seepage. Care must be taken to ensure this during construction or renting of such facilities. Follow natural methods of storage pest control such as impregnating gunny sacks in neem oil, using dried neem leaves, repairing all crevices cracks in the godown etc. Chemicals/pesticides/weedicides / fertilizers should not be stored along with food commodities

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		Organic produce stored along with non organic produce may lead to adulteration.	It is advisable to store organic produce separately.
5	Milling	Noise pollution to the workers and in the neighborhood due to milling. Fine dust during milling will lead to health issues like allergy, asthma in long run.	Noise protective equipment should be provided to the operator of the machines. Silencer should be attached to the equipment to reduce noise from the equipment to surrounding areas. Person using these machines must wear mask for preventing the problem related to inhalation.
6	Processing and value addition	Processing and value addition may require high amount of energy and water depleting local fuel and water resources and increasing emissions due to energy use. Accidents and health hazards are possible during processing involving machinery. Unhygienic environment or practices at processing will contaminate the food products.	Use enenrgy efficient equiepment for processing (such as steam boilers in turmeric, steam roaster in cashew or aqua pulper in coffee). Take safety precautions and use safety gear during processing. The processing environment should be kept clean and personal hygiene is must among the workers.
7	Transport	Organic produce may get contaminated when transported along with other non food commodities like fertilizers, pesticides etc.	Vehicles used for transport for chemicals should not be used for transport of edible produce. The vehicle should be cleaned and dried before transportation of food grains etc.
8	Waste disposal	Disposal of wastes openly after milling or waste (water, seed coats, peels, etc.) after processing may create unhygienic environment due to decomposition.	Explore the alternate uses for the wastes, in cases where they cannot be put to alternate use dispose the wastes as per the prescribed procedures.
9	Adoption of environment guidelines	Lack of awareness may lead to non adoption of the guidelines	Awareness and training programmes need to be organized for community and involved stakeholders.

<u>Good practices that enhance the value:</u>

- Demonstration Plots and FFS – with reference to demonstration plots and farmer Field Schools the demonstrations should be accurate based on scientific explanation to enhance adoption. Any mistakes or loopholes will reduce confidence among farmers.

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Common Infrastructural facilities to be provided across TRIGP in Agriculture Commodity value chains:

While the productivity enhancement, processing and storage interventions could vary from crop to crop (which are given in *Annexure 6*), there will be some common infrastructure related interventions required for all the crops.

Upgraded custom Hiring centres:
Some of the instruments provided to these custom hiring centres are power tillers, sprayers, markers, weeders, neem pulverisers, grinders for preparation of botanical extracts etc.

Non Chemical Pest Management (NPM) shops:
Already existing NPM shops in the Mandal will be upgraded in order to meet the demand for NPM products and wider promotion of NPM concepts.

Storage warehouse cum wholesale outlet:
A brick and mortar structure will be indentified or erected in order to enable storage of collected grains and help the farmers to get the benefit of the sale of the milled rice grains to the end consumer.

Transport to and from procurement centre or storage ware house:
Transportation of procured products needs hiring of vehicles.

Table 3: Environmental Issues and Best practices in creation and maintenance of common infrastructural facilities provided to support the value chains:

S. No.	Interventions	Environmental Impacts	Measures
1	Upgraded Custom Hiring Centres	Spread of weeds and pathogens from one field to other field through uncleaned farm machinery and implements. This will further encourage use of fungicides and weedicides.	Clean machinery and tools after every use to ensure no weed seed, pathogens etc. are carried over to next field.
		Use of some of the machinery such as Power Weeders, Power sprayers and Power tillers will increase use of fuels and will cause emission of GHGs (Green House Gases). The exhaust fumes from this farm machinery pollute local environment quality.	Ensure purchase of fuel efficient models of this equipment. Proper maintenance (regular cleaning and service) would lead to enhanced efficiency.
		There can be some safety hazards owing to use of machinery.	Awareness on safe use and first aid requirements to be ensured.
2	Non Chemical Pest Management Shops (NPM shops)	Storage of botanical ingredients like neem seed for long time without proper drying etc. Will lead to spoilage of the raw material through molds or even have impact on human health and quality of	Proper drying and storage in a dry and shaded place will ensure longevity of the raw material and quality of the extracts.

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		NPM preparations (extracts). Continuous handling of botanical extracts, raw materials like neem, tobacco etc. might cause health hazards. Though neem is a plant with numerous health benefits its overuse and constant exposure may lead to some allergic reactions such as rash or hives, itching, swelling of the mouth or throat, wheezing, difficulty in breathing etc. Neem can be toxic to children and its consumption may lead to vomiting, loose stools, drowsiness, anaemia, seizure etc. Collection of plant material for preparation of botanical extracts in excess quantities might affect the regeneration capacity of the specific plant species in the area. Untimely use of NPM principles and non usage in optimum quantities may not result in desired outcome leading to chemical application again. Preparation of botanical extracts involves use of fuel wood for boiling which may impact local fuel wood resources and generates smoke which is harmful to health.	Use of safety gear like gloves and nose masks and hand washing with soap should be promoted after handling of botanical extracts and their ingredients. Collection should ensure enough propagules are left for regeneration so as to ensure sustainable harvest of raw materials. Compensatory plantation of the plant species used to ensure sustainable use. Proper use in proper dosages should be ensured for better results. Smokeless chulha can be promoted for reducing its ill effects on health.
3	Procurement centre at Mandal level	Movement of vehicles to and fro transporting the procured grains may result in dust. Clearing of vegetation may affect local biodiversity and local environment.	Frequent water sprinkling on the road and near ground to avoid excessive dust. Avoid clearing to vegetation to the extent possible. In case of necessity to clear the vegetation take required permissions and do compensatory plantation.
4	Storage warehouse at Mandal level (this storage structure will also act as a point to wholesale	Construction of a brick and mortar structure for storage would involve following negative environmental impacts: • Possible clearing of vegetation or cutting of trees to set up the structure would involve negative impact to the	Careful selection of site in order to avoid trouble for neighboring people. Minimize the need for cutting the trees and damage to native vegetation.

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	marketing point for the grains)	environment. • Construction waste, solid waste and heat and pollution affect the local environment quality. • Open disposal of debris near the site or near drains etc. will cause inconvenience and block drains. Unfilled borrow pits are a hazard, leading to accidental falls, water stagnation etc. Lighting equipment in storage houses with high energy consumption leads to GHG emissions.	Take required permissions (as indicated in negative list and legal and regulatory framework) in case of need to cut trees. Compensatory plantation if there is any vegetation loss. Frequent water sprinkling near storage area and approach road to avoid excessive dust during construction. Dispose the debris away from the site preferably in landfills or use for activities like road construction. Fill all the borrow pits to avoid hazards like accidental falls, water stagnation etc. Use of LED lighting can reduce the electricity consumption drastically. Providing adequate natural ventilation during construction will reduce the need for energy consumption for lighting. Collaborate with municipal authorities for temporary or permanent road widening to cater to the additional truck traffic and future traffic. Avoid truck traffic during morning and evening rush hours.
		Environmental impacts during operation of the storage warehouse might have the following impacts • Flocking of vehicles around the warehouse will generate air pollution and noise pollution. • Improper storage may lead to spoilage of produce through mold infestation, pest attack and may encourage use of chemicals and fumigants.	Store the grains on elevated structures (dunnage) to avoid direct contact with floor and to provide aeration. Bags should not touch the walls to prevent the absorption of moisture and serve as hiding places for rats. Fix Zinc sheets at the bottom of the wooden doors to prevent entry of rats. Block all drainage holes with

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		Water leakage in godowns will encourage molds and there by chemical use.	wired mesh and use rat traps. Rats can be killed with bait of balls made of horse gram flour and cotton thread or flour mixed with cement. Mix leaves of Neem, Karanj, Custard apple, Adathoda and Tulsi to protect grains from storage insects. Storage location should be high and not prone to flooding. Jute bags are placed in lots of 6 (Breadth) x 10 (length) x 7 m (Height) on wooden platform or concrete blocks on the ground with a gap of 15 cm between the floor and the bag.
5	Hiring transportation agency for aggregation and transportation.	Transportation agency with old and ill serviced vehicles may cause more emissions.	Collective transportation by transportation agency using well serviced vehicles will lead to efficient utilization of vehicles, will minimise fuel consumption and will ultimately lead to less emission of green house gases.
6	Adoption of environment guidelines	Lack of awareness may lead to non adoption of the guidelines	Awareness and training programmes need to be organized for the members.
<u>Good practices that enhance the value:</u> • Lack of proper ventilation and improper stacking of bags will encourage storage pests and molds. Proper ventilation should be provided during construction. • Leakage proof construction with better drainage facility to drain the clean water etc. ensures safe storage of the produce.			

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3.1.1.2. Environmental Guidelines for Livestock Value Chains:

Background:

Dairy: TRIGP targets with a target to produce of milk through best livestock management practices. The interventions will include induction of high yielding animals, capacity building, fodder requirements etc.

Small ruminants: TRIGP targets goat and sheep producers to improve meat production by adopting better management practices. The key interventions proposed include induction of small ruminants, increasing productivity of animals by adopting better management practices and access to veterinary services and establishing marketing channels.

Poultry: TRIGP is planning to reach poultry producers to improve production of chicken meat and eggs through best poultry management practices. The key interventions include introduction of dual purpose birds, improving access to better veterinary services, access to low cost inputs, convergence with suppliers and marketing tie ups.

Table 4: Environmental Issues and Best practices in Livestock (dairy, small ruminants and poultry) related value chains:

S. No.	Interventions	Environmental Impacts	Measures
1.	Legal requirements	Permission etc. may be required for grazing near forest areas, fishing etc.	Required norms should be met as per the recommendations given in legal and regulatory framework and commodity wise guidelines.
2	Selection of breeds and varieties (in dairy, small ruminants, poultry and fisheries)	Breeds and varieties that are not suitable to the location may not perform well and increase the cost and effort on resources like and fodder, water, feed etc. for maintenance.	Select locally suitable breeds and varieties that respond well to the local conditions there by reducing external inputs and maintenance costs
3	Shed, spacing stocking density etc.	Improper spacing, over stocking leads to disease spreads and there by use of curative drugs etc.	Recommended ratio of spacing, stocking etc. to be followed for health of the animals. Details are provided in Annexure 6.
4	Feed management	Over grazing livestock or wastage during stall feeding leads to stress on environment.	Grazing or feeding of livestock should be as per the recommendations. Details are provided in Annexure 6.
5	Waste management (in dairy and poultry)	Open disposal of wastes leads to unhygienic environment.	Waste disposal should be through composting or putting to alternate use etc. as provided in activity specific guidelines in Annexure 6.
6	Disposal of	Open disposal leads to	Recommended methods of disposal

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	carcasses (dairy and poultry)	contamination of water resources and leads to spread of diseases in case of diseased animals.	such as burying or burning should be followed.
7	Value addition (milk cooling, fish processing etc.	Energy use and waste disposal could be an environmental issues in value addition	Prescribed standards are to be followed as suggested in commodity wise guidelines in *Annexure 6.*
8	Adoption of environment guidelines	Lack of awareness may lead to non adoption of the guidelines	Awareness and training programmes need to be organized for the members.

Commodity wise environment guidelines are presented in *Annexure 6*, along with list of support agencies which can be used for greening specific value chains during the preparation of business plans.

3.1.2. Subcomponent 2 – Rural Retail Chains/Social Enterprises

This sub component aims to derive social impact in terms of delivery of enhanced and improved quality of consumption at a rural household, by making available good quality, affordable, safe and nutritious food items, personal hygiene products, other essential goods and essential services to the poorest of the poor households by organizing a network of (existing) rural retail outlets (KRuSHE Marts) and (existing & new) home-based enterprises (KRuSHE Enterprises).

This section discusses the potential environmental issues and environment friendly alternatives (environment guidelines) for KRuSHE Enterprises and KRuSHE marts.

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KRuSHE Enterprises:

KRuSHE Enterprises are divided in to two major categories – farm products and nonfarm products.

1. **Farm products:** Farm products include food products like highly nutritional products, value added agriculture products, processed value added horticulture products eg: pine apple juice, jam, jelly, powders like turmeric, chilli, coriander etc., pickles, dry fish and fresh fish etc.

2. **Non Farm products:** Non farm products includes chemical products eg: phenyl, detergent, liquid blue, soap, agarbatti, candles, pain balm, chalk piece etc, textile products and handicraft eg: Dwacra crafts leather crafts, wrought iron crafts etc.

The farm and non farm products that KRuSHE enterprises will deal with are presented below:

Farm Products	**Non Farm products**
Ginger products	Textiles
Hill brooms	Handlooms
Leaf plates	Hand bags
Tamarind	School bags
Chilli powder	Candles
Masala powder	Bangles
Turmeric powder	Agarbathi
Pickles	Rangoli
Rice mill	Soaps
Bengal gram dal	Detergents, washing powder
Dry copra	Phenyl
Herbal products	Pain balm
Redgram dal	Chalk pieces
Sesamum oil	Shampoo
Mango jelly	Paper plates
Coconut oil	Acids
Ground nut	Liquid blue
Honey	Paper covers
Vermicelli	Footwear
Sweet, milk products	Basket making
Snacks and bakery	Mineral water
Papads	Coir products

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Environment Impacts of KRuSHE Enterprises:

Negative impact on environment is possible during various steps in processing and manufacture of farm and non farm products. The environmental impacts and eco friendly alternatives for different activities allied with KRuSHEE Marts and the mitigation measures are presented hereunder:

3.1.2.1. Environment Guidelines for Processing and value addition of Farm products

Table 5: Potential Environmental issues and Environment friendly alternatives in farm based food product preparation include:

S. No	Activity in the value chain or steps in the process	Possible issues	Interventions, Best practices
1	Registration, licenses and permissions	Manufacturing and selling of chemical products without registration and license is illegal. Food processing units also need licenses along with small scale industries.	Registration of unit under DIC is required. Pollution Control Board (PCB) permissions are required based on type of activity. Food processing units should obtain licenses.
2	Storage of raw materials and finished products.	Improper storage of raw materials i.e. in moist, unclean conditions leads to spoilage or contamination of the products and chemical raw materials poses health risks to the people around. Few materials lead to explosions and fire hazards when not stored in required manner.	Raw materials should be properly stored in containers with lids in clean and dry place (prescribed standards are to be followed for each material). Finished products should be properly labeled with manufacture and expiry dates and stored in clean and dry place.
3	Manufacture	Manufacture without following prescribed standards under health and hygiene affects the quality of produce.	The machinery should be kept clean and the workers should follow the prescribed standards of hygiene such as bathing, hand washing, using gloves, masks and hair caps etc.
4	Use of additives, preservatives	Use of non permitted additives and preservatives is illegal and pose health risks to the workers and consumers.	Only the permitted additives and preservatives should be used as per the recommendations given in activity specific guidelines in the *Annexe 2 of Annexure 7.*
5	Energy use	Energy is required for heating, boiling, grinding, extraction, drying etc.	In case of cooking fuel efficient devices should be used. Biomass or solar devices can be promoted to conserve energy.
6	Use of water	Water is required for cleaning, washing, boiling etc.	Water efficient devices should be promoted.
7	Maintenance and upkeep of machinery	Irregular cleaning or maintenance will lead to contamination and improper functioning. Possibility of accidents during handling machinery.	Regular upkeep should be followed as per the prescribed standards. Personnel should be well trained and first aid kit should be available.

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8	Waste disposal	Open disposal of decomposable wastes leads to contamination of surroundings though decomposition, attracting insects, leaving chemical residues etc.	Wastes should be properly disposed as per the recommendations given in activity specific environment guideline s given in *Annexure 7.*
9	Facilities at processing and manufacturing centres.	Lack of required basic amenities will affect health of workers.	The work space should be ventilated to the extent possible. Should have drinking water and toilet facilities.
10	Adoption of environment guidelines	Lack of awareness may lead to non adoption of the guidelines	Awareness and training programmes need to be organized for the workers and entrepreneurs.

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3.1.2.2. Environment Guidelines for enterprises:

Table 6: Potential Environmental issues and Environment friendly alternatives in nonfarm based enterprises include:

S. No	Activity in the value chain or steps in the process	Possible issues	Interventions, Best practices
1	Registration, licenses and permissions	Manufacturing and selling of chemical products without registration and license is illegal.	Registration of unit under DIC and chemical license and testing for toxic material is required with help of Pollution Control Board.
2	Raw material (Chemical)	Poor quality raw material lead to burning of hands, breathing problems etc. during preparation and end use of the product.	Authentic source of raw material and suppliers to be ensured and training on proportion of raw material to be mixed up can be given.
3	Storage of raw materials and finished products	Improper storage of raw materials leads to spoilage or contamination of products.	Raw materials should be properly stored in containers with lids in clean and dry place as per prescribed standards Finished products should be properly labeled with manufacture and expiry date and stored in clean and dry place.
4	Processing and manufacture	Manufacture without following prescribed standards affects the health of workers.	Hand gloves, nose masks and goggles should be used while handling the raw materials or finished products.
5	Energy use	Energy is required by machinery for heating, running mixing, packing, etc. and will have impact through GHG emissions.	Green sources of energy can be promoted to conserve energy based on feasibility.
6	Use of water	Water is required for cleaning, washing, boiling etc. As the requirement is in large quantities this will have impact on local water resources.	Water efficient devices should be promoted.
7	Maintenance and upkeep of machinery	Possibility of accidents during handling machinery.	Personnel should be well trained and first aid kit should be available.
8	Waste disposal	Open disposal of chemical wastes or cleaned water leads to contamination of surroundings and water bodies.	Wastes should be properly disposed as per the recommendations given in activity specific environment guideline is given in *Annexure 7.*
9	Facilities at processing and manufacturing centres	Lack of required basic amenities will affect health of workers.	The work space should be ventilated to the extent possible. Should have drinking water and toilet facilities.

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10	Packaging	Use of undecomposable packaging material further cause the soil pollution.	Bio degraded able ingredients and re-useable packaging should be promoted.
11	Adoption of environment guidelines	Lack of awareness may lead to non adoption of the guidelines	Awareness and training programmes need to be organized for the entrepreneurs and workers.

KRuSHE Marts:

The project will organise rural retail chains by creating a network of KRuSHE Marts that offer branded and non-branded households goods and daily needs at lower cost. The project will aim at transforming traditional Kirana shops and other retail outlets into KRuSHE Mart outlets.

3.1.2.3. Environment Guidelines for Rural Retail Chains: KRuSHE Marts

Environmental impacts here will include ventilation, storage practices, labeling, packing etc.

Table 7: Potential Environmental issues and Environment friendly alternatives for KRuSHE marts include:

S. No	Key aspects in Rural marts	Possible issues	Interventions, Best practices
1	Rural mart structure	Poor ventilation, possibility of moisture seepage etc. will favor the pest and mold growth.	The marts should be well ventilated, moisture proof.
2	Storage of provisions	The large scale storage of provisions attracts pests and offers scope for fast multiplication necessitating the chemical use for pest control which may contaminate the products posing health risks. Contact with moisture will lead to fungal growth, off flavors etc. Consumable items (nutria products) when stored with products of chemical nature may contaminate the product or give unfavorable odors.	The provisions should be stored in air tight packed conditions to the extent possible and should be placed on a cement or wooden platform. Natural precautions like adding neem leaves, spraying the container and floor with neem seed kernel extract etc. should be followed. Consumable items should not be stored with goods of chemical nature such as mosquito coils, pest repellent liquids or tobacco products. The unpacked ready to consume items like nutria products should be stored in clean containers with lids.
3	Product durability, labeling	Out dated products or products that are stored for long time will lead to health issues when consumed.	Each product packed and sold by the KRuSHE mart should have mention of expiry date. Any pest or mold infested or outdated products should be cleared and disposed safely on regular basis.
4	Package material	Use of plastic bags under thickness	Use news paper wrapping or cloth

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		of 20 microns is not allowed for packaging due to their non recyclable nature and potential negative impact on environment.	bags for supplying the provision to the consumer. Encourage the consumers to bring cloth bags.
5	Adoption of environment guidelines	Lack of awareness may lead to non adoption of the guidelines	Awareness and training programmes need to be organized for community and involved stakeholders from the village.
Good Practices: • Flammable items when not stored in required condition may lead to accidents. Flammable items should be stored separately in prescribed conditions.			

The activity specific Environment Guidelines for farm and nonfarm activities under Rural retail chains and are attached as *Annexure 7* along with list of support agencies. These guidelines can be used during development of business plans.

3.2. Component 2- Human Development (HD)

The HD component will build upon the existing government and civil society structures and mechanisms such as, *Maarpu*, IAH, NDCC, etc. It will do so by developing a convergence model that supports the strengthening of existing nutrition, health, sanitation and pre-school education service delivery facilities at the village level by providing additional financing for gap filling and incentives and awards for performance.
The approach of the project looks at the following sub components:
1. Strengthening the demand for quality nutrition, health, sanitation and pre-school education services
2. Strengthening supply of quality nutrition, health, sanitation and pre-school education services
3. Linkages with value chains for improved nutritional outcomes

The activities under each sub component and applicability of EMF is presented here under:

Table 8: Applicability of EMF to HD components

S. No	Component	Key activities	Applicability of EMF
1.	Strengthening demand for improved quality nutrition, quality nutrition, health, sanitation and pre-school education services.	Developing village HD plans. Rollout of village HD plans. Capacity building HD teams at village and mandal levels. Awareness programmes for behavioral change on water and sanitation and nutrition	Integrating Environment guidelines into HD plan preparation and implementation through convergence. Integration environmental aspects into creation of safe drinking water and sanitation facilities and maintenance. Importance of environmental sanitation and necessity of environment guidelines.

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		aspects.	
2.	Strengthening supply of quality nutrition, health, sanitation and pre-school education services	Strengthening district training teams of line departments. Technical trainings to front line workers and HD personnel.	Integration of module on environment guidelines to be followed during creation and maintenance of Water and Sanitation facilities and nutrition related interventions.
3.	Linkages with value chains for improved nutritional outcomes	Farmer Field Schools for nutrition sensitive agriculture. Nutri shops and take away food centres. Community kitchens. Sanitation and supply of safe drinking water.	Organic methods of cultivation. Environmental guidelines for infrastructure, cooking and storage. Environment guidelines for drinking water and sanitation.

Village level HD plans:
Village level HD plans will be prepared to indentify the HD issues and gaps in the village. As part of HD plan preparation household surveys as well as village facility surveys will be conducted related to water, sanitation, health, nutrition, education and livelihoods.

A small HD fund of Rs. 1, 50,000 (Approx) per village in 50 mandals will be made available to meet any awareness or small infrastructure gaps in the village. The PRI and VO jointly would take the responsibility to plan and achieve the desired HD outcomes deemed appropriate and that they are not running short of resources feeling hapless. This will be largely done through convergence.

CRP trainings and trainings on *Maarpu*:
CRPs will be trained on HD components and preparation of HD plans and on creating awareness among the concerned committees in village and communities. Environment guidelines will be duly integrated into the modules.

The HD interventions (awareness programmes and addressing infrastructure gaps) and environment guidelines for the same are discussed below:

3.2.1. Environment Guidelines for ensuring and monitoring safe drinking water supply:

This activity focuses on addressing gaps in provision of safe drinking water in the villages through convergence with department's programmes. This would involve working with GPs, mobilization of Village Health Sanitation and Nutrition Committees. This could entail building a cadre of Community Resource Persons facilitating village level micro plans developing and establishing convergence with departmental programmes for building community water and sanitation assets.

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Table 9: Environment guidelines for Drinking water supply monitoring:

S. No	Component	Possible Issue	Intervention or best practice
1	Source of drinking water	There is possibility of contamination of the surface water source with fecal matter and other organic pollutants, debris etc. Inorganic pollution is also possible through fertilizer runoff, high concentration of fluoride, arsenic, nitrate etc. in cases where ground water is the source.	Water should be testing in the lab facility of RWS with help of Panchayat before arranging for the supply. Water testing should be done by the VOs (sending the samples to RWS laboratory) on regular basis as part of monitoring.
2	Use of ground water	In case if the water source is ground water, over exploitation coupled with lack of recharge may leading drying up of the bore well.	Recharge structures should be planned for all ground water sources with support from department of RWS.
3	Supply system	In the piped supply system leakages are possible which leads to contamination with sewage water near drains etc.	The concerned committee in the VO responsible for monitoring should regularly check for any leakages at regular intervals and get the issues solved with help of PRI and the department of Rural Water Supply.
4	Fecal contamination in monsoons	Fecal contamination is possible in monsoon causing diarrhea.	The monitoring committee in the VO should be equipped with H_2S vials for checking water quality at regular intervals.
5	Water storage and handling at household level	Even if water supplied is safe contamination and ill health is possible at household level due to wrong practices in storage and handling water.	Awareness programmes to be planned at village level on practices like boiling water in monsoon, safe storage, handling water through ladle, using clean tumblers etc. Practices like household level purification should also be promoted.
6	Deflouridation treatment plants in villages with fluoride contamination.	In villages where deflouridation units are established disposal of sludge may pose and serious environment hazard.	About 80-100 gms of sludge is generated per 1000 liters of water in electrolytic deflouridation units. Feasible options for sludge treatment and disposal are to be explored – such as brick making and sanitary landfills. Dewatering the sludge allows for safe storage for a period of time which can be used for dry land filling.

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7	Use and maintenance	The established facilities will not serve the purpose if guidelines on proper use and maintenance are not followed.	Awareness and training programmes need to be organized for community and involved stakeholders from the village.

Fluoride problem and issue of sludge disposal:

The suggestion applies in cases where deflouridation units are planned in convergence with government schemes or with corporate support, external funding etc.

Discharge of the sludge collected in the treatment plants is an issue of concern as open disposal (which is a normal practice) will lead to leaching into ground water.

For safe disposal the fluoride should be dewatered using vacuum filters and dried. It can added to the soil used for brick making (to large quantities of soil so that the concentration of fluoride is diluted) or for concrete blocks. The requisite equipment for the same and the guidelines for disposal should be built into the contracts.

3.2.2. Creation of Sanitation facilities:

This activity focuses on leveraging investments made by SERP in the institutional platform of SHGs and VOs to work on mobilization around sanitation, defecation free villages and access to sanitation services. This would involve working with GPs, mobilization of Village Health Sanitation and Nutrition Committees. This could entail building a cadre of Community Resource Persons facilitating village level micro plans and establishing convergence with government line departments.

Table 10: Environment Guidelines for construction of IHHL:

S. No	Component	Possible Issue	Intervention or best practice
1	Location of the toilet	Toilet location near to the drinking water source has high chances of contaminating the water. Location too far from the house or too near to the house may deter the use.	Safe distance from drinking water sources to be followed. The location of the septic tank should be downhill from the water source depending on feasibility. The safe distance depends on local hydrological conditions, however 30 mts is treated as safe distance[1]. Appropriate location should be selected which will not discourage the use in consultation with the household.
2	Water facility in side toilet	Lack of water facility inside discourages the use and affects cleanliness.	Water facility should be provided inside to the extent possible. 2 pit system toilet with Pan with steep slope 25^0-28^0 and trap with 20 mm water seal as designed by Sulabh International will reduce the usage of

[1] Septic Tanks, http://www.who.int/water_sanitation_health/hygiene/emergencies/fs3_9.pdf viewed on 28th March 2014.

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			water (required 1-1.5 lits for flushing)[2]. In areas with water scarcity water efficient toilets like ecosan toilets can be constructed.
3	Hand wash facility	Practice of not washing hands after toilet use will cause fecal contamination of food and water while handling, eating etc.	Hand wash facility outside the toilet should be made integral part of design or facility of water and soap should be made available outside.
4	Ventilation	Poor ventilation discourages use by children and affects cleanliness and maintenance.	Proper ventilation to be ensured as lack of ventilation or electricity discourages the use
5	Construction models	Cost and availability of space and water is a constraint for toilet construction in many areas. Anganwadi toilets are not used when not designed specific to child needs.	The following low cost options can be explored based on need: Plinth level toilet with temporary super structure can be constructed which is of low cost. Use of hollow bricks will reduce cost Eco san toilets – in water scarce areas. Biogas linked toilets depending on acceptability. Child friendly anganwadi toilets with easy access to water tub, provision of opening from inside and outside, small 14 inches pan, water storage at 1 feet ht.
6	Disposal of construction debris	Open disposal of debris near the toilet itself sometimes block the access and acts as hiding place for snakes etc. Debris disposed near drains leads to stagnation obstructing the flow.	The debris should be disposed away from the site preferably though land filling.
7	Use and maintenance	Improper use and maintenance will lead to defunct facilities	Awareness programmes should be organized for community on proper use and maintenance.

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3.3.3. Environment Guidelines to be integrated into the awareness programmes facilitating use and proper disposal of Sanitary napkins:

- The sanitary napkins should not be disposed openly into garbage as it poses health hazards. They should but burnt or buried. Burial is recommended as safe practice as burning leads to harmful gases because of plastic. A deep burial pit can be constructed for burial in a common location.

[2] Two Pit System, viewed at http://www.sulabhinternational.org/content/two-pit-system, on 28th March 2014.

- Providing identifiable disposable bags along with the napkin packs and in village as common disposable point would facilitate hygienic handling of used napkins
- Low cost environment friendly napkins should be explored for promotion in the villages. Reusable cloth sanitary napkin production by SHGs is being explored in Trichy, Tamil Nadu[3].

3.3.4. Environment Guidelines for Nutrition Gardens:

Nutrition gardens at household will be promoted through Farmer Field School (FFS) approach under HD component. To deliver the service at FFS, an Extension Advisory Services (EAS) provider will be positioned in every mandal. Kitchen gardens, livestock, and especially small animals, can play an important role in dietary diversity and in increasing the consumption of micronutrient-rich foods. EAS Provider will help to introduce a diversity of crops, animal husbandry, and fisheries which are available locally, affordable and easily adopted by communities.

Table 11: Environment Guidelines for Nutrition Gardens:

S. No	Component	Possible Issue	Intervention or best practice
1	Selection of varieties	Varieties not suitable to local conditions and hybrids may not provide better nutrition but may increase costs for pest and disease management.	Grow locally available good yielding varieties.
2	Pest and disease management	Use of chemicals for nutrient, pest and disease will lead to harmful chemical residues in food and soil, affect local biodiversity.	The kitchen garden should be grown by organic methods only.
3	Water use	Flood method of irrigation need more quantities of water.	Drip method or IDA drip method can be followed to conserve water.

3.3.5. Environment Guidelines for Nutrition Cum Day Care Centers (NDCCs), Community Kitchens, Nutri product preparation:

The project, in future might ssupport communities set up community kitchens and nutrition enterprises in a hub-and-spoke model to prepare and supply nutritious meals to ICDS, Mid-Day Meal, destitute feeding centers, etc. in a healthy and hygienic manner. The same kitchen would also be used to develop nutri-products .These enterprises could be linked to local value chains developed under the project.

The project also aims at transformation of the village *Kirana* stores into a convenient and affordable access point for good quality, safe and nutritious food. This would create a rural retail chain that connects local producers for various food and nutrition products, local branded products and doorstep outlets. These stores would also be linked with organic and pesticide free sustainable agriculture program which supports more than a million organic producers. The project would work on developing a brand of KRuSHE which all these stores would carry.

[3] Environment Friendly and Low cost Sanitary pads viewed at https://onepercentclub.com/en/#!/projects/environment-friendly-and-low-cost-sanitary-pads/plan on 28th March 2014.
Another link: http://ecofemme.org/about/media/

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Table 12: Environment guidelines for NDCCs, Community kitchens and nutri products preparation:

S. No	Component	Possible Issue	Intervention or best practice
1	NDCC or community kitchen facility	Lack of proper ventilation needs more energy for lighting and will not be of convenience for cooking, eating etc.	Well ventilated spaces should be hired or ventilation should be given importance during construction.
2	Raw materials, ingredients used for cooking	Products from chemical farming will have negative impact on health.	Organic products or the products from CMSA should be used to the extent possible. Diversified food products with high nutritive values like millets, greens, egg etc. should be considered for ensuring required nutrition uptake.
3	Storage of cereals pulses, oil etc.	Improper storage of the ingredients leading to contact with moistures, exposure to pests like rats etc. will spoil the quality there by having impact on health.	Storage should be in clean, dry places with in tightly packed containers or containers with lids, covers. Food products should not be stored along with any products of chemical nature. Outdated raw materials or raw materials stored for long periods should not be used. Raw materials should be inspected at regular intervals and any spoiled materials should be safely discarded.
	Storage pest control	Use of chemicals to control storage pests like cockroaches, rats etc. as they may contaminate the food.	Non chemical pest management methods like neem leaves, dry chillies etc. can be used for storing the raw materials.
4	Cooking practices	Cooking and serving in unclean, not properly washed and dried vessels may lead to contamination of food. Cooking and serving without washing hands may also contaminate the food. Eating food without washing hands will allow bacteria and virus present on hands to contaminate the food.	Cooking should be done in clean and dry vessels. The vessels should be washed properly after cooking and serving and dried in sun. Wearing gloves and hair cap while serving is advisable. Hand wash facilities (soap and water) should be provided at nutrition centre. In case of children it is advisable to taste the food before serving.

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5	Storage of cooked food.	Storage of food without covers, lids etc. will attract flies and poses risk of contamination causing health hazards	The cooked food until served or sold should be stored in clean and dry containers that are properly covered with lids.
6	Cooking and washing place	Un clean cooking and washing place will encourage flies and pests.	Cooking pace should be kept clean. No water stagnation should be allowed at washing place. Soak pit should be constructed or waste water should be diverted to plants or nutrition garden if available.
7	Waste disposal	Open disposal of wastes attracts stray dogs, pests and flies and creates un hygienic conditions due to decomposition.	The wastes should be composted in a pit and the compost can later be used for the garden. For liquid waste proper drainage facilities with cement canals (preferably closed) should be provided.
8	Indoor air pollution	In places where fuel wood stoves are used the smoke will lead to respiratory and eye problems	Fuel efficient smokeless cook stoves or bio gas can be promoted depending on feasibility.
9	Toilet facility	Lack of toilet facilities at NDCC or community kitchen will cause inconvenience as pregnant mothers and small children attend and also to workers at community kitchen. Surrounding environment may be spoiled due to lack of facilities	Toilet with water facility should be made compulsory at NDCC and community kitchens.

For all the construction related activities under HD component – Kitchens, Toilets, Water supply etc. the guidelines for the construction activities are to be referred given as Annexure 8.

However in case of constructions coming up during the project period with fund from World bank special guidelines and site specific Environment Management Plans (EMPs), system of monitoring should be planned and implemented in consultation with the World Bank.

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3.3. Component 4 – TA, ICT and Partnerships:

Objective of TA, ICT is to create and operationalize a state of the art, efficient, effective ICT platform for hosting and enabling the delivery of range of projects – for Human development, Livelihoods and social development - with a focus on delivering last mile services. The key activities to be implemented under partnership include (i) *Innovation forums or Solutions Marketplaces, Knowledge Events* (ii) *Financing Public-Private-Community Partnerships:* The project will encourage productive partnerships with public, private and social enterprise sectors to increase the integration of poor in performing and remunerative value chains.

3.3.1. Innovation forum or Solution market places on Green Business opportunities

The objective of this component will be to enhance the environment benefits by organizing an innovation forum or solution market place to address the critical issues identified through environment assessment and that will be identified during the project period. The theme of the innovation forum or solution market place will be – Green Business Opportunities' and the objective will be to identify high impact environment management related innovations on value chains and to form productive partnership with Technical Agencies that can provide support on energy efficient processing, improving water use efficiency, waste utilization and recycling, green labeling and marketing etc.

The innovation forum or solution market place will be organized inviting high impact solutions for the following critical environmental issues that are identified during the environment assessment of the value chains which are mentioned below:

Table 13: Critical Environmental Issues indentified in value chains:

S. No	Interventions /Value Chains	Environmental issues to be addressed	Issues planned to be addressed by SERP	Residual issues need to be addressed
1	Paddy Value Chain	Use of chemicals to enhance productivity and to manage pests and diseases will lead to pollution of local environment, enters food chain etc.	Plan for Non Chemical methods for crop management.	Nil
		Use of high quantities of water depletes local water resources	Promotion of System of Rice Intensification (SRI) to conserve water.	Nil
		Waste management issues in the processing, milling is an issue when openly disposed.	Plan for charcoal briquettes.	Can plan for biomass gassifiers and energy produced can be used for running the mill and by product charcoal

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				can still be put to suitable use.
2	Red gram	Use of chemicals to enhance productivity and to manage pests and diseases will lead to pollution of local environment, enters food chain etc.	Plan for Non Chemical methods for crop management.	Nil
3	Dairy	Fodder cultivation, breed and vaccinations play key role on animal health Waste management poses environmental problem when disposed openly which is the common practice.	Plan for fodder cultivation and breed upgradation.	Nil Biogas plants can be planned through CDM project.
4	Small scale enterprises	Safety issues for the workers and waste disposal problems.	Not planned.	Measures to be planned after individual activity assessment.

The procedures and standards for announcement, identifying technical support agencies, implementing the high impact solutions etc. will be in line with those that are set for innovation forum or solution market place.

3.3.2. Green tools for rating and certification of green products under value chains:

For rating the greening of value chains, green business opportunities green tools will be developed by a third party certification agency after setting green standards for each product. Software for green rating need to be developed under ICT component. The traceability mechanism for green products will also be developed under ICT. Further details on these are discussed in EMF implementation chapter.

3.3.3. Environment Guidelines for ICT interventions – Use of tablets and e- Waste management.

- The E waste if not disposed properly it may pollute ground water, soil and air. The heavy metals like cadmium, lead etc may leach from the waste and may pollute the ground water. The presence of metals like cadmium, mercury, lead causes air pollution through harmful emissions. According to e-waste (Management and Handling) Rules, 2011that e-waste generated by them is channelized to the authorised collection centre(s), or registered dismantler(s) or recycler(s) or is returned to the pick up or take back service provided by the producers; and Bulk consumers shall maintain record of e-waste generated by them in the Form 2 and make such record available for scrutiny by the State Pollution Control Board or the Pollution Control Committee concerned.
- During the purchase required clauses should be included in the contract conditions to ensure that the producer provides SERP with a list of authorized collection centers/dismantlers/recyclers.

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Chapter - IV

4. EMF Implementation Arrangements

The institutional arrangements for EMF and plan of implementation are discussed in this chapter.

4.1. Approach to development of Environment Management Framework (EMF):

EMF is designed in consultation with various stakeholders – the project teams, concerned departments, community representatives through field consultations. Respective thematic teams in SERP are involved in the process of EMF development including Community Managed Sustainable Agriculture (CMSA), Livestock and Poultry Development (LPD), KRuSHE teams. Comments on the draft report are obtained from the World Bank team.

Consultations: Consultations with key stakeholders (Community, NGOs and representatives from government line departments) are held through workshops in 2 locations – in Karimnagar on 11th July 2014 and Rangareddy district on 15th July 2014. The reports and participant details are attached as *Annexure 9.* The EMF is in agreement with the stakeholders and the suggestions by stakeholders are duly integrated into the EMF.

This section details the following aspects of the implementation of the Environmental Management Framework (EMF):

- Greening the business plans (Value chains), business proposals (KRuSHE marts and KRuSHE Enterprises) and HD plans (Village Infrastructure Plans)
- Environment Appraisal for ensuring integration of Environment guidelines into the value chain business plans, KRuSHE Marts & Enterprise proposals and Human Development plans. The following plans will go through the process of Environmental Appraisal
    - Business Plans developed by Producer Groups
    - Business proposals developed by KRuSHE entrepreneurs
    - Village HD Plan (VHDP) under HD component developed by HD teams (HD CRPs)
- Innovation forum on 'Green Business Opportunities'
- Institutional arrangements for implementation of EMF
- Monitoring strategy
- Capacity building plan
- Budget
- Timeline

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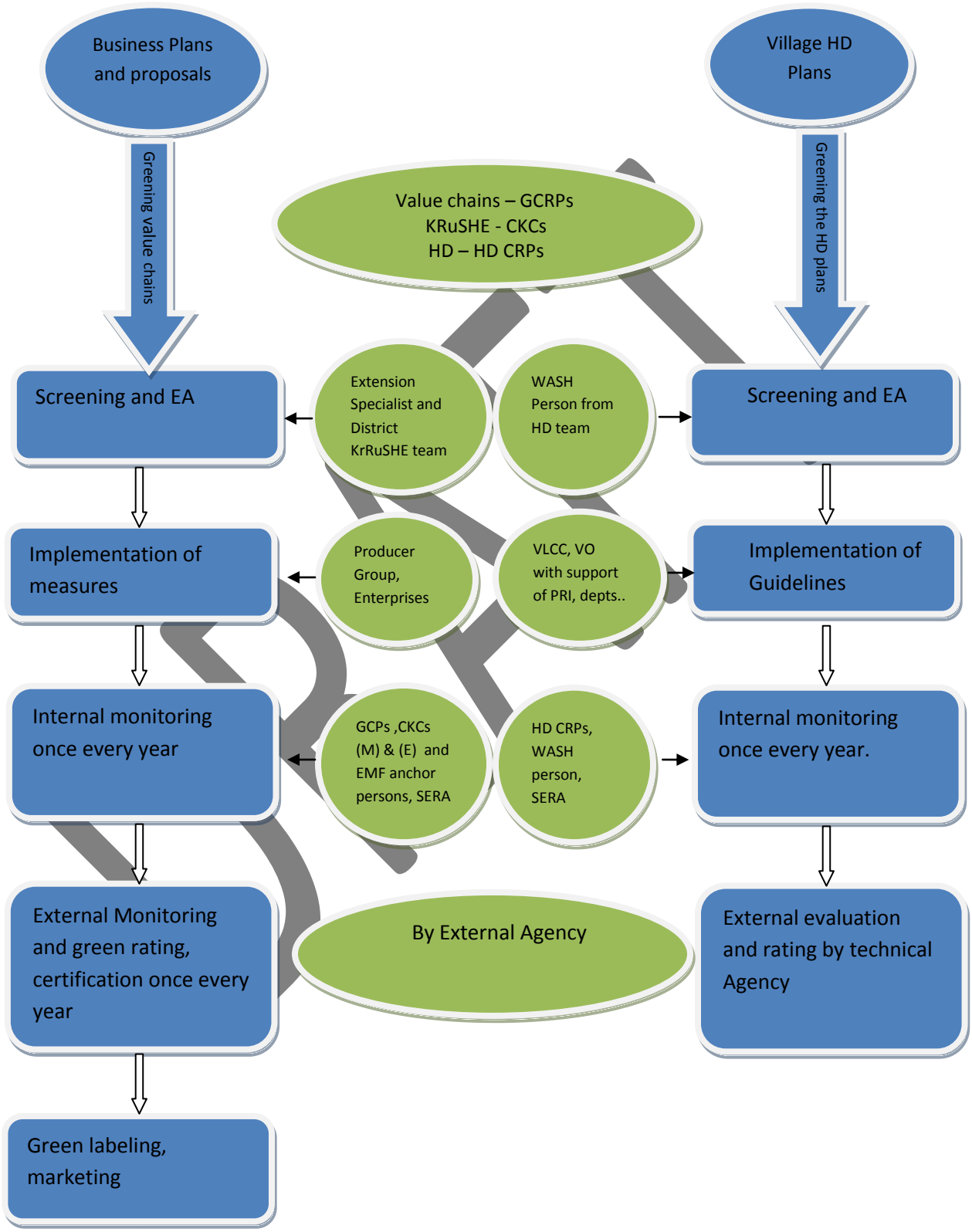
Greening Rural Inclusive Growth: Greening the plans and Environmental Appraisal

Figure 1: Greening Rural Inclusive Growth - flowchart



4.2. Greening the Business Plans, Business Proposals and HD Plans:

Producer Group 'Business Plans' – Rural Value Chains:
The Producer Group (PG) will be facilitated by the Village Resource Person (VRP) with support of Community Resource Persons (CRPs). The commodity specific Spear Head Teams (SHT) functioning at cluster level (comprising of Producer Group Specialist; Agri Business Specialist; Extension Specialist; Agriculture Nutrition Specialist etc.) provides support to Producer Group in developing the Business Activity Plans on Value chains for the selected commodities at cluster level – Paddy, Red gram, Dairy, Small ruminants, Poultry, etc. Environment Guidelines will be integrated into the value chains by Producer Groups with the support of Green Community Resource Persons (GCRPs) under the guidance of Extension Specialist who is the anchor person for EMF at cluster level as part of SHT. The technical agency on the specific commodity will also take part in this process to provide necessary technical inputs.

KRuSHE Marts and Enterprise Business Proposals - Rural Retail Chains:
The KRuSHE Marts will be identified by Community KRuSHE Consultants (CKCs) Marts (M) who will consider environmental conditions (as provided in the Table 7) and integrates environment guidelines into the business proposals with the help of Spear Head Teams and Knowledge partners if required.
Similarly KRuSHE Enterprises will be identified by Community KRuSHE Consultants (CKC) Enterprises (E) integrating into the business proposals, the activity specific environment guidelines provided in *Annexure 7.*

Village HD Plans - HD Plans:
The village HD plans are prepared by HD Community Resource Persons (CRPs) and Village Level Convergence Committees (VLCC) s involving the PRI. A team of 2 CRPs will cover 5 villages in mandal. The environment guidelines will be integrated by CRPs into HD intervention during the preparation of the plans with the support of WASH person from mandal HD team and Technical Agency.

4.3. Environment Appraisal and Environment Guidelines for greening value chains and HD interventions:

4.3.1. Environment Appraisal of Value chains - Business Plans and Business Proposals

Rural Value Chains – Business plans:
The Business Plans prepared by PGs with help of Spear Head Teams (SHT) will go through the process of Environment Appraisal in order to verify if the compliance requirement and environment guidelines are duly integrated (any compliance requirements and any possible the negative impacts of the activities proposed under value chain and suggestion of appropriate mitigation measures or environment friendly alternatives, any climate change adaptation measures) into the business plan or not.
The responsibility of conducting the environment appraisal of the value chains is with the Extension Specialist who operates at Cluster level as part of SHT. Productivity Enhancement expert, who operates at District or Supra District level is responsible for any guidance and monitoring the appraisal.

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Greening of the Producer Group's Business Plan, which is verified by the process of Environment Appraisal, serves as one of the trigger for release of the fund for Producer Groups.

Rural Retail Chains – Business proposals:
The business proposals for the KRuSHE Marts developed by Community KRuSHE Consultants (CKCs) with help of SHT will be environmentally appraised by Operation Specialist at District Level with support from Knowledge partner.
The business proposals for KRuSHE Enterprises developed by CKC (E) with support from SHT will go through Environmental Appraisal by Enterprise Promoter Operating at District Level. The knowledge partner will offer support in the same.

4.3.2. Environment Appraisal of HD Plans

The HD plans developed under HD component will go through the process of Environment Appraisal to ensure if the plans have due integration of Environmental Guidelines for the activities – Nutri shops, Community kitchens, Nutrition gardens, Individual Household Latrines (IHHLs) and provision of Safe drinking water.
The responsibility of integration of Environment Guidelines into HD plans lies with the Community Resource Person and the responsibility of Environment Appraisal of HD plans lies with the WASH person trained on EMF operating at cluster or mandal level. The environment guidelines are provided in chapter III and the checklist as *Annexure 8.*

4.3.3. Steps in Greening the Producer Group Business plans, KRuSHE proposals HD Plans and Environment Appraisal

Greening of the Business plans involves three steps
1. Screening
2. Integrating Environment guidelines into the plans of value chains, KRuSHE marts & enterprises and HD Plans
3. Implementation of sustainability measures or environment friendly alternatives.

Screening:
Screening is done to ensure that no activity on the environmental negative list is taken up as part of the interventions. It should also assess the activities being proposed and ensure that the mitigatory measures provided in the EMF meet the requirements. The Legal and Regulatory Framework and the Do's and Don'ts list (or negative list) will assist in screening. The negative list of activities is attached as *Annexure 2.*

Integration of Environment Guidelines into PG Business plans and HD plans (Greening):
Greening of the business plans, business proposals and HD plans is done by referring to the commodity or sector wise Environmental Guidelines for identifying the potential issues and mitigation measures (or sustainability measures) and environment friendly alternatives. The identified mitigation measures and environment friendly alternatives are integrated into the respective plans and proposals along with additional costs if any. All the relevant guidelines to aid in this exercise (list of negative activities, guidelines,) are provided in *Annexure 2, 6 and 7*. Any technical support for implementation of mitigation measures (training, convergence with main stream programmes etc.) will be provided by the Sector or commodity specific Support Organizations – technical agency/knowledge partner and the concerned thematic units in SERP.

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Environmental Appraisal

Environment Appraisal of Plans:

Environmental Appraisal is the process of verifying whether the environment guidelines specified are duly integrated into the business plans of PGs by GCRPs, into KRuSHE business Proposals by CKCs (E) & (M) and into HD plans by HD teams – VIPs. An appraisal format will be provided to aid in this. The format is attached as *Annexure 10.*

Environment Appraisal acts as one of the trigger for release of funds for the plans.

Table 14: Responsibilities at different levels in integrating environment guidelines into business plans, proposals and HD plans and Environment Appraisal:

Task	Level 1	Level 2	Level 3	Level 4
Greening the Business plans, proposals and HD plans				
Producer Group Business Plans – Rural Value Chains	The Producer Group (PG) will be facilitated by the Village Resource Person (VRP) with support of Community Resource Persons (CRPs).	The commodity specific Spear Head Teams (SHT) functioning at cluster level provides support to Producer Group in developing the Business Activity Plans on Value chains for the selected commodities.	Environment Guidelines will be integrated into the value chains and implemented by Producer Groups with the support of Green Community Resource Persons (GCRPs) under the guidance of Extension Specialist (who is the anchor person for EMF at cluster level as part of SHT).	The technical agency on the specific commodity will also take part in this process to provide necessary technical inputs.
Rural retails chains – Business proposals	The KRuSHE Marts will be identified by Community KRuSHE Consultants (CKCs) Marts (M) who will consider environmental conditions (as provided in the Table 7) and integrates environment guidelines into the business proposals.	Spear Head Teams and Knowledge partners will support in integration of the environment guidelines.	-	-

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	KRuSHE Enterprises will be identified by Community KRuSHE Consultants (CKC) Enterprises (E) integrating into the business proposals, the activity specific environment guidelines provided in *Annexure 7.*	Spear Head Teams and Knowledge partners will support in integration of the environment guidelines.	-	-
Human Development plans	The village HD plans are prepared by HD Community Resource Persons (CRPs) and Village Level Convergence Committees (VLCC) s involving the PRI. A team of 2 CRPs will cover 5 villages in mandal. The environment guidelines are integrated by CRPs into HD plans.	The WASH person from mandal HD team and Technical Agency will support in integration of environment guidelines.	-	-
Environmental Appraisal				
Rural chains – Business plans	The Business Plans will go through the process of Environment Appraisal by 'Extension Specialist' who operates at Cluster level as part of SHT.	Productivity Enhancement expert, who operates at Supra District level is responsible for any guidance and monitoring the appraisal.	Environment Appraisal, serves as one of the trigger for release of the fund for Producer Groups.	State environment expert and Technical Agency offers any required guidance on appraisal process.

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Retail chains – Business proposals	The business proposals will be environmentally appraised by Operation Specialist at District Level with support from Knowledge partner. The business proposals for KRuSHE Enterprises will go through Environmental Appraisal by Enterprise Promoter Operating at District Level. The knowledge partner will offer support in the same.	-	-	State environment expert and Technical Agency offers any required guidance on appraisal process. State environment expert and Technical Agency offers any required guidance on appraisal process.
HD plans	The HD plans will go through the process of Environment Appraisal by the WASH person operating at cluster or mandal level.	Technical Agency provides any required support.	-	-

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4.3.4. Innovation forum or solution market place on Green Business Opportunities:

Innovation forum on the 2 critical issues identified (Table: 13) and on emerging issues during implementation or in the new value chains proposed will be conducted within 6 months after the project inception as per the norms and standards decided under the project. The State Environment Expert has the responsibility of organizing the innovation forum. The selected Technical Agencies will provide technical guidance and hand holding support to the PGs in integrating Green Business Opportunities into the value chains. Based on the new issues that may emerge a second innovation forum can be conducted after 2nd year of the project inception (eg: integration of climate change adaptation into value chain activities). The inputs for ToR for the Technical Agencies is given in *Annexure 11.*

4.3.5. Green Audits and Third party certification for accessing premiums:

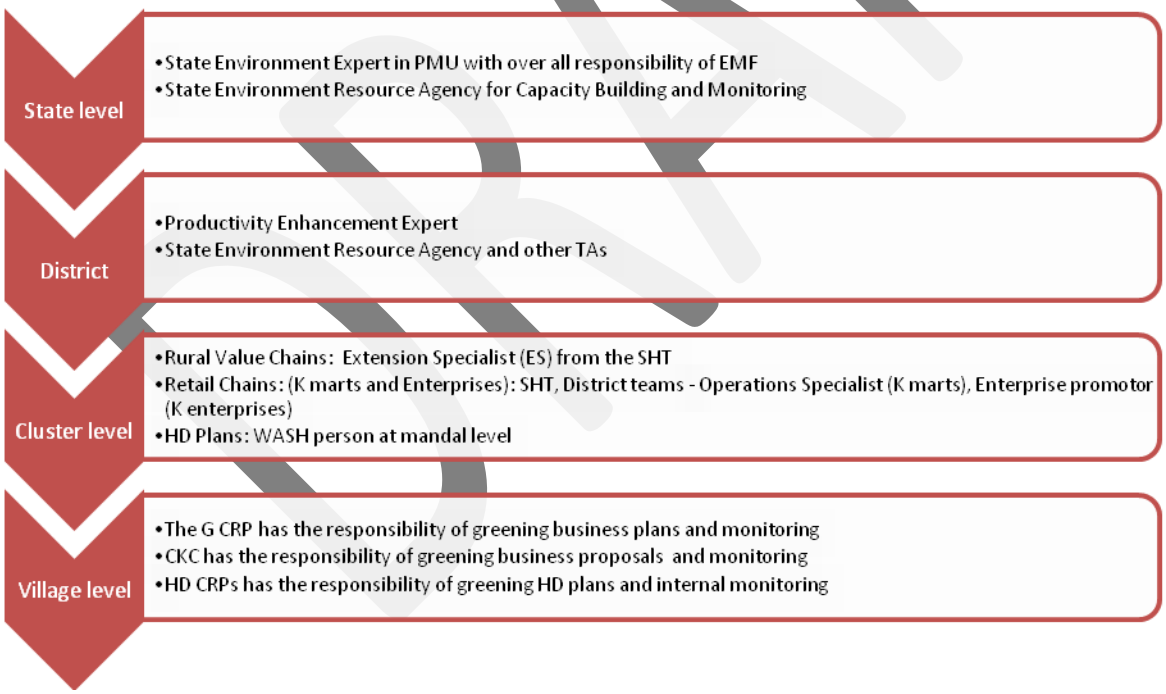
As the business activity plans, business proposals and HD plans will start integrating environment guidelines and green business opportunities as part on innovation forum, the environmental benefits accrued will be measured with the help of green rating tools which will be developed under ICT component. Initially during year 1, the standards / criteria will be set by a technical agency. Green tools will be developed based on the criteria by the agency which will be used by the GCRPs, HD CRPs and CKCs and Extension Specialists, KRuSHE district teams and HD WASH person to rate the value chains and HD plans at every crop season or at half yearly intervals for HD plans. The State Environment Resource Agency will also conduct green audits once every year using the green rating tools.

For the plans where the implementation of measures and guidelines is up to the desired level green rewards will be presented. The third party agency will certify the products from the value chains and provides endorsement which may help in accessing the premiums in market through green labeling. The authenticity of the product will be ensured through traceability mechanism which will be worked out with the help of third party technical agency. The third party certification will happen through green audits from year 2 or 3 onwards, once every year. The ToR for the technical Agency is given in *Annexure 11.*

4.4. Institutional Arrangements for Implementation of EMF:

The following cadres will be responsible for implementing EMF at various levels with specified roles and responsibilities:

Figure 2: Institutional arrangements for EMF implementation



4.4.1. At State level:

State Environment Expert in Project Management Unit (PMU) will have the overall responsibility for implementation of EMF. A State Environment Resource Agency (SERA) will be hired for support in Capacity Building and Internal monitoring (green audits). The ToRs for State Environment Expert and SERA are attached as *Annexure 11.*

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4.4.2. At Supra district or District level:

For Value chains - Productivity Enhancement Expert positioned at Supra district or district level will have the responsibility of ensuring EMF implementation: Environment Appraisal of business plans and implementation Green business opportunities at respective district levels, Capacity Building cluster teams and monitoring.

For retail Chains – for KRuSHE Marts, Operations Specialist at District level and for KRuSHE Enterprises, Enterprise Promoter at district level are responsible for EMF implementation: Environmental Appraisal of Business Proposals, capacity building cluster teams and monitoring.

4.4.3. At Cluster Level or Mandal level:

Extension Specialist (ES) from the SHT has the responsibility of ensuring greening of all value chains by Green Community Resource Persons (GCRPs) and conducting environmental appraisal (and providing support in implementation of mitigation measures. The ES has the responsibility of capacity building and monitoring GCRPs.
For KRuSHE proposals the CKCs (M&E) has the responsibility of greening the proposals or integrating environment guidelines. Environmental appraisal for K marts is done by Operation specialist and K Enterprises by Enterprise promoter.
In case of HD plans HD CRPs will integrate environment guidelines and the WASH person from HD team will have the responsibility environmental appraisal of HD plans.

4.4.4. Technical support agencies:

Value chains - Technical Agencies (TAs) selected through innovation forum will have the responsibility of providing required technical support in implementation of Green Business Opportunities or eco friendly alternatives on critical issues identified. Technical agencies will also be hired for setting standards for green rating and certification through audits.
KRuSHE Marts and Enterprises – TAs will have the responsibility of providing necessary support on environment guidelines.
HD component – TAs will have the responsibility of integrating EMF aspects into implementation plans and Capacity Building Programmes.
The inputs for ToR for Techncial Agencies is given in *Annexure 11.*

4.4.5. Village Producer Group (VPG) Level:

The GCRPs, CKCs and HD CRPs has the responsibility of integrating environment guidelines into the business plans by producer groups (greening the value chains) and KRuSHE Marts and Enterprises using the environment guidelines and integrating environment guidelines into HD plans.

Table 15: EMF responsibilities at various levels

Responsible person/agency/group	**EMF activities**
VPG level or village level	
Green Community Resource Persons (GCRPs) HD CRPs	Greening the value chains (rural value chains and rural retail chains). Internal monitoring and village level. Plans or integrating environment guidelines into HD plans.

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Community KRuSHE Consultants (CKCs) – M, E	Internal monitoring and village level. Integrating Environment Guidelines into business proposals. Internal monitoring and village level.
Value chains - Extension Specialist in the SHT	Facilitating greening the value chains. Conducting Environmental Appraisal of the value chains and ensuring implementation of Environment Guidelines.
HD - WASH person at mandal level	Facilitating integration of Environment Guidelines into HD plans. Conducting Environment appraisal of HD plans. Ensuring implementation of environment guidelines.
Cluster Level	
Rural Value Chains Extension Specialist	Overall responsibility of ensuring EMF implementation at cluster level. Facilitating Capacity Building Programmes on EMF for GCRPs at cluster level and for Producer Groups at village level. Monitoring of EMF implementation in the cluster and feed back to the PMU at State level.
Rural Retail Chains (KRuSHE) – District Teams	Overall responsibility of ensuring EMF implementation at cluster level. Facilitating Capacity Building Programmes on EMF for CKCs at mandal level and for entrepreneurs at village level. Monitoring of EMF implementation in the cluster and feed back to the PMU at district and state levels.
HD - WASH person at mandal level	Overall responsibility of ensuring EMF implementation at cluster level. Facilitating Capacity building programmes on EMF for CRPs and Village organizations (VOs), VLCCs etc. Monitoring of EMF implementation at cluster level and feed back to PMU.
Supra district level or district level	
Productivity Enhancement expert	Overall responsibility of implementation of EMF in Rural Chains at respective district levels. Facilitating capacity building programmes for Extension Specialists at district or supra district level. Monitoring at district level and feed back to PMU.
KRuSHE Marts - Operations Specialist KRuSHE Enterprises –	Overall responsibility of implementation of EMF in K marts at respective district levels. Facilitating capacity building programmes for SHTs and CKCs Monitoring at district level and feed back to PMU. Overall responsibility of implementation of EMF in K Enterprises at respective district levels. Facilitating capacity building programmes for SHTs and

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Enterprise Promoter	CKCs Monitoring at district level and feed back to PMU.
HD – Technical Agency	Overall responsibility of implementation of EMF in HD component at respective district levels. Integrating EMF into capacity building programmes for WASH Person operating and mandal level at district or supra district level. Monitoring at district level and feed back to PMU.
State Level	
State Environment Expert	Overall responsibility of integration of EMF into Value chains and HD components. Organising innovation forums, solution market place. Organizing Capacity Building Programmes for Cluster level and supra district or district level teams. Monitoring the EMF Implementation across the state. Ensuring EMF related data management, consolidation and documentation.
State Environment Resource Agency	Facilitating EMF implementation. Developing EMF operational manual. Developing IEC material. Conducting Capacity Building Programmes at State level, and supporting at Supra district or district level and Cluster levels as per the CB plan. Monitoring the EMF implementation as per internal Monitoring Plan (yearly internal audits).
Technical Agencies and Knowledge Partners.	Technical support and linkages for implementation of Sustainability measures, environment friendly alternatives. Works in coordination with State Environment Expert and State Environment Resource Agency and district, mandal level teams.

4.5. Monitoring Strategy:

Monitoring of EMF implementation will be done at two levels, internal and external.

4.5.1. Internal monitoring (green audits):

During the implementation, the activities will be monitored for integration of mitigation (sustainability) measures or environment guidelines into business plans (rural value chains), business proposals (KRuSHE marts and enterprises) and HD plans. The monitoring will also focus on the systems and the capacities at all levels in the PMU for EMF implementation.

Monitoring of EMF will be done by CRPs and CKCs at PG or village level (100% sample) respective cluster teams at Cluster level (25 activities per component for 3 components) and District teams at District level (12-15 activities) and State Environment Resource Agency at State Level (10 activities) and State Environment Expert at State level (10 activities). The monitoring will be done once every year. The internal monitoring will involve desk review of plans, field visits to producer groups and use

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of green rating tools for the activities visited. This can be done as part of regular visits by village, cluster and district teams.

Table 16: Monitoring sample and staff responsible:

Monitoring aspect	**Level of monitoring**	**Sample size (including all components or activities)**	**Staff responsible**
Greening of Business plans, proposals and integration of environment guidelines into HD plans. Capacity Building for project teams.	Village level Cluster or mandal level District level State level	100% 25 12-15 10	Green CRPs, CKCs and HD Extension Specialist for value chains, Operations Specialist for K Marts and Enterprise promoter for K Enterprises CB person for HD plans. Productivity enhancement expert at relevant district level and for value chains and Technical Agency for HD plans. State Environment Resource Agency State Environment Expert
Implementation of Measures and Environment guidelines in value chains, KRuSHE marts and Enterprises and HD plans – Measured through Green rating tools.	Village level Cluster level District level State level	100% 25 12-15 10	Green CRPs, CKCs and HD CRPs Extension Specialist for rural chains, district team for retail chains and CB person for HD plans. Productivity enhancement expert at relevant district level for rural chains, district team for retail chains and Technical agency for HD plans. State Environment Resource Agency State Environment Expert

4.5.2. External monitoring

For Value Chains: External audits will be conducted by hiring a third party external agency once every year from year 2 or 3 onwards.

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The methodology can be a combination of desk reviews (to check the management aspects) and extensive field visits (to check on technical aspects) and stakeholder interactions. Desk review of a sample of Business Plans and KRuSHE proposals will be conducted for a sample of the PGs and VOs. Green rating will be done after every audit against a pre set criteria developed by third party agency during year 1. A sample of 10% (or a selected number) of PGs of all commodities or sectors will be field visited as part of the external audit. The external audit will follow by certification of the products and setting up traceability mechanism for marketing as green products.

For HD plans: External audits will be conducted by hiring an external agency along with value chains. The methodology involves desk review of HD plans and field visits to a sample (as decided by State environment Exert based on number at that time) of HD plans for verifying integration of environment guidelines. The staffing, Capacity Building aspects will also be evaluated.

The key aspects that will be monitored and the monitoring indicators are given below:

Table 17: Key aspects to be monitored and monitoring indicators:

Key Aspects to be monitored	**Monitoring Indicators**
Value chains	
Compliance of project activities with Legal and Regulatory Framework	Percentage of activities in compliance with legal and regulatory framework
Implementation of Environment Guidelines.	Number of PGs, KRuSHE Marts and KRuSHE Enterprises implementing Environment guidelines and rating as per green rating tool.
Implementation of Environment friendly alternatives or Green Business Opportunities	Number of PGs implementing Environment friendly alternatives or Green Business Opportunities
Green rating of the value chains	Percentage of value chains qualify under green rating.
Internal Monitoring	System and frequency of internal monitoring (green audits)
Capacity Building of CRPs, CKCs and project staff at different levels	The percentage of CRPs, CKCs and project staff at different levels (with EMF roles) underwent Capacity Building programmes.
HD Plans	
Integration of environment guidelines into HD plans Environment Appraisal of HD Plans	Percentage of HD Plans that have environment guidelines integrated Percentage of HD plans underwent EA
Implementation of Environment Guidelines	Percentage of HD plans with environment guidelines integrated.
Capacity Building of CRPs and project staff at different levels	The percentage of CRPs and project staff (WASH person at mandal level) underwent Capacity Building programmes.

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4.6. Capacity Building Plan:

Capacity building is required for the Project functionaries (VRP, Extension Specialist and Productivity Enhancement Expert, Operation Specialist and Enterprise promoter under KRuSHE), Green Community Resource Persons (GCRPs), HD CRPs, CKCs and Support Organisations or Technical Agencies or Knowledge Partners to execute the functions pertaining to the EMF in an efficient manner. The capacity building programmes will be conducted on regular basis both through integrating into the general induction training programmes (for all the staff under the project) as well as through focused training for relevant staff and project functionaries on the EMF.

4.6.1. Identification of Resource Agency:

Resource Agency will be hired at the State level for conducting the capacity building programmes for project functionaries. Field level presence, working experience with community or SHGs, technical expertise will be considered while selecting the agencies. The responsibility of the Resource Agency includes:

- Designing the Capacity Building modules (for project functionaries and CRPs, CKCs) and conducting the training programmes for project functionaries at state and district levels (which include cluster level staff as well). Support organizations or Technical Agencies or Knowledge Partners will also be part of district level trainings.
- Development of IEC materials for the project functionaries and for CRPs, CKCs.

4.6.2. The Capacity Building Curriculum:

The Capacity Building curriculum should include the following (the design and delivery of the modules will be according to the needs of target groups – Project functionaries and CRP, CKC and PGs.):

EMF aspects:

- Environmental issues in the context of livelihoods, health and sanitation
- Purpose and components of EMF for the TRIGP
- Greening rural value chains, retail chains and integrating guidelines into HD plans.
- Environmental Appraisal process – screening, environmental appraisal
- Implementation of environmental guidelines
- Green ratings – standards and tools and green certification
- Innovation forum and Green Business Opportunities
- Institutional arrangements for EMF
- Key aspects for monitoring of EMF in the TRIGP

Thematic aspects:

- Agriculture: importance of Sustainable Agriculture, commodity wise environmental interventions required in the value chain process.
- Livestock: breed selection, fodder management, manure management, environmental interventions required in dairy value chain.
- Climate Change Adaptation: impact of climate variabilities on crops and livestock, importance of adaptation measures etc.
- KRuSHE: environment aspects in identified farm and nonfarm enterprises and environmental interventions required in KRuSHE Marts.

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- Environment guidelines for community kitchens and nutri shops, nutrition gardens, safe drinking water and sanitation interventions proposed.
- Energy: use of renewable energy and fuel efficient devices in processing.
- Infrastructure: environmental issues concerning location, construction and waste disposal. Guidelines for custom hiring centres.
- Green standards and ratings under each theme.

IEC material:

The following IEC materials will be developed by the appointed State Environment Resource Agency.

- A manual on Environment Management Framework outlining the process, and tools
- Booklets on value chains for all commodities – Agriculture, Dairy and KRuSHE enterprises and marts.
- Posters and calendars on environmental guidelines for various commodities (commodity wise posters)
- Posters and calendars on sustainable dairy management
- Posters and calendars in environmental aspects in farm and nonfarm enterprises, KRuSHE Marts
- Posters and calendars on Water and Sanitation, Nutrtion gardens, Community kitchens, Nutri shops.
- Videos of good practices – to be shown during PG meetings by GCRPs and in CRP trainings.

4.6.3. Capacity Building Plan

The Capacity Building Plan is given below:

State level:

A state level orientation will be organized for PMU staff and support organizations (technical agencies, knowledge partners) on EMF. This will cover the purpose of the EMF, components, and procedures for environmental assessment, monitoring, capacity building and institutional arrangements. The state level Environment Expert is responsible for conducting the training programme. EMF will also be integrated into progress review meetings and other training or orientation programmes as per the requirement. Refresher programmes will be organized once every year.

A state level training for Productivity Enhancement Experts functioning at Supra district or district levels will be organized once every year by the State Environment Resource Agency in coordination with State Environment Expert.

A state level training for district KRuSHE teams (Operation Specialist and Enterprise promoter) will be organized once every year by State Environment Resource Agency in coordination with State Environment Expert.

District Level:

Value chains - 2-3 day district level training will be organized for the Extension Specialists on EMF, components, procedures for environmental assessment, monitoring, capacity building and institutional arrangements – with specific to rural value chains. Intensive trainings will be organized on relevant commodities with support of State Environment Resource Agency and respective Commodity Support

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Organisations. The Productivity Enhancement Expert with support of the State environment Expert is responsible for organizing these trainings with support from district project management. Refresher trainings will be organized once every year.

KRuSHE – district level trainings will be organized for the team of KRuSHE by district team (operation specialist of K marts and Enterprise Promoters of K Enterprises) on EMF aspects with support of SERA.

HD – The WASH persons working at mandal levels will be trained at district level or Supra district level by the State Environment Resource Agency. Technical Agencies hired under HD component will be involved in this.

Cluster Level:

2 day cluster level trainings will organized for Green Community Resource Persons (at district level depending on the number of GCRPs) on the respective sector or commodity. Refresher trainings are organised once every 6 months. The training for GCRPs are organized by Extension Specialist with support of Commodity Support Organisation and other institutes like KVKs, NGOs etc. Refresher trainings will be organized once every year.

Training for CKCs is organized by district teams and knowledge partners at district level with support from State Environment Resource Agency. This is organized once every year.

For HD CRPs cluster level trainings are organized once every year. The trainings are organized by the WASH Person at mandal level with support from Technical Agency.

Village Level:

1-2 day training will be organized for the members of Producer Group at village level by GCRPs with support from Extension Specialist. Exposure visits to the Best practitioner farms and enterprises is part of this. Refresher trainings will be organized once every year.

1-2 day trainings are organized for KRuSHE entrepreneurs by CKCs at cluster or mandal level on EMF.

1 day trainings are organized by HD CRPs to the VLCC and VOs on EMF aspects of HD component once every year. WASH person will provide support for this.

Knowledge exchange for GCRPs will be facilitated between villages and cluster through exposure visits etc. The exchange between states will also be facilitated, which will be theme based.

4.7. Time Line

The following is the key time line proposed for the key activities under EMF.

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Table 18: RIGP EMF Implementation Time line:

S. No	Task	Responsibility	Year 1		Year 2		Year 3		Year 4		Year 5	
			0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12	0-6	6-12
1	Hiring State Environment Resource Agency (SERA)	State PMU										
2	Developing EMF manual and EA tools (including local versions)	SERA										
3	Developing IEC Materials and Training modules	SERA										
4	State level orientation programme – for PMU staff	SERA										
4.a.	State level orientations (refresher programmes)	SERA with support from State Environment Expert.										
5	State level orientation for Productivity enhancement experts, KRuSHE teams, Technical partners (under value chains, HD, KruSHE, seperatley)											

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5.a.	Refresher training for Productivity enhancement experts											
6	District level trainings for cluster or mandal teams	State PMU (Environment expert with support from SERA, Support organizations)										
6.a.	Refresher trainings for cluster or mandal teams at district level	do										
7	Training programmes for Green Community Resource Persons (GCRPs), HD CRPs, CKCs	Value chains - Extension Specialist KRuSHE - District teams HD - WASH person and TA, and SERA supervision										
7.a.	Refresher trainings for GCRPs, CKCs, HD CRPs	do										
8	Training Programmes for Producer Groups, KRuSHE Enterprenuers, VLCCs, VOs	Community professionals (GCRPs, CKCs, HD CRPs) with support of Cluster level teams and Knowledge										

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		partners, TAs										
8.a.	Refresher trainings for Prodcuer Groups KRuSHE Enterprenuers, VLCCs, VOs											
9	Innovation forum on Green Business Opportunities (GBOs) and hiring technical agencies for support on critical issues through implementation of GBOs											
10	Setting up green standards for value chain products with help of third party agency and developing green rating tools with support from ICT unit.											
11	Internal Monitoring (green audits using green rating tools)	State Environment Expert, SERA, Project staff CRPs, and CKCs (independently, specified sample).										
12	External Monitoring											

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	followed by endorsement and setting traceability mechanism											
13	Documentation, final report											

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4.8. Budget Estimate (tentative):

The overall budget for EMF implementation is estimated to be Rs. 3, 70, 60,000 (rupees three crore seventy lakh sixty thousand only). The breakup is provided in the table below:

Table 19: Budget requirements for implementation of EMF

Head	**Unit cost (Rs.)**	**Total Cost**
Staff at State and Clusters 1 State Environment. 1 Productivity Enhancement Expert at district or supra district level. Extension Specialist at Cluster level.	Rs. 40,000 per month for a period of 50 months. (yearly hike as per SERP norms in lumpsum for 5 yrs)	25,00,000 2,50,000 Integrated into overall project staffing costs.
Costs of State Environment Resource Agency		
Staff costs I Team leader (part time) 2 Team members (full time)	 Rs. 30,000 per month for a period of 36 months. Rs. 20,000 per month for a period of 54 months for 2 persons.	 10,80,000 21,60,000
IEC material development (manual on environmental assessment, booklets, posters, video documentation of best practices etc.)	Lumpsum (including printing).	20,00,000
State level orientation for PMU staff and yearly refresher programmes	Logistics by PMU (material costs etc. by SERA). Rs. 10,000 per orientation for 5 programmes.	50,000
State level training for Productivity enhancement experts KRuSHE teams (district level)	50,000 per programme for 5 programmes. 50,000 per programme for 5 programmes	2, 50,000 2,50,000
Training of at extension specialists at district or cluster levels for Cluster teams HD mandal level staff (supra district level)	Rs. 20,000 per district for 9 districts *(logistics by the project management at district or cluster level)* Rs. 25,000 per batch for 3 batches - for WASH persons from 150 mandals.	1,80,000 75,000
Refresher trainings at district or cluster level	Rs. 15,000 per district for 9 districts for 3 rounds (3 years) *(logistics by the project management)*	4,05,000

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Internal monitoring	Rs. 10,000 per district per monitoring visit for 9 districts for 4 rounds of monitoring visits	3,60,000
Administration, reporting, documentation and other miscellaneous charges	Lumpsum	10,00,000
External agency costs (technical agencies)		
Technical agency for setting up green standards for products and developing green tools	Lumpsum	50,00,000
Technical agencies for green business opportunities (on 4 critical environmental issues)	Lump sum (approximate) Rs. 25,00,000 per agency for 4 agencies	1,00,00,000
External monitoring		
Costs of External Monitoring and certification by third party agency	Rs. 25,00,000 per monitoring for 4 monitoring studies and certification.	1,00,00,000
Other costs		
Other costs of GCRP and VPG Trainings and monitoring by Project teams (internal audits by GCRPs, Cluster and district teams).	To be integrated into the project implementation costs as it can be done as part of regular training programmes.	
Software development for Green rating tools and traceability mechanism, purchase of tablets etc.	To be integrated under ICT component.	
Costs on the infrastructure (energy and water efficient equipment for processing)	To be integrated into value chain costs or PG fund or Innovation forum.	
Total		**3,55,60,000**
Contingency		**15,00,000**
Total		**3,70,60,0000**

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Annexures

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Annexure 1

List of TRIGP Mandals:

S. No.	Telangana	
	District	**Mandal**
1.	**Adilabad**	Asifabad
2.		Bazarhathnoor
3.		Bejjur
4.		Bela
5.		Bhainsa
6.		Bheemini
7.		Boath
8.		Dahegaon
9.		Gudihathnur
10.		Ichoda
11.		Inderavelly
12.		Jainoor
13.		Jaipur
14.		Kerameri
15.		Kotapalle
16.		Kouthala
17.		Kubeer
18.		Kuntala
19.		Narnoor
20.		Nennal

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21.		Neradigonda
22.		Rebbana
23.		Sirpur (T)
24.		Sirpur (U)
25.		Talamadugu
26.		Tamsi
27.		Tiryani
28.		Utnur
29.		Vemanpalle
30.		Wankdi
31.	**Karimnagar**	Kataram
32.		Kodimial
33.		Konaraopeta
34.		Mahadevpur
35.		Malharrao
36.		Mutharam Mahadevpur
37.		Saidapur
38.		Yella Reddi Peta
39.	**Khammam**	Bayyaram
40.		Bhadrachalam
41.		Burgampahad
42.		Chandrugonda
43.		Cherla
44.		Chintur

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45.		Dummugudem
46.		Enkuru
47.		Gundala
48.		Julurpad
49.		Kamepalle
50.		Kukunoor
51.		Kunavaram
52.		Madhira
53.		Manuguru
54.		Mulakalapalle
55.		Pinapaka
56.		Singareni
57.		Tekulapalle
58.		Vararamachandrapuram
59.		Velairpad
60.		Venkatapuram
61.		Wazeed
62.		Yellandu
63.	**Mahabubnagar** **Medak**	Achampeta
64.		Amangal
65.		Amrabad
66.		Balanagar
67.		Balmoor
68.		Bijinapalle

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69.		Bomraspeta
70.		Damaragidda
71.		Doulatabad
72.		Ghattu
73.		Itikyal
74.		Kodair
75.		Kodangal
76.		Kondurg
77.		Lingal
78.		Madgul
79.		Makthal
80.		Maldakal
81.		Manopadu
82.		Narva
83.		Nawabpet
84.		Peddakothapalle
85.		Tadoor
86.		Talakondapalle
87.		Telkapalle
88.		Thimmajipeta
89.		Uppununthala
90.		Utkoor
91.		Vangoor
92.		Veldanda

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93.		Alladurg
94.		Doulthabad
95.		Kalher
96.		Kangti
97.		Kohir
98.		Kondapur
99.		Kowdipalli
100.		Manoor
101.		Narayankhed
102.		Raikode
103.		Regode
104.		Tekmal
105.	**Nalgonda**	Chandam Pet
106.		Chintha Palle
107.		Chivvemla
108.		Dameracherla
109.		Devarakonda
110.		Gundla Palle
111.		Gurrampode
112.		Nampalle
113.		Narayanapur
114.		Nuthankal
115.		Pedda Adiserla Palle
116.		Peddavura

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117.		Thirumalgiri
118.	**Nizamabad**	Bichkunda
119.		Gandhari
120.		Jukkal
121.		Machareddy
122.		Sirkonda
123.		Tadwai
124.	**Ranga Reddy**	Bantaram
125.		Basheerabad
126.		Doma
127.		Gandeed
128.		Kandukur
129.		Kulkacharla
130.		Mominpet
131.		Peddemul
132.		Yacharam
133.	**Warangal**	Chennaraopet
134.		Devaruppula
135.		Dornakal
136.		Eturnagaram
137.		Gudur
138.		Kodakandla
139.		Kothagudem
140.		Kuravi

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141.		Mahabubabad
142.		Mangapet
143.		Maripeda
144.		Mulug
145.		Narmetta
146.		Narsimhulapet
147.		Nekkonda
148.		Nellikudur
149.		Raghunatha Palle
150.		Tadvai

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Annexure 2

Negative list of activities that cannot be carried as part of Activities under TRIGP:

The activities listed below should not be taken as part of TRIGP as they would contravene the laws and regulations of the State Government, Government of India as well as Safeguard Polices of the World Bank. Such activities should not be supported under the TRIGP. The list provided below should serve as checklist while approving the value chains proposed by producer groups, federations.

Agriculture:

- Digging of irrigation tube well without taking required permission from the relevant authority at mandal level will not be supported
- Digging of tube well (except for public drinking purpose) in an area identified as an 'over-exploited groundwater basin' will not be supported.
- Digging of irrigation tube well within a distance of 250 meters from the nearest tube well will not be supported.
- Digging of tube well within 250 meters distance of a drinking water source cannot be done without permission from authority. And the well cannot be used with a power driven pump, without permission from TSTRANSCO.
- Purchase, stock, sale, distribution or exhibition of the following pesticides will not be supported:
    - pesticides classified in Class Ia, Ib and II of WHO classification;
    - pesticides banned by the Government of India;
    - pesticides banned by the State Government
- Purchase, stock, sale, distribution or exhibition of pesticides and chemical fertilizers will not be supported without the requisite licenses.

Food processing and Small Scale cottage industries:

- Activities involving discharge into any water body any industrial waste, sewerage or other polluting substance will not be supported.
- Any industrial activity (related to food processing or cottage industries) will not be supported without requisite permission from the State Pollution Control Board.
- Fruit and vegetable product manufacturing units are not allowed without license

Livestock:

- Grazing of livestock in forest areas without taking required permission from the Forest Department will not be supported. However traditional forest dwellers have access to grazing areas, pastoralist routes as per the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.
- Grazing of livestock that are not vaccinated in forest areas will not be supported.

Forests and Wildlife

- Activities that involve use of forest land for non-forest purposes without the permission of the Forest Department will not be supported.

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- Extraction, transport, processing, sale of forest produce including non timber forest produce without taking required permission from the Forest Department will not be supported. However traditional forest dwellers have access as per the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.
- Felling of trees without taking required permission from the Forest Department will not be supported.
- Setting up of saw mills or any other timber processing mills without the permission of the Forest Department will not be supported.
- Activities that involve destruction of wildlife or of wildlife habitat will not be supported.
- Clearing, kindling fire, damaging trees (felling, girdling, lopping, topping, burning, stripping bark and leaves), quarrying stone, etc., in reserved and protected forests will not be supported.

Sand mining:

- Wherever coal based thermal power plants are in operation, all constructions within a radius of 10 kilometres shall be taken up with bricks made only of fly ash.
- Sand mining shall not be carried out within 500 metres of any existing structure (such as bridges, dams, weirs, or any other cross drainage structure) and within 500 metres of any groundwater extraction structures (either for irrigation or drinking water purposes).
- Sand mining shall not be permitted in I, II and III order streams except for local use in villages or towns bordering the stream. Transportation of sand from these notified I, II and III order streams through mechanical means out of the local jurisdiction shall be banned. In IV order streams, sand mining shall be restricted to specified areas. In V order and above rivers (eg: Godavari, Krishna, Penna) sand mining may be permitted without affecting existing irrigation, drinking water or industrial uses.
- Sand mining shall not be permitted within 15 metres or 1/5th of the width of the stream bed from the bank, whichever is more.
- In streams and rivers where the thickness of sand is quite good (more than 8 metres), the depth of removal may be extended up to 2 metres. Sand mining shall not be permitted in streams where the thickness of sand deposition is less than 2 metres. In minor streams, where the thickness of sand deposition is more than 3 metres and less than 8 metres, the depth of removal of sand shall be restricted to one metre. Sand mining shall be restricted to depths above the water table recorded during monsoon and in no case shall effect/disturb the water table.

Any other Activities with Significant Adverse Environmental Impact:

Activities that are likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented, with impacts that may affect an area broader than the site of the activity are not to be supported.

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Annexure 3

List of Prohibited Dyes:

LIST OF 42 BENZIDINE BASED DYES PROHIBITED FROM 1993

S.No.	CI Generic Name	CI Constn. No.
1.	Acid Orange	45 22195
2.	Acid Red	85 22245
3.	Acid Black	29 -
4.	Acid Black	94 30336
5.	Azoic Diazo Compo.112	37225
6.	Direct Yellow 1	22250
7.	Direct Yellow 24	22010
8.	Direct Orange 1	22370
9.	Direct Orange 8	22130
10.	Direct Red 1	22310
11.	Direct Red 10	22145
12.	Direct Red 13	22153
13.	Direct Red 17	22150
14.	Direct Red 28	22120
15.	Direct Red 37	22240
16.	Direct Red 44	22500
17.	Direct Violet 1	22570
18.	Direct Violet 12	22550
19.	Direct Violet 22	22480
20.	Direct Blue 2	22590
21.	Direct Blue 6	22610
22	Direct Green 1	30280
23.	Direct Green 6	30295
24.	Direct Green 8	30315
25.	Direct Green 8:1	--
26.	Direct Brown 1	30045
27.	Direct Brown 1:2	30110
28.	Direct Brown 2	22311
29.	Direct Brown 6	30140
30.	Direct Brown 25	36030
31.	Direct Brown 27	31725
32.	Direct Brown 31	35660
33.	Direct Brown 33	35520
34.	Direct Brown 51	31710
35.	Direct Brown 59	22345
36.	Direct Brown 79	30056
37.	Direct Brown 95	30145

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38.	Direct Brown 101	31740
39.	Direct Brown 154	30120
40.	Direct Black 4	30245
41.	Direct Black 29	22580
42.	Direct Black 38	30235

LIST OF 70 AZO DYES PROHIBITED FROM JUNE 1997.

S.No.	**CI Generic Name**	**CI Constn. No.**
1	Acid Red 4	14710
2	Acid Red 5	14905
3	Acid Red 24	16140
4	Acid Red 26	16150
5	Acid Red 73	27290
6	Acid Red 114	23635
7	Acid Red 115	27200
8	Acid Red 116	26660
9	Acid Red 128	24125
10	Acid Red 148	26665
11	Acid Red 150	27190
12	Acid Red 158	20530
13	Acid Red 167	--
14	Acid Red 264	18133
15	Acid Red 265	18129
16	Acid Red 420	--
17	Acid Voilet 12	18075
18	Acid Brown 415	--
19	Acid Black 131	--
20	Acid Black 132	--
21	Acid Black 209	--
22	Basic Red 111	--
23	Basic Red 42	--
24	Basic Brown 4	21010
25	Developer 14 = Oxidation Base 20	76035
26	Direct Yellow 48	23660
27	Direct Orange 6	23375
28	Direct Orange 7	23380
29	Direct Orange 10	23370
30	Direct Orange 108	29173
31	Direct Red 2	23500
32	Direct Red 7	24100
33	Direct Red 21	23560
34	Direct Red 22	23565
35	Direct Red 24	29185
36	Direct Red 26	29190
37	Direct Red 39	23630
38	Direct Red 46	23050

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39	Direct Red 62	29175
40	Direct Red 67	23505
41	Direct Red 72	29200
42	Direct Violet 21	23520
43	Direct Blue 1	24410
44	Direct Blue 3	23705
45	Direct Blue 8	24140
46	Direct Blue 9	24155
47	Direct Blue 10	24340
48	Direct Blue 14	23850
49	Direct Blue 15	24400
50	Direct Blue 22	24280
51	Direct Blue 25	23790
52	Direct Blue 35	24145
53	Direct Blue 53	23860
54	Direct Blue 76	24411
55	Direct Blue 151	24175
56	Direct Blue 160	--
57	Direct Blue 173	--
58	Direct Blue 192	--
59	Direct Blue 201	--
60	Direct Blue 215	24115
61	Direct Blue 295	23820
62	Direct Green 85	30387
63	Direct Blue 222	30368
64	Direct Black 91	30400
65	Direct Black 154	--
66	Disperse Yellow 7	26090
67	Disperse Yellow 23	26070
68	Disperse Yellow 56	--
69	Disperse Orange 149	--
70	Disperse Red 151	26130

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Annexure 4

Classification of Industries for Consent Management:

List of Industries under 'Green' Category

1. Assembling of Acid lead battery (upto 10 batteries per day excluding lead plate casting)
2. Aluminium utensils from aluminium circles
3. Assembly of air coolers / conditioners, repairing and servicing
4. Assembly of bicycles, baby carriage and other small non-motorised vehicles
5. Automobile fuel outlet (only dispensing)
6. Ayurvedic and Homeopathic medicine (without boiler)
7. Bailing (hydraulic press) of waste papers
8. Bakery / Confectionery / Sweets production (with production capacity < 1 TPD with oil, gas or electrical oven)
9. Bio-fertiliser & bio-pesticide, without using inorganic chemicals
10. Biomass Briquettes (sun drying) without using toxic or hazardous wastes
11. Biscuit trays etc., from rolled PVC sheet (using automatic vaccum forming machine)
12. Blending and packaging of Tea
13. Blending of melamine resins & different powder, additives by physical mixing
14. Block making for printing without foundry (excluding wooden block making)
15. Brass & Bell metal utensils manufacturing from circle (without re-rolling facility)
16. Candy
17. Cardboard or corrugated box and paper products (excluding paper or pulp manufacturing and without using boiler)
18. Carpentry and wooden furniture manufacturing (excluding Saw Mill) with the help of electrical (motorized) machines such as electric wood planner, steel saw cutting circular blade etc.
19. Cement products (without using Asbestos) like pipe, pillar, jafri, well ring, blocks / tiles etc. (should be done under closed covered shed to control fugitive emissions)
20. Ceramic colour manufacturing (not using boiler and wastewater recycling process)
21. Chalk making from plaster of Paris
22. Chilling plant and ice making without use of ammonia
23. Coated electrode manufacturing
24. Compact disc, computer floppy & cassette manufacturing
25. Compressed oxygen gas from crude liquid oxygen
26. CO_2 recovery
27. Cotton and woolen hosiery making (SSI & cottage industries)
28. Cotton spinning & weaving (small scale)
29. Decoration of ceramic cups & plates by electric furnace
30. Diesel Generator sets (15 KVA to 1 MVA)
31. Diesel pump repairing & servicing
32. Distilled water
33. Electric lamp (bulb) manufacturing (small scale)
34. Electrical & electronic items assembling
35. Flavoured bettle nut production / grinding
36. Flour mills (dry process)

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37. Fly ash bricks / blocks manufacturing
38. Fountain pen manufacturing
39. Glass ampules & vials making from glass tubes
40. Glass putty and sealant
41. Glass, ceramic, earthen potteries and tile manufacturing using electrical kiln or not involving fossil fuel kilns
42. Gold and silver smithy (purification with acid, smelting operating and sulfuric acid polishing operation) (using less than or equal to 1 litre of Sulphuric Acid / Nitric Acid per month.
43. Groundnut decorticating (dry)
44. Handloom / carpet weaving (without dyeing and bleaching operation)
45. Hotels (upto 20 rooms)
46. Insulation and other coated papers (excluding paper or pulp manufacturing) manufacturing.
47. Jobbing and machining
48. Leather cutting and stitching (more than 10 machines and using motor)
49. Leather footwear and leather products (excluding tanning and hide processing) (except cottage scale).
50. Lubricating oils, greases or petroleum based products (only blending at normal temperature)
51. Manufacturing of coir items from coconut husk
52. Manufacturing of metal caps, containers, etc.
53. Manufacturing of optical lenses (using electrical furnace)
54. Manufacturing of pasted veneers without using boiler or Thermic Fluid Heater or by sun drying
55. Manufacturing of shoe brush & wire brush
56. Manufacturing of silica gel (without furnace)
57. Medical oxygen
58. Mineralized water
59. Oil mill ghani & extraction (no hydrogenation / refining)
60. Organic and inorganic nutrients (by physical mixing)
61. Organic manure (manual mixing)
62. Paints and varnishes (mixing and blending) without ball mill
63. Packing of powdered mill
64. Paper pins and U –clips
65. Phenyl / Toilet cleaner formulation & Bottling
66. Reel manufacturing
67. Polythene & plastic processed products manufacturing (virgin plastics)
68. Poultry, hatchery, Piggery.
69. Power looms (without dyeing and bleaching)
70. Printing press
71. Puffed rice (muri) (using oil, gas or electrical heating system)
72. Ready mix cement concrete
73. Reprocessing of waste cotton
74. Rope (Cotton & Plastic)
75. Rubber goods industry (with baby boiler only)
76. Scientific and mathematical instruments manufacturing
77. Soap manufacturing (Handmade without steam boiling)
78. Solar module (Non conventional energy apparatus) manufacturing unit
79. Solar power generation through solar photovoltaic cell, wind power & mini hydel power (<25 MW)
80. Spice grinding (<20 HP motor)
81. Steel furniture without spray painting
82. Steeping and processing of grains
83. Surgical and medical products not involving effluent / emission generating processes.

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84. Synthetic detergent formulation
85. Teflon based products
86. Tyres and tubes re-treading (without boiler)

List of Industries under 'Orange' Category

1. Almirah, Grill Manufacturing
2. Aluminium and copper extraction from scrap using oil fired furnace
3. Automobile servicing, repairing and painting (excluding only fuel dispensing)
4. Ayurvedic and Homeopathic medicine
5. Bakery & confectionery units with production capacity >1 TPD
6. Biaxially oriented PP film along with metalising operation
7. Brickfields (excluding fly ash brick manufacturing using lime process)
8. Building & construction projects more than 20,000 sqm built up area
9. Cashew nut processing
10. Chanachur and ladoo from puffed and beaten rice (muri and chira) using husk fired oven
11. Chilling plant, cold storage and ice making
12. Coffee seed processing
13. Coke briquetting (sun drying)
14. Cotton spinning and weaving (medium and large scale)
15. Cutting , sizing and polishing of marble stones
16. Dairy and dairy products (small scale) (capital investment on plant & machinery <Rs.1.0 crore)
17. Dal mills
18. DG set of capacity >1 MVA but < 5 MVA
19. Digital printing on PVC cloth
20. Dismantling of rolling stocks (wagons / coaches)
21. Dry cell battery (excluding manufacturing of electrodes) & assembling & charging of acid lead battery in micro scale [< Rs. 25 lakhs]
22. Emery powder (fine dust of sand) manufacturing
23. Engineering and fabrication units (with investment on plant & machineries < Rs.10 crores)
24. Excavation of Sand from the river bed (excluding manual excavation)
25. Facility of handling, storage and transportation of food grains in bulk.
26. Fertilizer (granulation and formulation only)
27. Fish feed, poultry feed and cattle feed
28. Fish processing and packaging (excluding chilling of fish)
29. Foam manufacturing
30. Food & food processing including fruits & vegetable processing
31. Forging of ferrous & non-ferrous metal (using oil or gas fired boilers)
32. Formulation / palletization of camphor tablets, naphthalene balls from camphor / naphthalene powders.
33. Glass, Ceramic, Earthen Potteries and Tile manufacturing, using oil or gas fired Kiln, Coating on glasses using Cerium Fluoride, Magnesium Fluoride etc.
34. Glue from starch (physical mixing)
35. Gravure printing, digital printing on flex, vinyl
36. Heat treatment using oil fired furnaces (excluding cyaniding)
37. Hotels (less than 3 star) or hotels having >20 rooms and less than 100 rooms
38. Ice cream
39. Infrastructure development project
40. Jute processing without dyeing
41. Liquid floor cleaner, black phenyl, liquid soap, glycerol monostearate manufacturing.

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42. Manufacture of mirror from sheet glass
43. Manufacturing of Iodized Salt from Crude / Raw Salt
44. Manufacturing of mosquito repellent coil
45. Manufacturing of tooth powder, toothpaste, talcum powder and other cosmetic items
46. Mechanized laundry using oil fired boiler
47. Modular wooden furniture from particle board, MDF, swan timber etc., Ceiling tiles / partition board from saw dust, wood chips etc. & other agricultural waste using synthetic adhesive resin, wooden box making.
48. Packing materials manufacturing from non asbestos fibre, vegetable fibre yarn
49. Paint blending & mixing (Ball mill)
50. Pharmaceutical formulation and for R & D purpose (for sustained release / extended release of drugs only and not for commercial purpose)
51. Plyboard manufacturing (including vineer & laminate) with oil fired boiler / thermic fluid heater (without resin plant)
52. Potable alcohol (IMFL) by blending, bottling of alcoholic products (capital investment on plant & machinery < Rs. 1.0 crore).
53. Power press
54. Printing ink manufacturing
55. Printing or etching of glass sheet, using hydrofluoric acid
56. Producer gas plant using conventional up-drift coal gasification (linked to rolling mills, glass and ceramic industry, refractories for dedicated fuel supply)
57. Pulverization of bamboo and scrap wood
58. Repairing of electric motor & generator
59. Reprocessing of waste plastic (excluding PVC)
60. Rice mill less than 10 TPD & rice hullers
61. Rolling mill (oil or gas fired) and cold rolling mill
62. Saw mill
63. Seasoning of wood in steam heated chamber
64. Silk screen printing, saree printing by wooden blocks
65. Spice grinding (> 20 HP motor)
66. Spray painting, paint baking, paint stripping
67. Tamarind powder manufacturing
68. Tea processing
69. Thermocol manufacturing
70. Thermometer making
71. Transformer repairing / manufacturing
72. Tyres and tubes vulcanization / hot retreading
73. Wire drawing & wire netting.

List of Industries under 'Red' Category

1. Airport and Commercial Air Strips
2. Aluminium smelter
3. Asbestos and asbestos based industries
4. Automobiles Manufacturing (Integrated facilities)
5. Basic chemicals and electro chemicals and its derivatives including manufacture of acids
6. Ceramic, Refractories
7. Cement
8. Chlor Alkali

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9. Chlorates, perchlorates and peroxides
10. Chlorine, fluorine, bromine, iodine, and their compounds
11. Coal washeries
12. Copper smelter
13. Coke making, liquefaction, coal tar distillation or fuel gas making
14. Common Treatment and disposal facilities (CETP, TSDF, E- Waste recycling, CBMWTF, Effluent conveyance project, incinerators, Solvent / Acid recovery plant, MSW sanitary landfill sites, STP).
15. Distillery including Fermentation industry
16. Dyes and Dye-intermediates
17. Dry coal processing / mineral processing, industries involving ore sintering, palletisation, grinding, pulverization.
18. Emulsion of oil & water
19. Fermentation industry including manufacture of yeast, beer, distillation of alcohol (ENA)
20. Fertilizer (basic) (excluding formulation)
21. Ferrous and Non Ferrous metal extraction involving different furnaces through melting, refining, reprocessing, casting and alloy making.
22. Fibre glass production and processing (excluding moulding)
23. Fire crackers manufacturing and bulk storage facilities
24. Flakes from rejected PET bottle
25. Fly ash export, transport and disposal facilities.
26. Health care establishment (as defined in BMW Rules)
27. Heavy engineering including Ship Building (with investment on Plant & Machineries more than Rs. 10 crores)
28. Hot mix plants
29. Hotels (3 Star & above) and Hotels having 100 rooms and above.
30. Hydrocyanic acid and its derivatives.
31. Industrial carbon including electrodes and graphite blocks, activated carbon, carbon black.
32. Industrial estates / parks/complexes / areas / export processing zones/ SEZs / Biotech parks/ leather complex
33. Industrial inorganic gases namely:
a) Chemical gases, Acetylene, hydrogen, chlorine, fluorine, ammonia, sulphur dioxide, ethylene, hydrogen sulphide, phosphine
b) Hydrocarbon gases, Methane, ethane, propane
34. Industries engaged in recycling / reprocessing / recovery / reuse of Hazardous Waste under Schedule IV of Hazardous Waste (M,H & TBM) Rules, 2008 and its amendments.
35. Industry or process involving foundry operations.
36. Industry or process involving metal surface treatment or process such as pickling / plating / electroplating / paint stripping / heat treatment / phosphating or finishing and anodizing / enameling / galvanizing.
37. Iron and Steel (involving processing from ore / integrated steel plants and or Sponge Iron Units.
38. Isolated storage of Hazardous Chemicals (as per schedule of Manufacture, Storage & Import of Hazardous Chemicals Rules, 1989 as amended)
39. Lead Acid battery manufacturing (excluding assembling & charging of acid lead battery in micro scale (< Rs. 25 lakhs)
40. Lime manufacturing (using Lime Kiln)
41. Manufacturing of Explosives, detonators, fuses including management and handling activities.
42. Manufacturing of Glass
43. Manufacturing of Glue and gelatin
44. Manufacturing of Lubricating oils, greases or petroleum based products
45. Manufacturing of Paints, Varnishes, pigments and intermediate (excluding blending / mixing)

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46. Manufacturing of Starch / Sago
47. Milk processing and dairy products (integrated project)
48. Mineral stack yards / Railway sidings
49. Mining and ore benification
50. New Highway construction projects
51. Non alcoholic beverage (soft drinks) & bottling of alcoholic / non-alcoholic products (capital investment on plant & machinery > Rs. 1 crore)
52. Nuclear Power Plants
53. Oil & Gas extraction including CBM (offshore & onshore extraction through drilling wells)
54. Oil and gas transportation pipeline
55. Oil Refinery (Mineral Oil or Petro Refineries)
56. Organic chemicals manufacturing
57. Parboiled rice mills (more than 10 TPD)
58. Pesticides (Technical) (excluding Formulation)
59. Petrochemicals (Manufacture of and not merely use of as raw material)
60. Pharmaceuticals (excluding formulation)
61. Pulp and Paper (paper manufacturing with or without pulping)
62. Phosphate rock processing plant
63. Phosphorous and its compounds
64. Photographic films and its chemicals
65. Ports & Harbours, Jetties and Dredging operations
66. Power Generation Plants (except Wind, Solar and Mini Hydel Power plants of capacity <25 MW) and D.G. set of capacity > 5 MVA.
67. Processes involving chlorinated hydrocarbons.
68. Railway Locomotive workshops / Integrated Road Transport workshop / Authorised service centres.
69. Reprocessing of used oils and waste oils
70. Ship breaking activities
71. Slaughter houses (as per the notification S.O.270 (E), dated 26.03.2001) and meat processing industries, bone mill, processing of animal horns, hoofs and other body parts.
72. Steel and steel products using various furnaces like blast furnaces / open hearth furnace / induction furnace / arc furnace/ submerged arc furnace / basic oxygen furnace / hot rolling using reheating furnaces
73. Stone crushers
74. Sugar (excluding Khandsari)
75. Surgical and medical products involving prophylactics and latex
76. Synthetic detergents and soaps (excluding formulation)
77. Synthetic fibres including rayon, tyre cord, polyester filament yarn
78. Synthetic resins
79. Synthetic rubber excluding molding
80. Tanneries
81. Thermal power plants
82. Tobacco products including cigarettes and tobacco / opium processing
83. Vegetable oils including solvent extraction and refinery / hydrogenated oils
84. Yarn / textile processing involving any effluent / emission generating process, bleaching, dyeing, printing and scouring
85. Zinc smelter

Note: Any industry / industrial activity which is not covered in above list having Coal fired Boiler with stream generation capacity more than 5 T/hr will be covered under Red Category

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Note: The industry which do not fall any of the above mentioned three categories (i.e. Red/Orange/Green), decision with regard to their categorisation will be taken by a committee at Head. Office level comprising of the Member Secretary and two senior offices of the Board/Committee.

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Annexure 5

Pesticides mentioned in the WHO list that are commonly used in the agricultural subprojects along with their trade names:

Pesticides falling under class Ia: Extremely hazardous, not permitted for use in the project

Pesticide	Trade name
Aldicarb	Temik
Parathion	Folidol, Ekatox, Thiophos
Parathion methyl	Metacid
Phorate	Thimmet
Phosphamidon	Dimecron

Pesticides falling under class Ib: Highly hazardous, not permitted for use in the project

Pesticide	Trade name
Carbofuran	Furadan, Thimmet
Dichlorovas	Nuvan
Monocrotophos	Nuvacron
Warfarin	-
Zinc phosphide	-

Pesticides falling under class II: Hazardous, not permitted for use in the project

Pesticide	Trade name
Cypermethrin	Cymbush
Alpha cypermethrin	-
Endosulfan	Thiodon
Fenithrothion	-
Fenvalerate	Sumicidin
Carbaryl	Sevin
Gamma HCH	BHC
Imidacloprid	-
Permethrin	Ambush
Chlorpyrifos	Dursban
Quinalphos	Ekalux

Pesticides falling under class III: Permitted for use in the project along with Integrated Pest Management Practices

Pesticide	Trade name
Acephate	Orthene, Dimethoate, Rogar
Allethrin	Pynamin
Isoproturon	
Malathion	
Sulphur	

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Annexure 6

Rural chains - Commodity Wise Environment Guidelines

1. Paddy:

Overview of Paddy in Andhra Pradesh (erstwhile):

Rice is the Principal food crop cultivated throughout the state of Andhra Pradesh. In AP rice is mostly cultivated under irrigated eco-system under canals (52%), tube wells (19.31%) tanks (16.2%), other wells (8.8%) and other sources (3.7%).

In AP rice productivity is 3333 kg/ha compared to 2001 kg/ha (India) and 4112 kg/ha (world). Rice productivity is highest in Nellore district (4473 kg/ha) followed by East Godavari (4028 kg/ha), West Godavari (3928 kg/ha) and lowest in Vishakhapatnam (2075 kg/ha). The crop is grown in three ecosystems viz., irrigated ecosystem (50.6%), rain fed low land (43.8%) and rain fed uplands (5.6%).[4]

Interventions in Paddy in TRIGP**:**

Around 37,111 farmers cultivating paddy in 48, 269 acres are targeted by TRIGP to produce paddy in sustainable manner. The interventions include productivity enhancement, value addition and certification. Paddy value chains are proposed in the districts Adilabad, Karimnagar, Nizamabad and Khammam in 52 mandals.

RIGP will invest in Paddy value chains starting from Productivity enhancement to value addition and marketing.

Potential Environmental issues and Environment friendly alternatives in the Paddy value chain:

Activity in the value chain	**Possible issues**	**Interventions, Best practices**
Interventions for Productivity Enhancement		
Varietal selection	Varieties not suitable to local environmental conditions may not respond well and increase cost of pest and disease management.	Varieties suitable to the local climatic conditions and environment should be selected. The list of recommended varieties for the different zones of Andhra Pradesh (erstwhile) is attached as – *Annexe1.*
Method of cultivation (with respect to irrigation and water use)	Long periods of flooding rice fields results in Methane emission which is green house gas playing key role in global warming. Flood irrigation increases the use of precious water	System of Rice Intensification (SRI) can be taken up under bore well irrigated areas – Most of the area under the proposed mandals falls under bore well irrigated areas.

[4] Status paper on Rice in Andhra Pradesh, Dr. C. Cheralu (Rice Breeding), viewed at http://www.rkmp.co.in/sites/default/files/ris/rice-state-wise/Rice%20State%20Wise%20Andhra%20Pradesh_0.pdf on 15th March 2014.

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	resources and in ground water irrigated areas it also increases the energy consumption for pumping ground water. This leads to over exploitation of ground water. Application of urea under flood conditions leads to Nitrous oxide emissions	Application of Azolla / Nadep compost under SRI method to supply nitrogen in place of urea.
Cropping pattern	Continuous mono cropping of paddy may lead to depletion of similar kind of nutrients from the soil which in turn would lead to decreased productivity in long term. In irrigated areas of Andhra Pradesh rice is grown in Rice-Rice rotation which is very detrimental to the soil health.	It is advisable to follow a Rice-Legume rotation pattern of cropping so as to maintain the quality of soil for a long time. Rice can be followed by short duration legumes such as Green gram, black gram or horse gram.
Managing soil fertility	Excessive use of chemical fertilizers without knowing the nutrient status of the soil can be detrimental for soil health. This also increases cost of cultivation. Besides the chemical fertilizers leave residues in the soil which leads to salinity and alkalinity of the soil which in turn affects the soil structure.	Integrated Nutrient management practices (listed below) are to be followed for supplying nutrients in required quantities without undermining the soil quality. • Green manure crops such as cow pea, etc., can be grown 25 to 30 days before the transplantation of paddy. These are then incorporated in the soil during land preparation/ploughing to improve fertility. • Application of 1 ton/ha of Glyricidia leaf manure provides 21 kg N, 2.5 kg P, 18 kg K, 85 g Zn, 164 g Mn, 365 g Cu, 728 g Fe besides considerable quantities of S, Ca, Mg, B, Mo etc. Six feet tall Glyricidia plants on the bunds around one field (on 400 m bund) can provide 22.5 kg N/ha after 3 years and up to 77 kg N/ha from the 7th year onwards. Amount of Glyricidia leaf manure application depends on the growth of boundary plantations. Usually about 1 to 2 Tons/h leaf manure can be applied.[5]

[5] Soil Health Improvement with Gliricidia Green Leaf Manuring in Rainfed Agriculture On farm Experiences by Ch. Srinivasa Rao, B.Venkateswarlu, M. Dinesh Babu, Suhas P. Wani, Sreenath Dixit, K.L. Sahrawat and Sumanta Kundu, viewed at http://www.crida.in/naip/pub/Gliricia_Booklet.pdf on 24th February 2014.

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		• Other organic manures and fertilisers that can be applied are Farm Yard Manure (2-5 t/ha), Vermicompost (5-10 q/ha), bio fertilizers such as Azospirillum (2 kg/ha) and Phosphate Solubilising Bacteria (2 kg/ha) added to soil at the time of puddling (in traditional method of cultivation), goat droppings (1.25 t/ha), poultry manure (1.25 t/ha), wood ash (1.25 t/ha) etc.
Weed management	Application of weedicides causes damage to Fish, impeded propagation of Algae and other non targeted organisms. This will also lead to chemical residues in soil and water.	• Application of Azolla suppresses the weed growth and provides nitrogen to the crop. • Mechanical weeding with weeders / Manual weeding
Pest control	Use of chemical pesticides cause damage to aquatic bio diversity in rice fields and surrounding water bodies and leaves chemical residues.	Non Pesticide Management Practices are to be followed for pest control as suggested below: • Deep summer ploughing to kill hibernating pest larvae • Use of Pest resistant or tolerant varieties – given as *Annexe 1.* • Avoiding use of excess nitrogen • Use of pheromone traps and light traps • Use of neem based pesticides • Release of bio control agents
Interventions for Storage, processing etc.		
Storage	Fumigation of storage godowns and storage spaces with Methyl bromide and phosphine in order to control store product pests may cause damage to human health.	• Clean rice barn, warehouse or storehouse before storing the produce. The regular cleaning of the storage is recommended. • Spray plant extract, such as Bitter bush or Siam weed (*Eupatorium odoratum* L.) to kill insects on the floor, wall and vacant space in the storage. • Mix seeds with plant extracts such as Neem (*Azadirachta indica* A.), dried Long pepper flower (*Piper longum*) and Sweet flag (*Acorus calamus* L.) • Fumigate the storage structures with carbon dioxide gas.
Transportation	Contamination is possible during package and transport.	• Containers and sacks used for packing, as well as vehicle for transporting organic rice, should be clean and free from any contamination of chemical substances and

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		other rice. It is not recommended to use vehicle that has been loaded with soil, animals, manures, fertilizers or chemicals that may cause contamination of pathogenic and toxic substances, unless such vehicle has been properly cleaned before use. • Separate Carrier or vehicle should be allotted to handle organic rice. Organic rice shall not be comingled with non-organic commodity and other prohibited materials or substances for organic agriculture during transportation from production site to distribution center.
Milling[6]	Water used for soaking the paddy, especially for parboiled rice production, if not properly treated could result in water pollution and odour nuisance to local community. Air pollution both on site and in the surrounding locality due to release of dust to the atmosphere from handling or processing of the paddy or its by-products is a major environmental concern for rice mills.	• Good and adequately maintained drainage to facilitate run-off and minimize the likelihood of flooding. Regular inspection of bulk storage tanks to minimize the risk of surface water pollution. • Installation of interceptor traps for solids, oil and fuel to reduce the control release of contaminated water via the surface drains. Separation of milling areas from all other areas of operation. Water proofing of mill floor and all other floors. • Adequate ventilation should be provided to prevent dust pollution and reduce heat. Prevention of dusts on machinery and in the building by timely cleaning operations. Design of chimney and vents of sufficient height and appropriate technology to avoid causing local nuisance of dust and smoke emissions. Walls should be designed in a way to prevent accumulation of dust and entry of rodents, birds, or pests.
Energy usage[7]	Different operations in paddy processing require considerable energy for parboiling, mechanical drying	Hulling of rice before parboiling process is also a possible option to reduce energy consumption for rice parboiling. It would save 40% of energy however this process is susceptible to

[6] Scoping Study on Clean Technology Opportunities and Barriers in Indonesian Palm Oil Mill and Rice Mill Industries: International Finance Corporation. Prepared by IRG, Philippins, viewed at http://www.ifc.org/wps/wcm/connect/8894fe804726241c945cbf2b131bed2a/Scoping%2Bstudy%2Bclean%2Btechnology%2Bopportunities%2Bin%2BIndonesia.pdf?MOD=AJPERES on 27th February 2014.

[7] Energy Utilization and Environmental Aspects of Rice Processing Industries in Bangladesh: by Mohammed Ahiduzzaman and Abul K. M. Sadrul Islam, viewed at http://www.mdpi.com/1996-1073/2/1/134 on 25th February 2014.

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	and milling.	contamination if the processing equipment is not as per food grade quality and it needs shade drying Instead of open floor drying under sunshine as in traditional practices.
Waste management	Disposal of solid wastes, particularly unused rice husk occupies space and creates inconvenience. Effluent produced during cleaning of equipment will pose a problem to surrounding environment.	Paddy husk can be reused as fuel for paddy drying, to run steam generator or gassifier. Charcoal briquetting units can be set up which use paddy husk as raw material. Treatment of effluent and wastewater before release as per the standards of Pollution Control Board.

Marketing opportunities for Organic Paddy:

Rice being a major food commodity in the state organic rice can be marketed with premium through retails or wholesale outlets. Organic rice has demand in international market as well.

- Agricultural and Processed Food Products Export Development Authority (APEDA) makes efforts to produce and export basmati rice, aromatic rice and other rice varieties by establishing model farms.
- Can be linked with Nutrition cum Day Care Centres (NDCCs)

Support Agencies:

- Directorate of Rice Research (Indian Council of Agricultural Research)
  Rajendranagar, Hyderabad – 500030.
  Tele fax – 040 – 24591217.
- Acharya N.G. Ranga Agricultural University, Rajendranagar.
- Respective Krishi Vignan Kendras (KVKs) and District Agriculture Advisory technology Centres (DAATCs) and Agriculture Technology Management Agency (ATMA).

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2. **Red gram:**

Overview of Paddy in Andhra Pradesh (erstwhile):

Andhra Pradesh has an area about 4.63 lakh hectares under red gram with annual production of 3.02 lakh tonnes. Its contribution to India's production is 12.75 per cent per annum. It is grown mostly in all the districts. The major varieties grown are LRG 30, LRG 41, Durga, Laxmi, Asha, Maruthi and PRG-158. The productivity of red gram is 500 kgs per ha in Andhra Pradesh (2011) against a national average of 675 kgs per ha which is considerably low.

Interventions in Red gram in TRIGP**:**

TRIGP will target 31,650 red gram producers for growing red gram through sustainable agricultural practices. The aim is to enhance yield from 1.8 qtls per acre to 2.8 qtls per acre. TRIGP will invest in Red gram value chains in productivity enhancement, certification, aggregation and value addition. The proposed districts for value chain interventions are Medak, Nizamabad, Mehboobnagar, Adilabad and Khammam. In total 49 mandals will be covered.

Potential Environmental issues and Environment friendly alternatives in the Red gram value chain:

Activity in the value chain	**Possible issues**	**Interventions, Best practices**
Interventions for Productivity Enhancement		
Varietal selection	Varieties not suitable to local environmental conditions may not respond well and increase cost of pest and disease management.	The recommended varieties for the state of Andhra Pradesh are: LRG 30, LRG 41, Durga, Laxmi, Maruthi, Asha and PRG-158. In seed production farms rouging (removing the plants from previous season) is important as it contaminates genetic purity of the seeds. It is advisable to select a farm where red gram is not cultivated before for seed production.
Cropping system - Intercropping	Mono-cropping of red gram is unsustainable due to pest attacks, and delayed income.	Red can be is grown as an intercrop, between sorghum (jowar), pearl millet (bajra), maize and cotton. Under organic management, when red gram is intercropped with soybean/cowpea and moong, it has been found to enrich the soil significantly. This combination can also be used in the first year of conversion of conventional farms to organic, in order to make the soil alive

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		and fertile. Growing of two rows of moong after every two rows of red gram is also beneficial. It not only ensures some moong yield as a bonus, but its biomass mulch reduces the growth of weeds, preserves soil moisture and ensures increased productivity of red gram.
Irrigation	As red gram is a rain-fed crop which is generally grown in assured rainfall areas, it usually does not require any irrigation. Water stress could develop after excessive rain or flood or because of improper drainage Excess irrigation leads to water logging in low lying areas	Red gram requires 35–40 cm water during its entire growth period. Optimum moisture is necessary during (a) budding; (b) flowering; and (c) pod formation stages. In case of water stress, protective irrigation may be given in alternate rows at these three stages. Using harvested intercrops biomass as mulch to preserve soil moisture and to maintain microbial activity. Proper drainage is essential in low lying areas. Draining out the excess water at the earliest by using drainage channels if there is a gradient and if not by using motors, Taking up the gap filling at the earliest Inter cultivation at optimum field moisture condition, Apply 4-5 kg N/acre after draining excess water, To spray KNO3 1 % or water soluble fertilizers like 19-19-19, 20-20-20, 21-21-21 at 1% to support nutrition
Manures and Fertilisers	Fertilizers applied without soil testing will leads to leaching of nutrients, excess input cost or less yield.	Soil testing based fertilizer application is recommended. Plant trees of neem, babul, pongam, sesban, glyricidia, etc., on farm bunds to get leaf manure.
Pest Management	Pod borers or bollworms (Helicoverpa), aphids, jassids, thrips, mites, etc., are some of the main insect pests that affect red gram. Fusarium wilt disease can also be a serious problem in some places. Boll worm attack is most damaging and is therefore	The following Non Chemical Pest management methods can be followed to keep pest population under control. • Intercropping of red gram with soybean, moong, groundnut, sorghum/maize and random planting of marigold and Hibiscus subdariffa (lal ambari) help in

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	of major concern. The chemicals recommended for red gram pest control cannot be used in the project.	keeping the pest population under the ETL. • To reduce pest attacks and to ensure intermittent income, in mono cropping mix 1–2% seeds of sorghum or any other millet with red gram at the time of sowing. • One or two rows of marigold around the field or random planting of about 100 marigold plants/acre also helps in the control of insects and pests • Jaggery powder (10 kg/ha) is sprayed on the soil surface, to attract ants that predate on the larvae. • Approx. 10–12 bird perches installed per hectare attract birds that predate on the pests. Yellow rice (1 kg rice cooked with turmeric powder) kept on or near the perches will attract predatory birds. • Inundated release of Chrysoperla 5,000 eggs 15 days after sowing and Trichogramma 50,000 eggs (2–3 cards) 30 days after sowing help to keep pest populations under control. • Spraying of 5% NSKE at 15 day interval keeps pest under control • Garlci Chilli extract with cow urine also keeps pest population under control. • 500–1000 ml HNPV (nuclear polyhydrous virus) per ha.controls pod borer.
Interventions for Storage, processing etc.		
Storage	Chemicals, fertilizers or irrigation water with high chlorine could result in lower quality of red gram grains. Red gram grains are mostly transported and stored in packed woven jute or polypropylene	Farmers should be advised properly on the standard storage practices for red gram and the dangers of using chemicals and fertilizers. Packaging in air tight bags is suggested to retain quality of the grains with enhanced shelf life and to protect them from the

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	bags which do not offer barrier against moisture and insect pests. Beetles affect red gram in storage.	adverse environmental factors. Dry the clean grain in the sun to ensure moisture below 8%. Mix crushed neem leaves with the Red gram grain before storing it in gunny bags. Gunny bags can also be treated with 5% neem oil. Chemicals/pesticides/weedicides / fertilizers should not be stored along with raw red gram.
Milling	Noise pollution to the workers and in the neighbourhood due to milling Fine dust during milling will lead to health issues like allergy, asthma in long run.	Noise protective equipment should be provided to the operator of the machine. Silencer should be attached to the equipment to reduce noise from the equipment to surrounding areas. Person using these machines must wear mask for preventing the problem related to inhalation
Transport	Organic dal may get contaminated when transported along with other commodities.	Vehicles used for transport for chemicals should not be used for transport of red gram. The vehicle should be cleaned and dried before transportation of red gram grains and Dal after milling
Waste disposal	Disposal of red gram seed coat after milling	Usually this is used in cattle feeds and hence no issue with disposal.

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Marketing opportunities for Organic Red gram dal:

- Farmers willing to go on conventional organic can associate with Dharani farming and Marketing Macs limited, Chennakottapalli Village and mandal, Ananatapur,Andhra pradeh, Pin – 515101, accredited under National Programme for Organic Production (NPOP).
- Dal can also be utilized in Nutrition and Day Care Centres

Support Agencies:

- Acharya N.G. Ranga Agricultural University, Rajendranagar
- Respective Krishi Vignan Kendras (KVKs) and District Agriculture Advisory technology Centres (DAATCs) and Agriculture Technology Management Agency (ATMA)

3. Dairy

Overview of Dairy Scenario in Andhra Pradesh (erstwhile):

Andhra Pradesh stands number one in the country in sheep population, meat production (556000 MTs), poultry population and per capita availability of eggs, according to 2007 livestock census. The state also stands second in buffalo population, third in total livestock population and fourth in milk production (89, 25,000 MTs) in the country. It is considered that sustained growth in the livestock sector has a significant beneficial impact in generating employment and reducing rural poverty. Trends in livestock population: According to livestock census-2007 the total livestock population of Andhra Pradesh is 601.75 lakhs, excluding poultry. Among these 244.94 lakhs are cattle and buffaloes (total bovines), 255.39 are sheep and 96.26 lakhs are goats. Significant growth in the cattle, buffalo, sheep and goat population is registered between the years 2003 and 2007. During this period, cattle population increased by 19.09% and buffalo population increased by 23.25%. The decline in the number of male buffaloes and a rise in the number of male cattle and cows indicate that the farmers are raising cattle for both milk and draught purpose where as buffaloes are maintained for milk production in the state[8].

Interventions in Dairy Sector under TRIGP:

TRIGP targets milk producers in 16 mandals in 6 districts with a target to improve milk production through best livestock management practices. The interventions will include induction of high yielding animals, capacity building, fodder requirements etc.

Potential Environmental issues and Environment friendly alternatives in the Dairy value chain:

Component	Possible Issue	Intervention, Best practice
Interventions for Resource management and Productivity Enhancement		
Breed selection	Selection of breeds that cannot adapt to the local climatic conditions will lead to loss of cattle or results in low productivity and health issues.	Selection of breeds suitable to local climatic conditions and up gradation with the improved breeds suitable or acclimatized to local climate should be done under technical guidance. The suggestions on local suitability of cattle, sheep and goat is given in *Annexe 2 of this annexure 6.*
Open grazing	Even though open grazing is a traditional practice and recommended for better health conditions of the animals, over grazing will lead to loss of pasture lands due to reduced regeneration capacity as a result of continuous grazing. The local biodiversity is also affected and soil becomes susceptible to erosion as the green cover is removed.	It is ideal to combine stall feeding with grazing for a limited time. The grazing should be done in rotational manner. Grazing lands can be improved by reseeding and manuring collectively by cooperatives and a system of rotational grazing can be designed. This can be done in convergence with programmes like NREGS.

[8] Livestock development in Andhra Pradesh, Status and Potential, Centre for Economic and Social Studies, viewed at http://www.cess.ac.in/cesshome/wp/RULNR-working-paper-16.pdf on 2nd July 2014.

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	This will also increase the strain on the animal to walk longer distances in search of fodder affecting the productivity.	
Fodder cultivation	Exclusive dependence of fodder varieties like APBN/CO4 will not supply all vital nutrients to the cattle, besides it depletes soil nutrients and water resources as the water requirement for such crops is high.	Green fodder should comprise of proper cereal grass and legume mix to provide complete nutrition. The fodder plots should also accommodate legume crops like lucerne, berseem, cow pea, stylo and fodder trees like sesbania. This provides proper ration to the animals as well as maintains soil fertility. Azolla cultivation can also supplement the protein requirement. Use of chemical should be avoided/ Minimized.
Chemical fertilisation	Over use of chemical fertilizers or use of pesticides will lead to biomagnifications and affect the quality of milk.	
Tackling the fodder scarcity	Fodder scarcity in dry seasons or drought periods will create stress on available vegetation like trees and insufficient fodder affects animal health.	Individual /Community fodder banks are to be maintained by the groups by procuring crop residues and storage, and maintaining supplementary feed units.
Stall feeding with green fodder	Stall feeding of harvested green fodder as it is will lead to wastage of fodder and feeding efficiency of animal is decreased.	Green fodder cut into small bits using chaff cutter or suitable tools will improve the feeding efficiency of the animal digestibility and reduce the wastage.
Shed spacing, sanitation and waste management	Congested and unclean sheds (without proper facilities for draining the urine etc, lack ventilation etc.) will lead to outbreak and spread of diseases.	The sheds should be clean and should provide sufficient ventilation, enough space for the animal to move freely (recommended space is 4 sq mt per animals). There should be arrangements like slop and a pit for collection of urine which can be put to alternate uses like panchakavya preparation or can be added to manure pits). In general sheds are constructed outside the village required ventilation
	Open disposal of the shed cleanings	The daily sweepings of the shed

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	– fodder wastage, manure, urine etc. will create unhygienic environment in the surroundings.	should be composted in a pit. However pit methods can be avoided in areas with high water table but the heap should be properly covered with palm leaves or gunny sacks to avoid leaching. The households having 2 cattle can plan for biogas plants. Composting the slurry provides enriched compost or vermicompost.
Interventions for improving milk yield	Injecting hormonal substances like oxytocin under misconception that it increases milk yield will have negative impact on animal health and will make the animal go dry early.	Practice of injecting harmones should be strictly avoided.
Milking	Unhygenic milking practices – milking without washing hands, not addressing any injuries or disease of the animal will contaminate the milk	Beneficiaries should be trained on hygienic milking practices.
Open disposal of carcasses	The dead bodies of calves, or small ruminants that are dead due to epidemics will further spread the infection.	The carcasses should be properly buried or burned, after bio security measures
Environment Issues and Measures in Bulk Milk Cooling Units		
Cleaning and maintenance of equipment	The chemical and acids used in cleaning the unit pollute the soil and water when discharged without being treated	Waste water after cleaning should not be released into the gutters leading to agriculture fields, or to the open area nearby. Drying ponds (with cement lining) can be constructed where water can be evaporated and residue can be collected and disposed of safely.

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Sources of Technical Support:

Respective Animal Husbandry Departments and Livestock research Stations in the districts

Directorate of Animal Husbandry
Shanthi Nagar, Masab Tank
Hyderabad – 45
Ph no – 040 – 23391335, 23316855
Fax – 040 – 23312431
E mail – ahitc@hotmail.com

Regional Station for Forage Production and Demonstration
Pahadi Sharif, Hyderabad – 500 005.

4. Poultry

Overview of Poultry Scenario in Andhra Pradesh (erstwhile):

As per 18th Quinquennial Livestock Census-2007 Andhra Pradesh stands first in poultry (1239.85 lakhs). The state has famous Aseel breed of poultry which is principle source for development of broiler breeds in the world. The poultry population increased by 23.27% between 2003 to 2007.The Egg Production in the State under report is 183447.156 Lakh Nos. This constitutes 32.97% of the total egg production in the country (556378 Lakh Nos) i.e. every third egg produced in the country comes from Andhra Pradesh. Thus the State can be called "egg basket" of the country. The state is maintaining its first position in Egg production in the country. Eggs from Desi fowls / Backyard poultry constitute 6.43% (11794.009 Lakh Nos) and Improved / Commercial Layers 93.57% (171653.147 Lakh Nos) among total Eggs production. Out of the total egg laying poultry, Desi birds contribute to 23% and commercial poultry to 77%. Out of estimated number of layers 76.21% were improved birds and 23.79 % were Desi birds.
The region wise contribution of egg production is (51.16%) in Coastal Andhra region, (8.22%) in Rayalaseema region and (40.62 %) in Telangana region. The predominant Egg producing Districts in the State are East Godavari, West Godavari, Chittoor, Krishna, Guntur and Visakhapatnam Districts[9].

Interventions in Poultry Sector under TRIGP:

TRIGP is planning to reach poultry producers in 72 mandals in 9 districts in Telangana to produce quality meat eggs through best poultry management practices. The key interventions include introduction of dual purpose birds, improving access to better veterinary services, access to low cost inputs, convergence with suppliers and marketing tie ups. The project aims an additional income of Rs. 22,143 per producer per annum.

Potential Environmental issues and Environment friendly alternatives in the Poultry value chain:

Component	Possible Issue	Intervention, Best practice
Interventions for Resource management and Productivity Enhancement		
Location of the Units	Location of the units near residential areas lead to noise pollution and offensive smell. Location of Units near highways causes stress and disturbance to the birds.	It is advisable to locate the units away (100 mts) from the residential areas and highways.
Housing the birds	Over crowding the birds in less space will have an impact on health of the birds – leads to quick spread of diseases and less productivity.	Follow the recommended spacing as indicated below:

[9] Integrated Sample Survey Report, Andhra Pradesh 2008-09, 2009-10, viewed at http://ahfd.ap.nic.in/ISSSR0910.pdf on 12th February 2014.

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<table>
<tr><td></td><td></td><td>
<table>
<tr><th>Age (weeks)</th><th>Layers (cm^2)</th><th>Broilers (cm^2)</th></tr>
<tr><td>0-8</td><td>700</td><td>700</td></tr>
<tr><td>9-12</td><td>950</td><td>950</td></tr>
<tr><td>13-20</td><td>1900</td><td>2350</td></tr>
<tr><td>21 and above</td><td>2300-2800</td><td>2800-3700</td></tr>
</table>
</td></tr>
<tr><td>Shed cleaning and disposal of waste</td><td>Open disposal of manure leads to contamination of surrounding s and affects the manorial quality</td><td>Manure should be stored in a pit or heap lined with bricks to avoid runoff during rainy seasons.</td></tr>
<tr><td>Disposal of dead birds</td><td>Open disposal of dead birds leads to spread of diseases and attract dogs etc.</td><td>Dead bird should be disposed by burning/burying method. And it should be done at least 100 m away from the land.</td></tr>
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5. Small Ruminants

Overview of Small Ruminants Scenario in Andhra Pradesh (erstwhile):

The sheep and goat population of Andhra Pradesh is 255.39 and 96.26 lakhs respectively. During the period from 2003 to 2007, 18th Quinquennial Livestock Census the Sheep and Goat population increased by 21.53% and 49.77% respectively. The prevalence of breeds in the state is as follows - sheep 26.72 % were SPS Nellore Breed, 17.69% were of Bellary Breed and 55.59% were of Deccani Breed. The Meat Production in the State under report is 603577.417 thousand Kgs. This constitutes 15.80% of the total meat production in the country (3822 thousand MTs). The state stands first position in Meat production in the country. The predominant meat producing Districts in the State are Krishna, Chittoor and Ananthapur districts[10].

Interventions in Small Ruminant Sector under TRIGP:

TRIGP targets producers in 9 districts of Telangana to produce quality meat by adopting better management practices leading to an income of Rs. 20,000 per annum per producer. The key interventions proposed include induction of small ruminants, increasing productivity of animals by adopting better management practices and access to veterinary services and establishing marketing channels.

Potential Environmental issues and Environment friendly alternatives in the Small Ruminant value chain:

Component	Possible Issue	Intervention, Best practice
Interventions for Resource management and Productivity Enhancement		
Breed selection	Selection of breeds that cannot adapt to the local climatic conditions will lead to loss of animals or results in low productivity and health issues.	Selection of breeds suitable to local climatic conditions and up gradation with the improved breeds suitable or acclimatized to local climate should be done under technical guidance. The suggestions on local suitability of, sheep and goat is give in *Annexe 2 of this Annexure 6.*
Grazing	Continuous over grazing will lead to degradation of grazing lands. In case of sheep as they graze close to the ground surface vegetation is removed exposing the soil for erosion.	Growing fodder trees, regulated grazing and stall feeding (partly or completely) will reduce pressure on grazing lands.
Cutting large branches from trees.	Regeneration of the trees will be affected if lopping is done extensively.	Only small twigs should be extracted, fodder trees can be grown in house premises as well.
Shed spacing	Congested, less ventilated sheds will lead to quick spread of diseases	The sheds must have sufficient space and well ventilated and offer

[10] Integrated Sample Survey Report, Andhra Pradesh 2008-09, 2009-10, viewed at http://ahfd.ap.nic.in/ISSSR0910.pdf on 12th February 2014.

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	and affects animal health due to less scope for movement.	protection from heat, rain etc.
Stall feeding	Stall feeding with green fodder without chopping may lead to wastage.	Fodder should be properly chopped before feeding.
Shed cleaning and waste management	Open disposal of shed cleanings and feed waste create unhygienic conditions and leads to loss of manorial value	Wastes should be composted as pit, or heap covered with leaves and lined with bricks to avoid leaching or evaporation losses.

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Annexe 1:

Popular and high yielding varieties grown in Andhra Pradesh (erstwhile)[11]

S. No.	Zone	Districts	Varieties of Paddy grown
1	Krishna Zone (KZ)	West Godavari, Krishna, Guntur and Part of East Godavari (excluding uplands), Khammam, Nalgonda and Prakasam.	MTU-2077, MTU-1001, MTU-1061, MTU-1064, BPT-5204, Bapatla Sannalu (BPT 1768), MTU-1010, JGL-384, JGL-1798
2	Godavari Zone (GZ)	West Godavari, Guntur and Part of East Godavari (excluding uplands), Khammam, Nalgonda and Prakasam.	Swarna, MTU-1001, MTU-1010, MTU-1061, MTU-1064, PLA-1100, BPT-5204, IR-64, JGL-1798
3	High Altitude Tribal Zone (HATZ)	Srikakulam, Vizyanagaram, Visakhapatnam, East Godavari and Khammam.	Srikakulam sannalu, Swarna, Pushkala, Vasundara, MTU-1001, MTU-1010

Pest and Disease resistant Varieties [12]

S. no.	Varieties	Salient features
1	Sravani (NLR-33359) (IET-14876)	Resistant to blast, Helminthosporium, tolerant to Bacterial Leaf Blight, susceptible to Rice Tungro Virus
2	Somasila (NLR-33358) (IET-13932)	Resistant to blast and Helminthosporium, tolerant to BLB, susceptible to Rice Tungro Virus.
3	Swathi (NLR-33057) (IET-11582)	Resistant to blast, tolerant to Helminthosporium and Bacterial Leaf Blight, susceptible to Rice Tungro Virus, Stem Borer, Leaf Folder, Rice Hopper, rice thrips & Brown Plant Hopper
4	Vedagiri (NLR-33641) (IET-14328)	Tolerant to Stem Borer & Rice Tungro Virus; resistant to blast; susceptible to Brown Plant Hopper & Leaf Roller.
5	Maruteru Sannalu (MTU-1006) (IET-14348)	Susceptible to blast and Stem Borer.

[11] Government of Andhra Pradesh; Department of Agriculture; http://agri.ap.nic.in/agroclimatezon.htm
[12] DACNET http://drd.dacnet.nic.in/Rice%20Varieties%20-%2010.htm

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6	Cottondora Sannalu (MTU-1010) (IET-15644)	Resistant to blast & tolerant to Brown Plant Hopper.
7	Bharani (NLR-30491) (IET-12630)	Resistant to Helminthosporium & Rice Tungro Virus, tolerant toStem Borer, susceptible to blast, Leaf Folder, Rice Hopper and Brown Plant Hopper.
8	Deepti (MTU-4870) (IET-8100)	Tolerant to Brown Plant Hopper.
9	Srikakulam Sannalu (RGL-2537) (IET-16023)	Resistant to blast & Stem Borer.
10	Vasundhara (RGL-2538) (IET-16085)	Tolerant to Rice Tungro Virus & blast, resistant to plant hopper and GM
11	Early Samba (RNRM-7) (IET-15845)	Tolerant to Stem Borer.
12	Surya (BPT-4358)	Tolerant to Brown Plant Hopper.

BLB=Bacterial Leaf Blight, RTV=Rice Tungro Virus, SB=Stem Borer, LF=Leaf Folder, RH=Rice Hopper, BPH=Brown Plant Hopper, LR=Leaf Roller.

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Annexe 2:

Suitability of Livestock breeds to different geographic regions of Andhra Pradesh and location of main farms, and AI Stations.

The nativity and suitability of different indigenous Buffalo breeds to different regions of the state and farms is given below [13]:

Name of the Breed **D – Draught** **M- Milk purpose**	**Core Home Tract**	**Breeding Policy**	**Main farms**
Malvi (D)	Warangal, Khammam	Pure breeding and selection	Malvi is mainly found in MP / Chattisgarh, but are also found in the border districts of AP
Local (D)	All districts	Cross breeding and selection	-----

The nativity and suitability of different indigenous Buffalo breeds to different regions of the state (erstwhile Andhra Pradesh) and farms is given below[14]:

Name of the Breed **D – Draught** **M- Milk purpose**	**Origin**	**Core Home Tract**	**Breeding Policy**	**Main farms**
Murrah grades		All coastal	Grading with	Murrah PT Farm at

[13] Landscaping of initiatives in the area of animal health, breeding services and indigenous breed development for cattle, buffalo, goats, sheep and poultry in Andhra Pradesh. A Project of CALPI, New Delhi. Viewed at http://www.intercooperation.org.in/km/pdf/Documentation/Service/1st%20Study%20on%20vet%20services%20(Sastry).pdf on 6th February 2014.

[14] Landscaping of initiatives in the area of animal health, breeding services and indigenous breed development for cattle, buffalo, goats, sheep and poultry in Andhra Pradesh. A Project of CALPI, New Delhi. Viewed at http://www.intercooperation.org.in/km/pdf/Documentation/Service/1st%20Study%20on%20vet%20services%20(Sastry).pdf on 6th February 2014.

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(M)		districts	Murrah breed	Banvasi (Kurnool), Karimnagar
Local (D+M)		All districts	Grading with Murrah breed	----

Five different breed types as sire breeds to be used in AI and organised natural service in the five regions of erstwhile Andhra Pradesh[15].

Region	**Recommendations**
Cattle	
Coastal Andhra (North)	• Jersey bulls mated to non-descript cows • Jersey crossbred bulls (50% exotic) mated to Jersey crossbred cows
Coastal Andhra (Delta, South)	• HF bulls mated to non-descript and Ongole type cows in Delta area • HF crossbred bulls (50% exotic) mated to HF crossbred cows • Jersey bulls mated to indigenous cows in upland areas • Jersey crossbred bulls mated to Jersey crossbred cows • Ongole bulls mated to Ongole type cows in Ongole tract
Rayalseema	• Jersey bulls mated to indigenous cows • Jersey crossbred bulls (50%) mated to Jersey crossbred cows • Ongole bulls mated to Ongole type cows in parts of Kurnool and Cuddapah districts
Tribal Areas	• Jersey crossbred bulls (50% exotic) for natural service • Deoni bulls for pure breeding in selected areas
Areas with better management levels	• Jersey crossbred bulls (75% exotic) mated to Jersey crossbred cows (50%) • HF crossbred bulls (75% exotic) mated to HF crossbred cows (50%)
Buffaloes	
Statewide	• Purebred Murrah bulls mated continuously to non-descript and graded she-buffaloes (upgrading) • Graded Murrah bulls mated to non-descript and graded she-

[15] Landscaping of initiatives in the area of animal health, breeding services and indigenous breed development for cattle, buffalo, goats, sheep and poultry in Andhra Pradesh. A Project of CALPI, New Delhi. Viewed at http://www.intercooperation.org.in/km/pdf/Documentation/Service/1st%20Study%20on%20vet%20services%20(Sastry).pdf on 6th February 2014.

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	buffaloes in dry and drought prone areas with limited fodder resources

Breeds of cattle maintained at Semen Stations in India:[16]

District	Indigenous breed	Exotic breed	Cross bred	Buffalo
Vishakapatnam	Ongole	JR	JRx	Murrah
Nandyala	Ongole		JRx	Murrah
Banavasi,		HF	JR Jrx	Murrah

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[16] Conservation of Indigenous breeds of cattle and buffalo, viewed at http://www.dahd.nic.in/dahd/WriteReadData/large%20ruminants%20guidelines/Conservation_indigenous_breeds_Cattle%20and%20Buffalo.pdf, on 6th February 2014.

Annexe 3:

Food colours that can be used in food preparation and processing units[17]:

Natural colouring matters which may be used include:
(a) Carotene & Carotenoids including
(i) Beta-carotene
(ii) Beta-apo 8'- carotenal
(iii) Methylester of Beta-apo 8' carotenoic acid
(iv) Ethylester of Beta-apo 8' carotenoic acid
(v) Canthaxanthin
(b) Chlorophyll
(c) Riboflavin (Lactoflavin)
(d) Caramel.
(e) Annatto
(f) Saffron
(g) Curcumin or turmeric

No Synthetic food colours or a mixture thereof except the following shall be used in food:

Common name	*Chemical name*
Red Ponceau	Azo
Carmoisine	Azo
Erythrosine	Xanthene
2. Yellow Tartrazine	Pyrazolone
Sunset Yellow	Azo
Blue Indigo Carmine	Indigoid
Brilliant Blue	Triarylmethane
Green Fast Green	Triarylmethane

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[17] Ministry of Health and Family Welfare, Food Safety and Standards Authority of India Notification, viewed at http://www.fssai.gov.in/Portals/0/Pdf/Food%20safety%20and%20standards%20(Food%20product%20standards%20and%20Food%20Additives)%20regulation,%202011.pdf on 28th March 2014.

Annexure 7

Environment Guidelines for Rural Retail Chains – KRuSHE Enterprises and KRuSHE marts:

Farm products:

1. Food products

Food products: Ginger products, Masala products and Pickels, Vermicelli, Papads, Snacks and Bakery, Sweet and milk products etc.

Potential Environmental issues and Environment friendly alternatives in food product preparation include:

Activity in the value chain or steps in the process	**Possible issues**	**Interventions, Best practices**
Registration and licenses	Manufacturing and selling of food products need license depending on the scale of activity.	License should be acquired as per Food Safety and Standards Act (FSSAI) 2006 if required.
Drying the raw materials, products	Drying on unclean floor will contaminate the produce by inducing microbial growth.	Clean and dry cement floor or mats should be used for drying. Solar dryers can be used depending on feasibility.
Use of machinery (for grinding ginger, masala and ingredients for pickle)	Use of unclean machinery for grinding raw materials may contaminate food.	Machinery (small mills and grinders) used for grinding ingredients should be cleaned and dried regularly.
Use of cook stoves (in bakery and snacks, sweet and milk products)	Use of LPG or fuel wood will lead to degradation of the resource and increase the fuel costs	Fuel efficient cook stoves or bio gas should be considered.
Use of preservatives, colour and flavour agents	Use of synthetic agents may have adverse effects.	Natural agents and permitted agents should only be used. Details of permitted agents is provided in *Annexe 1.*
Handling and packing	Handling the food products with bare hands or un washed hands will contaminate the products through microbial attack.	Personnel involved in processing, packing etc. should wash hands with soap before and after work and use aprons, gloves, hair caps for handling, packing etc.

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		Use of eye goggles is recommended while handling pungent items like spices.
Packing and labeling	Edible products beyond the shelf life may lead to illness when consumed.	The product labeling should include the expiry date and should be marked with in the shelf life period.
Storage	Storage in improper conditions like moist, dusty floor, walls etc. will spoil the produce due to mold infestation.	Raw materials and produce should be stored in clean and dry conditions.
Facilities at processing centre	Poor facilities will have impact on worker's health	The place should be well ventilated, should have drinking water and sanitation facilities.
Waste management	Open disposal of waste from food processing unit will give bad odour and create unhygienic environment due to decomposition.	Any waste or waste water should be disposed properly by composting or diverting to waste water drains.

2. Food processing and drying

Products: Dry copra, mango jelly, dry fish:

Potential Environmental issues and Environment friendly alternatives in food processing and drying include:

Activity in the value chain or steps in the process	**Possible issues**	**Interventions, Best practices**
Drying the raw materials	Drying on unclean floor will contaminate the produce by inducing microbial growth.	Clean and dry cement floor or mats should be used for drying. Solar dryers can be used depending on feasibility.
Use of machinery (for pulper, etc. for mango jelly)	Use of unwashed machinery for pulping etc. has possibility to induce microbial growth	Machinery (pulper) should be cleaned and dried regularly.
Use of preservatives, colour and flavour agents for preserving the pulp	Use of synthetic agents may have adverse effects.	Natural agents and permitted agents should only be used. Details are provided in *Annexe 1.*
Drying the products (mango jelly, dry copra,	Drying on unclean floor will contaminate the produce by inducing microbial growth.	Clean and dry cement floor or mats should be used for drying. Solar dryers can be used

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dry fish)		depending on feasibility.
Drying fish	Fish should be cleaned properly Before drying. Drying on unclean floor will contaminate the produce by inducing microbial growth.	Clean and dry cement floor or mats should be used for drying. Solar dryers can be used depending on feasibility.
Handling and packing	Handling the food products with bare hands or un washed hands will contaminate the products through microbial attack.	Personnel involved in processing, packing etc. should use clean hands before and after work and use aprons, gloves, hair caps for handling, packing etc.
Packing and labeling	Edible products beyond the shelf life will lead to health issues when consumed.	The product labeling should include the expiry date and should be marked with in the shelf life period.
Storage	Storage in conditions like moist, dusty floor, walls etc. will spoil the produce.	Raw materials and produce should be stored in clean and dry conditions.
Facilities at processing centre	Poor facilities will have impact on worker's health.	The place should be well ventilated, should have drinking water and sanitation facilities.
Waste management	Open disposal of waste from food processing unit will give bad odour and create unhygienic environment due to decomposition. Fish waste is rich in organic matter and will contaminate water resources when disposed in water or created un hygienic environment when disposed openly	Any waste or waste water should be disposed properly by composting or diverting to waste water drains. Fish waste can be dried and used as pig meals or fertilizer or pest repellents.

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3. Oil Extraction

Products: Coconut oil, ground not oil and sesamum oil.

Potential Environmental issues and Environment friendly alternatives in oil extraction include:

Activity in the value chain or steps in the process	**Possible issues**	**Interventions, Best practices**
Use of machine for grinding	Machinery handling should be clean and proper.	Machinery should be cleaned and maintained well. Care should be taken while handling machinery.
Handling and packing	Handling the raw material and oil with bare hands or un washed hands will contaminate the products through microbial attack.	Personnel involved in processing, packing etc. should clean hands before and after work and use aprons, gloves, hair caps for handling, packing etc.
Facilities at processing centre	Poor facilities will have impact on worker's health.	The place should be well ventilated, should have drinking water and sanitation facilities.

Source of technical support for food product preparation, processing:

- College of Home Science, Saifabad, Hyderabad
- National Institute of Food technology Entrepreneurship Management
  3rd Floor, AMDA Building,
  7/6, Sirifort Institutional Area,
  August Kranti Marg,
  New Delhi – 110 049
  Phone: 011-264971 31/32/35
  Fax: 011-26497134
  Email: info@niftem.ac.in
- Central Food Technological Research Institute (CFTRI)
  Head
  Technology Transfer & Business Development
  Mysore 570 020
  Ph: +91-821-2514534
  Fax: +91-821-2515453
  E-mail: ttbd@cftri.res.in
- Rural Technology Park,
  National Institute of Rural Development (NIRD)
  Rajendranagar, Hyderabad – 500 030
  Ph – 040 – 24002037, Tele fax – 040 – 24008564.

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E mail: rtpnird@gmail.com, rtpnird@hotmail.com

- Khadi and Village Industries Commission
  Gandhi Bhavan, M.J. Road Nampalli
  Hyderabad, Pin: 500001
- Respective District Industries Centres
- Respective Agriculture and horticulture departments, KVKs.

4. Forest based enterprises

Products: Hill brooms, tamarind, honey, herbal products will be marketed under forest based enterprises.

Potential Environmental issues and Environment friendly alternatives for forest based enterprises include:

Activity in the value chain or steps in the process	**Possible issues**	**Interventions, Best practices**
Permissions for Forest based enterprises	Issues regarding use of forest land, ownership rights, regulations from forest departments.	Required permission should be taken from Forest Department (differs from produce to produce) for collection.
Harvesting of NTFP	NTFP are scarce resources and unsustainable harvesting lead to loss of biodiversity.	Training on sustainable harvesting will check the loss of biodiversity.
Method of Collection of Raw material.	Destructive methods of collection such as cutting the branches, uprooting the plants, etc. damages the resource. Unscientific methods of collection may affect the quality of product there by leading to less revenue and thus over exploitation. Each forest product has some prescribed norms for collection.	Collection period and season of harvesting and tools used for collection should be as per standards prescribed. Trainings on these will help the communities to follow sustainable harvesting methods.
Processing of forest produce, preparation of herbal medicines.	Improper drying (drying on bare earth) and storage may contaminate the produce. Processing using machinery for grinding, mixing, boiling etc. may lead to injuries. Energy use in boiling, drying etc. will required fuel wood.	Drying of produce should be done on cemented platform. Care to be taken while processing using machinery to avoid injuries and members to be trained on use of machinery. Energy efficient devices should be promoted.

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	Sometimes due to lack of knowledge on mixing of different ingredient led to health issues.	The members should be trained in preparation and use (to offer guidance to retailers or consumers). Date of processing and use and precautions of final products should be mentioned on the packets. Homeopathy doctor or Ayurvedic should be consulted for training and guidance at processing units
Selling the Herbal products	Selling of herbal products with without testing and without license is an offence.	Drug licenses should be obtained from each processing unit and periodic testing should be done at National Accreditation Board for Testing and Calibration Laboratories (NABLABS). AYUSH department will provide license to such unit which is mandatory for selling such products.

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Sources of Technical Support:

- AYUSH Department
  5th Floor, APGLI Building, Tilak Road, Abids, Abids, Tilak Rd,
  King Koti, Hyderguda, Hyderabad, 500001,
  Phone: 040 2475 8409.
- Telangana Medicinal and Aromatic Plants Board
  6th Floor, APGLI Building, Tilak Road,
  Abids, Hyderabad, 500001
  Tel.: 040-66364094,40047795
  E-Mail: apmaboard@gmail.com
- Khadi and Village Industries Commission
  Gandhi Bhavan, M.J. Road Nampalli
  Hyderabad, Pin: 500001
- Respective District Industries Centres

Non Farm products

The nonfarm based commodities that will be procured, processed and sold in KRuSHE marts will include.

1. **Chemical and Mineral products**

The activities under these include - preparation of detergent, soap, shampoo, chalk pieces, rangoli, pain balm, phenyl, acid and liquid blue.

Potential Environmental issues and Environment friendly alternatives for chemical and mineral products include:

Activity in the value chain or steps in the process	**Possible issues**	**Interventions, Best practices**
Registration and licenses	Manufacturing and selling of chemical products without registration and license is illegal.	Registration of unit under DIC and chemical license and testing for toxic material is required.
Raw material	Poor quality raw material lead to burning of hands, breathing problems etc. during preparation and end use of the product.	Authentic source of raw material and suppliers and training on proportion of raw material to be mixed up can be given so that entrepreneurs will come to know the possible acid base reactions. Hand gloves, nose masks and goggles should be used while handling the raw materials or finished products.
Preparation (handling raw material in chalk piece, detergents etc.)	Inhalation of dust and handling the chemical and mineral based raw material for long time may be detrimental for health.	Hand gloves, nose masks and goggles should be used.
Detergent use	Due to varied quantity of raw material, clothes generally lose their actual colour.	Before packaging it can be ensured through proper testing and possible effects on fabrics.
Storage of ingredients	Improper storage of ingredients will pollute the air and cause health risks to the workers.	Air tight containers should be used for storage and storage should be as per the guidelines.
Energy consumption	Preparation and packing	Green energy sources can be

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	require lot of energy consumption so permanent source of energy is needed	promoted.
Packaging	Use of un decomposable packaging material further cause the soil pollution	Bio degraded able ingredients and re-useable packaging should be promoted
Detergents		
Use of raw materials	Non essential detergent ingredients like perfumes, colours brighteners leave toxic residues after use	Avoiding these ingredients will make the detergent more environment friendly
Surfactants	Synthetic surfactants like Alkyl benzene Sulfonates, diethanolamines etc. are slow to degrade and residues are highly toxic and carcinogenic. Causes skin and eye irritations.	Synthetic surfactants may be replaced by non petrochemical surfactants or vegetable oil soaps.
Builder material	The builder material in detergent 'phosphate' when released into water after detergent use leads to eutrophication of water bodies affecting water quality and aquatic biodiversity	Builders like phosphates can be replaced by sodium citrate and sodium bicarbonate.
Optical brightners and artificial fragrances	Optical brightners like Chlorine and sodium hypochlorite causes skin and eye irritation and are dangerous to aquatic life.	Optical brighteners and perfumes can be avoided are their function is not very important in cleaning.
Storage of raw materials	The chemicals tend to react when not stored in prescribed conditions.	The chemicals should be stored in proper conditions
Mixing the raw materials in detergent making	The chemicals are harmful to skin and causes irrigation on contact with skin.	Gloves and nose masks should be used while mixing the chemicals to prepare detergent.
Waste disposal	Wastage during mixing and washing after work leaves residues in the surrounding accumulated in soil and water.	Utmost care should be taken to avoid wastage or spillage while mixing, so that there is less waste to clean.
Packing	Package in small sachets needs more plastic	Package in larger sachets to the extent possible.
Labeling	The product may be considered as safe and precautions not taken if not	According to the labeling requirements laid down by BIS, each packet of detergent

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	labeled properly.	powder should carry information on the name/grade of the material used, the source of manufacture, and a caution statement which reads: Detergent solutions can be skin irritants. Avoid prolonged contact. Rinse garments and hands thoroughly. The label should also carry information about the critical ingredients used in the formulations.
Phenyle		
Storage of raw materials	Improperly stored raw materials leads to low quality products or contaminate the environment leading to health hazards.	The raw materials should be stored properly according prescribed standards.
Mixing raw materials	Handling with bare hands lead to skin irrigations and inhalation on long term to respiratory issues.	Gloves and masks should be used while mixing ingredients.
Waste disposal	Wastage and disposal of wastes lead to residues in soil and water.	Wastage should be avoided and any waste should be cleaned regularly.
Preparation of ingredients	In cases where ingredients are also prepared, accidents are possible while mixing oils (castor oil, pine oil) and caustic soda and boiling.	Care should be taken to avoid any fore accidents.

2. Textiles, Artisans and Handicrafts

Potential Environmental issues and Environment friendly alternatives for textiles, artisans and handicrafts include:

Products: Textiles, handlooms, handicrafts, schools bags, foot wear, basket making, paper plates, paper covers.

Activity in the value chain or steps in the process	**Possible issues**	**Interventions, Best practices**
Work space	Poor facilities will have impact on worker's health.	The work space should be well ventilated, provided with drinking

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		water and toilet facilities.
Use of machinery and tools	Use of machines and tools may lead to injuries at times.	Members should be aware of safety precautions during use of machines and tools. First aid kit should be kept handy.
Energy use	Use of electricity in stitching, paper cup and plate manufacturing units is associated with carbon emission.	Possibility of solar energy run based machinery can be explored.
Use of dyes (textiles, handicrafts, handlooms)	Handling chemical dyes leads to skin and respiratory related problems.	Natural dyes must be referred and gloves and masks to be used for handling dyes.
Waste disposal	Open disposal of waste like cloth rags, leather etc. from textiles, handicraft and foot wear units will create unpleasant sight.	The waste should be sold for reuse or disposed properly.

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3. Candle making and bangle making

Potential Environmental issues and Environment friendly alternatives for candle making and bangle making include:

Activity in the value chain or steps in the process	Possible issues	Interventions, Best practices
Candle making: Fuel use, heating	Wax over heated above 150^0 gives dangerous fumes and hence fuel source is important. Conventional stoves require high quantities of fuel and cause air pollution. Handling hot wax may lead to accidental spill and cause boils.	Avoid overheating, and use efficient fuel. Wax should not be allowed to spill into flame as it leads to fire hazard. This can be avoided by using water jacket (a vessel with water around the wax container while heating). Use fuel efficient, smoke less cook stoves. Gloves should be used while handling wax in candle making.
Bangle making: Work space	Congested work spaces will have an impact on health in long run due to inhalation of smoke and exposure to heat.	The work space should be well ventilated.
Fuel use, heating (traditional method).	Conventional stoves require high quantities of fuel and cause air pollution to the workers.	Use fuel efficient, smoke less cook stoves. Motorised machine can be used for making bangles.

4. Agarbathi and Coir making

Potential Environmental issues and Environment friendly alternatives for Agarbathi making and coir making include:

Activity in the value chain or steps in the process	Possible issues	Interventions, Best practices
Work space	Congested work spaces will have an impact on health in long run due to inhalation of	The work space should be well ventilated and should have basic facilities like drinking water,

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	charcoal dust in agarbathi and coir dust in coir making units.	toilets etc.
Agarbathi rolling and coir extraction, processing	Inhalation of charcoal dust and handling gigat and charcoal with bare hands will have impact on health. Inhalation of coir dust leads to respiratory disorders	Nose masks and hand gloves should be used while rolling agarbathis and processing coir.

5. Mineral water

Potential Environmental issues and Environment friendly alternatives mineral water include:

Activity in the value chain or steps in the process	**Possible issues**	**Interventions, Best practices**
Water source	Ground water - The water source contaminated with chemical residues will effect quality and there by consumer health. Surface water - In monsoon microbial water contamination is possible.	The water should be tested and should be treated to remove residues, turbidity and pathogenic microbes. The removed residue, sludge should be safely disposed. Artificial recharge techniques can be followed in areas with high fluoride content. Regular check on water on all parameters to ensure drinking quality.
Workers hygiene	The workers hygiene is important to avoid microbial contamination.	The workers should be aware of the hygiene practices like – washing hands, using gloves, hair caps, not attending work when sick with contagious diseases etc.
Cleaning of bottles, cans	The water used for cleaning when disposed openly allowed to stagnate will lead to mosquito breeding etc, pollution of nearby water bodies etc.	The waste water should be disposed through soak pit or proper drainage.

Sources of Technical Support for Nonfarm enterprises:

- Rural Technology Park,
  National Institute of Rural Development (NIRD)

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Rajendranagar, Hyderabad – 500 030
Ph – 040 – 24002037, Tele fax – 040 – 24008564.
E mail: rtpnird@gmail.com, rtpnird@hotmail.com

- Khadi and Village Industries Commission
  Gandhi Bhavan, M.J. Road Nampalli
  Hyderabad, Pin: 500001
- Khadi Village Industries Commission
  KGMV (*Khadi Gramodyoga MahaVidyalay*)
  Rajendranagar, Hyderabad
- Respective District Industry Centres

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Annexe 1:

Food colours, preservatives, additives that can be used in food preparation and processing units[18]:

Natural colouring matters which may be used include:
(a) Carotene & Carotenoids including
(i) Beta-carotene
(ii) Beta-apo 8'- carotenal
(iii) Methylester of Beta-apo 8' carotenoic acid
(iv) Ethylester of Beta-apo 8' carotenoic acid
(v) Canthaxanthin
(b) Chlorophyll
(c) Riboflavin (Lactoflavin)
(d) Caramel.
(e) Annatto
(f) Saffron
(g) Curcumin or turmeric

No Synthetic food colours or a mixture thereof except the following shall be used in food:

Common name	*Chemical name*
Red Ponceau	Azo
Carmoisine	Azo
Erythrosine	Xanthene
2. Yellow Tartrazine	Pyrazolone
Sunset Yellow	Azo
Blue Indigo Carmine	Indigoid
Brilliant Blue	Triarylmethane
Green Fast Green	Triarylmethane

Class I Preservatives - permitted in foods:
Common salt.
Sugar.
Dextrose.
Glucose Syrup.
Spices.
Vinegar or acetic acid.
Honey
Edible vegetable oils

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[18] Ministry of Health and Family Welfare, Food Safety and Standards Authority of India Notification, viewed at http://www.fssai.gov.in/Portals/0/Pdf/Food%20safety%20and%20standards%20(Food%20product%20standards%20and%20Food%20Additives)%20regulation,%202011.pdf on 28th March 2014.

Class II Preservatives – Use of more than one is prohibited (useage should be in recommended doses):
Benzoic acid including salts thereof
Sulphurous acid including salts thereof
Nitrates or Nitrites of Sodium or Potassium in respect of food like ham, pickled meat,
Sorbic acid including its sodium, potassium and calcium salts, propionates of calcium or sodium, lactic acid, and acid calcium phosphate.
Nisin
Sodium and calcium propionate.
Methyl or propyl Parahydroxy-Benzoate.
Propionic acid, including esters or salt thereof,
Sodium diacetate, and
Sodium, potassium and calcium salts of lactic acid.

The use of the following flavouring agents are prohibited in any article of food, namely:
Coumarin and dihydrocoumarin;
Tonkabean (Dipteryl adorat);
asarone and cinamyl anthracilate".
Estragole
Ethyl Methyl Ketone
Ethyl-3-Phenylglycidate
Eugenyl methyl ether
Methyl β napthyl Ketone
P.Propylanisole
Saffrole and Isosaffrole
hujone and Isothujone α & β thujone.
Solvent in flavour.
Diethylene Glycol and Monoethyl ether shall not be used as solvent in flavours.

For specific details on permitted flavors, colors and additives in food products and dosages please refer Food Safety and Standards Authority of India notification (available at - http://www.fssai.gov.in/Portals/0/Pdf/Food%20safety%20and%20standards%20(Food%20product%20standards%20and%20Food%20Additives)%20regulation,%202011.pdf)

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Annexure 8:

Guidelines for Drinking water supply, Toilets and Construction works:

Guidelines for Drinking Water Supply:

Location of water source:

- Water source should not be closer than 15 m to the nearest leach pit or drain
- It should not be closer than 300 m from nearest significantly used well
- It should not be located in a notified groundwater stress areas identified by the State Government without obtaining requisite permission
- It should not be located in an area having absence / inadequacy of drainage
- It should not be closer than 100 m from the nearest sewage / industrial effluent disposal facility / land fill site
- In case of surface water sources, it should be ensured that construction activity does not cause land erosion, subsidence, instability or alteration of natural drainage
- It should not be located near or within any designated Natural habitat, wetland, sensitive ecosystems such as National Parks, Wildlife Sanctuaries without written permission from Forest Department
- It should not be located in a waterlogged area
- No displacement of local inhabitants is required for setting up the scheme

Ensuring Water Quality:

- Ensure the water quality testing of the source before planning of the water supply. Make sure that any water quality issues identified in the report are addressed suitably before any further work is undertaken.
- Ensure periodic monitoring of water quality with help of nearest water testing labs and facilitate disinfection or water treatment when ever required.
- Monitor regular cleaning of water tank by panchayat

The responsibility of checking and integrating the above guidelines lies with CRP and action on the same lies with VO with support of concerned Front Level Worker (FLW).

Apart from these generic guidelines site specific EMPs are to be prepared during establishing of drinking water supply with support of Sate Environment Expert and technical support agencies.

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Guidelines for Individual Household latrines:

- Safe distance of the toilet from drinking water sources to be followed. The location of the septic tank should be downhill from the water source depending on feasibility. The safe distance depends on local hydrological conditions, however 30 mts is treated as safe distance.
- In areas with water scarcity water efficient toilets like ecosan toilets can be constructed
- Appropriate location should be selected which will not discourage the use in consultation with the household.
- Awareness on use and maintenance to be created to the households prior to construction
- Water facility should be provided inside to the extent possible.
- 2 pit system toilet with Pan with steep slope 25^0-28^0 and trap with 20 mm water seal as designed by Sulabh International will reduce the usage of water (required 1-1.5 lits for flushing).
- Hand wash facility outside the toilet should be made integral part of design or facility of water and soap should be made available outside.
- Proper ventilation to be ensured as lack of ventilation or electricity discourages the use
- The debris should be disposed away from the site preferably though land filling.

The responsibility of checking and integrating the above guidelines lies with CRP and action on the same lies with VO with support of concerned Front Level Worker (FLW).

Apart from these generic guidelines site specific EMPs are to be prepared for construction of community toilets with support of Sate Environment Expert and technical support agencies.

Guidelines for construction works:

- Constructions should not happen in fertile agricultural lands or borrowing soil from fertile agricultural lands for construction should be avoided
- Construction site should not be prone to water logging on inundation during monsoons
- All the construction waste should be disposed into a pre identified land fill or used for construction of roads under NREGS etc. the condition of disposal should be built into the contracts
- Ensure required ventilation and natural illumination to reduce the need for energy
- Fire proof and leakage proof measures to be integrated into the building design

The responsibility of checking and integrating the above guidelines lies with CRP and action on the same lies with VO with support of concerned staff member in the project team.

Apart from these generic guidelines site specific EMPs are to be prepared during construction works with support of Sate Environment Expert and technical support agencies.

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Annexure 9:

Report on Stakeholder Consultations

Consultations in Karimnagar

Details of consultations workshop:

Date: 11th July 2014
Venue Training and Technology development Centre (TTDC) - *Mahila Pragathi Pranganam* Karimnagar
Time: 11-00 AM to 2-00 PM

The consultations workshop was chaired by Additional Project Director of office of the PD DRDA Karimnagar.
Sri. K. Ramachandram state consultant of Community Managed Sustainable Agriculture made presentation on Environment Management Framework. The presentation involve

- Background of the project - objectives and components of Telangana RIGP.
- Importance of EMF in implementation of TRIGP.
- Process of EMF development
- Structure of EMF and Legal Regulatory frame work while implementing TRIGP.
- Key aspects of EMF in Human Development interventions

Key Discussions:

- Green business opportunities to be given priority, Low cost technologies to be encouraged.
- Premium prices should be aimed at through green labeling
- Formation of producer groups and reduce use of chemical fertilizers and pesticides.
- Encourage high yielding varieties so that they can produce their own seed thereby reduce cost of cultivation on seeds.
- NTPF livelihood and millets to be included in value chains.
- Livestock: local breeds should be encouraged like DEONI ,and ONGOLE
- Promotion of Biogas and Solar energy is suggested
- Improving environment management in safe drinking water, sanitation and nutrition is key for health outcomes.
- RWS has role in HD component in rural water supply and construction of IHHLs.
- ICDS and Anganwadis should be provided with safe drinking water plants
- Trainings to anganwadi workers on personal hygiene and suggested that they should participate in SHG and VO meetings.
- Planting of trees should be encouraged through social forestry.
- Millets should be included in our food value chains. Quality nutrition to the children and women through NDCC.

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List of participants:

Name of the Mandals :- 11-7-2014

Stake holders consultations workshop on Environment Management Frame work.

Karim Nagar - Dist:

S.No	Name of the Candidate	Name of the Mandal	Designation	Sig
1	T. [illegible]	[illegible]	MS Sub-C	T. Pavithra
2	P. [illegible]	[illegible]	"	P.v Ramana
3	T. [illegible]	[illegible]	ZS [illegible]	T. Ritha
4	M. Shakunthala	[illegible]	Z.S	M. Shakuntala
5	P. Santhosh Kumar APM	DPMU-KMNR	ADM(MIS)	[illegible]
6	V. Srinivas	(DPM PWD) DPMU	DPM PWD	[illegible]
7	D. ANJAIAH	PM DPMU	PM	[illegible]
8	P. Srinivas Reddy	Nalgonda	NGO-Voice	[illegible]
9	Smt. M. Radhamma	CDPO KNR (R)	CDPO-	[illegible]
10	Dr. G. Kishan	AD.(AH) Animal Hsby	AD AH.	[illegible]
11	J. Kantha Rao	ADA % JDA. K.mg	ADA	[illegible]
12	S. [illegible]	[illegible]	NPM [illegible]	[illegible]
13	B. Jagan	Dairy-cc	cc	[illegible]
14	K. Kavitha	Siricilla.	MS-Sub	[illegible]
15	D. Anjavva	"	"	[illegible]
16	K. Pochamallavva	"	"	[illegible]
17	S. Amrutha	Ramadugu	"	[illegible]
18	T. Sathish Kumar	MCT A-HSBD	MCT A	[illegible]
19	D. Kumaraswamy	" VWDA	"	[illegible]
20	R. Srinivas	Community CO	CO.	[illegible]
21	M. Rajshekar	Medpally/KNR	APM	[illegible]
22	CH Srinivas	KNR	DPM	[illegible]
23	B. S. P. Rajsheker	KNR	[illegible]	[illegible]
24	K. Laxmi	Gangadhara	[illegible]	[illegible]
25	V. Sandhya	"	[illegible]	[illegible]
26	T. Ramesh	RWS&S Dept Karimnagar	RWS	—
26				
27				
28				
29				
30				

[signature] 11/7/14

APD

DRDA-IKP, Karimnagar

[signature] 11/7/14

SAMU

CMSA-SERP

Hyd.

Consultations in Rangareddy

Details of consultations workshop:
Date: 15th July 2014
Venue Training and Technology development Centre (TTDC) - *Mahila Pragathi Pranganam*
Time: 12-00 AM to 3-00 PM

Ms. K.P. Vijaya Lakshmi, DPM (CMSA) Rangareddy presided over the workshop, Mr. K. Ramachandram state consultant CMSA made presentation on EMF and Ms. Vanitha Kommu from WB also participated in deliberations.
The key aspects of the presentation include:

- Environment and safe guard policies of WB
- Background of TRIGP- project development objectives, project components
- Project location and importance of EMF, applicability of EMF to TRIGP
- Objectives of EMF and approach, structure
- Legal and regulatory frame work for TRIGP
- Livelihood and HD components and ICT partnerships
- Institutional arrangements and capacity building on EMF

Key Discussions:

- HD components are important and awareness programmes and pilots should be planned. However burden on VOs and SHGs should be reduced.
- Soakpits should be made mandatory in all houses and soakpits can be prepared through NREGS (option to be explored)
- Premium prices through green labeling and local marketing of fresh produce
- Livestock: local cattle breeds should be encouraged like DEONI, and ONGOLE and milk can be marketed at premium prices. Dung and urine can be used to prepare crop growth promoters and bio pesticides.
- Apart from promotion of environment friendly technologies and practices the project can also focus on reversing the degradation already happened.
- ICDS and Anganwadis should be provided with safe drinking water plants. Millets should be made part of diet
- Encourage high yielding varieties so that they can produce their own seed thereby reduce cost of cultivation on seeds. Kitchen gardens to be promoted in Anganwadis and Households.
- Planting of trees should be encouraged through social forestry.
- Capacity building to VOs and SHG level will improve EMF adoptions
- Adopt some villages and 10 to 15 farmers to implement sanitation and nutrition interventions initially which serve as demonstrations
- Enforcement mechanism should exist at village level to ensure environmental benefits from EMF

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List of participants:

Dt. 15/09/2014

ENVIRONMENT MANAGEMENT FRAME WORK (EMF) – work shop.

S.No	Name of the participant	Desig.	Department	Phone No.	Sign
1.	K.P. Vijayalakshmi.	DPM-CMSA	DRDA-IKP.	9849909324	[illegible]
2	Vanitha Kommu	WB	WB		Van[illegible]
3.	M. SRINIVASARAO	SPMU	CMSA		[illegible]
4	K. Kiran Kumar	APM, Krushi	DPMU	9849909366	[illegible]
5.	M. Surekha	DPM HW	DPMU	9849909332	[illegible]
6	K. Ramachandran	SPMU	CMSA. Hyd	9000440515	[illegible]
7	Md Abdul Tasleem	Sr Asst	WASCO	9885966170	[illegible]
8	Dr. V. Sairaju	APO (Dairy)	O/o PD, DRDA, RR.	9000282632	[illegible]
9	P. Srinivas Reddy	Director	Voice – NGO	8500432437	[illegible]
10.	Dr. M. Madhusudhan	AD (AH)	Animal Husbandry	8978901591	[illegible]
11	S. Manjula	ZSOB	MS President IKP	9701376330	S[illegible]
12	S. Sunitha	ZSOB	MS President IKP	9701376321	S. Sun[illegible]
13	K. LEENA	ADA	Agriculture		[illegible]
14	M. SUJATHA	ADA	Agriculture		[illegible]
15	Pavithra	ZS, NPM	DRDA (NPM)	9948929963	Pa[illegible]

Annexure 10:

Format for Environmental Appraisal of Value Chains:

Name of the Producer Group or Enterprise:

Village, Mandal, Disitrct:

Activity proposed:

Details of environmental Appraisal:

1. Screening done or not (Yes or No):

2. Any activity that falls under negative list, if yes required permissions are taken or planned to be taken, (or) the particular activity is dropped or changed: (give details)

3. Greening of Value chain happened or not (yes or no).

3.a. If yes give the details of environment guidelines integrated and support requested

Environment Issue indentified	**Environment Guidelines or mitigation measures integrated**	**Support requested.**

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Name and Signature of Appraiser: Date:

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Format for Environmental Appraisal of HD plans or Village Infrastructure Plans (VIPs):

Name of the VO:

Panchayat and Mandal:

Activities proposed under HD plan or VIP:

Details of environmental Appraisal:

1. Screening done or not (Yes or No):

2. Any activity that falls under negative list, if yes required permissions are taken or planned to be taken, (or) the particular activity is dropped or changed: (give details)

3. Environment Guidelines are integrated into the HD plan or not (yes or no).

3.a. If yes give the details of environment guidelines integrated and support requested

Activity	**Environment Issue indentified**	**Environment Guidelines or mitigation measures integrated**	**Support requested.**

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Name and Signature of Appraiser: Date:

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Annexure 11:

Terms of references for Technical Agencies, Experts.

1. Inputs for TOR for hiring Environment Expert at Project Management Unit (PMU) for Telangana Rural Inclusive Growth Project (TRIGP)

Introduction:
Society for Elimination of Rural Poverty (SERP), Proposes Telangana Rural Inclusive Growth Project (TRIGP) which aims at supporting the SERP's goal of making the State poverty free by 2017 strategy of including poor into benefits of economic growth and this is consistent with the India Country Strategy (CAS) FY 2009-2012 and aligned with the three CAS objectives of (a) achieving rapid, inclusive growth, (b) ensuring that development is sustainable, and (c) increasing the effectiveness of service delivery. The project is also consistent with approach for XII Five Year Plan for a 'faster, sustainable and more inclusive growth' and growth target of 8.2 percent. The overall strategy is to look beyond growth and focus on generation of employment to the millions of the youth in the State. This would eventually result in a faster reduction in unemployment and poverty through skill development and also help bridging multiple divides.[19] Finally, the project also supports the GoI's "Finance Plus" approach by investing in building community institutions that can foster higher order impacts, bringing various schemes together on to one synergistic platform (gender, nutrition, education and livelihoods), improving service delivery in a sustainable manner, innovations and pilot approaches, besides leveraging financing from public and private sources through convergence and partnerships.
The objective of TPRIGP is 'to enable selected poor households to diversify and enhance sources of income and secure increased access to human development services and social entitlements'.
This will be achieved by supporting Government of Telangana in consolidating the rural poverty reduction initiatives under previous IDA supported projects (Andhra Pradesh District Poverty Initiatives Project and Andhra Pradesh Rural Poverty Reduction Project) with an emphasis on inclusive growth and livelihoods sustainability.

A very brief description of the project components is given below:

Component 1: Value Chain Enhancement through Producer Organizations:
This component will work with small and marginal producers who have built up productive assets and have previously participated in productivity improvement and technology introduction programs. This component will have two sub-components viz. Rural Value Chains and Rural Retails Chains/Small Enterprises.

Component 2 - Human Development:

This component will invest in 'lifecycle approach' through targeted mobilization of poor households for achieving MDGs in health and education leveraging the existing community institutional network. This would include special packages for tribal areas in the State.

Component 3 - Access to entitlements:
Access to social safety nets and entitlements will be the core agenda in the strategy for inclusion of the poorest households. This component will invest in leveraging existing institutional platform to ensure

[19]Socio-Economic Survey 2011-2012; Department of Planning, Government of Andhra Pradesh, March 2012

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reliable and universal access to entitlements and public services (like food security, MNREGS, social pensions, scholarships, etc.).

Component 4: TA, ICT & Partnerships:
The objective of this component will be to improve the performance of project implementation and enhance coordination mechanisms with supply/demand side partner institutions by providing them technical assistance, strategic advisory and knowledge management services. The project will encourage productive partnerships to increase the integration of poor in performing and remunerative value chains.

Component 5 - Project Implementation Support:
The objective of this component is to strengthen the project implementation and will finance dedicated staffing for the project activities that are attributable to outcomes of the project, consultancies, training and related material, office equipment, and operational costs. It will also support establishing Monitoring, Evaluation and Learning (MEL) systems, Financial Management systems, Procurement Management, Governance and Accountability Systems, Knowledge Management and Communication, etc.

For more details on the project refer to the Project Implementation Plan (PIP).

Background Analysis:

The Environment Management Frame Work (EMF) for the TRIGP is an integral part of the implementation arrangements related to activities concerned with environmental implication. An Environment study was undertaken and an Environment Management Framework has been developed for the TRIGP to ensure that interventions of projects are environmentally sustainable and compliance with applicable laws and regulations of the Government of India, the Government of Andhra Pradesh and triggered safeguard policies of the World Bank.
The EMF is applicable to all components of the project in general and particularly to 'Value chain enhancement through producer organizations' and 'Human development components'as the activities proposed under these two components are likely to have a bearing on the surrounding environment.

The EMF implementation will be through the process of integration of environmental guidelines into the plans developed by the community under each component, Environment Appraisal of the plans developed for verifying the integration of environment guidelines and ensuring the implementation of specified guidelines and measures. An EMF manual and Environment Appraisal (EA) tools will be developed to screen the activities for any adverse impact on environment and to check the compliance with WB safeguard policies and legal and regulatory frame work of GOI and GOAP (erstwhile). Environmental Guidelines Suggests alternatives for mitigating potential risks and suggest negative list for both the component 1 and 2.

Monitoring (through green audits) for the compliance is very critical for smooth implementation of EMF and to enhance the income levels of the beneficiaries by exploring business opportunities for fair trade, clean development mechanism etc.

Scope of Job:
The Environment Expert will be positioned at State level and is expected to handle the overall implementation of all components of EMF across the state – this would include facilitation of staff at

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PMU and at district and cluster levels, technical agencies hired for specific purposes, ensuring smooth flow of capacity building programmes at state, district, cluster and village levels, and monitoring.

Objective:

- To provide required facilitation for implementation of EMF

Key Tasks and Responsibilities:

- Integrate EMF aspects into relevant project components and ensuring effective implementation. Coordination with relevant thematic heads for necessary liaison.
- Coordination with all PMU staff and district level staff on actions required on EMF implementation
- Identification and coordinating hiring of Technical agencies - for promoting green business opportunities, Capacity building and monitoring, Green standards and certification etc. and coordinating with the agencies for ensuring better and timely performance.
- Identifying partners for support on need basis and building partnerships at state and district levels. Exploring convergence opportunities with line departments and implementation.
- Providing any EMF related support to PMU, District units and technical agencies for smooth implementation
- To monitor the progress of EMF implementation through regular monitoring.
- Documentation of best practices in EMF implementation
- Any other that emerges based on the need.

Duration of assignment:
This assignment is for five years from the date of contract.

Reporting:
The agency will report to CEO, SERP and any thematic head assigned.

Eligibility:
The person should have an experience of 10 years in natural resource management for sustainable rural livelihoods. He or she should have both field and programme management experience. Should have working experience with community at least for 5 years. Experience of working with Government is desirable. The person should have a master's degree in the following fields: Agriculture, Horticulture, Forest Management, Natural Resource Management, Animal Husbandry and Fisheries, Social Work, Rural Development. Proficiency in English, Telugu and Hindi is required. Proficiency in computers is must.

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2. Inputs for TOR for ICT for Environment Management Framework (EMF) – To be included as part of ICT ToR by SERP

Functionality: Environment Management Framework

Coverage: Application for EMF is required for all value chains, retail outlets and human development components.

Outputs required:
A**.** Environment screening
B. Environment Appraisal
C. Tools for green certification
D. Tractability of the value chain products
E. Knowledge management for greening value chains and business management

Modules in the application:

Environment screening:
Check list for screening for any potential adverse impact on environment (legal and regulatory requirement). Application should support Farmer Producer Organisation (FPOs) or Producer Group leaders, Green Community Resource Persons (CRPs) to take a decision on whether they can invest in this activity.

Environment Appraisal:
Environment Appraisal (EA) tools to screen the activities for any adverse impact on environment and to check the compliance with WB safeguard policies and legal and regulatory frame work of GoI and GoTS. Environment Guidelines will also be given to identify potential risk and suggests alternatives for mitigating the risk. The agency is expected to develop simple EA tools (based on the content provided in EMF document) which can be used by community professionals and FPO leaders. Further these tools should be useful for internal monitoring & audits and for accessing carbon credits, premiums for fair trade/ethical farming, green business etc. so that the beneficiaries can accelerate their incomes.

Application will have multiple tools based on the value chain, retail chain, micro enterprise etc. This application should help the users in assessing the impact on environment and provide mitigation measures for the risk identified.

Tools for green certification:
Tools will be designed to assess the value chains against green standards. Tools should be user friendly so that the community professionals and FPO leaders will use these for internal monitoring (green audits).
Application will have multiple tools for quantification of greening of the value chain. This application will help in accessing premium through carbon trade, fair trade, ethical farming, green business opportunities etc.

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Traceability of the value chains:
This application should provide documental evidence for Green Business requirements. It also should provide details of the value chain like who are involved, process and technologies using in the value chains to the consumers. It will help in building the trust among the consumers.

Knowledge Management:
ICT tools such as Video films, IEC materials on EA tools, green business initiatives, green value chains etc to be provided in the public domain.

New device requirements:
Tablets are required at FPO level. (Green CRPs).

Analytics requirements:

Dash boards:

State level:
Green certification details
Status greening value chains
Internal audits and third party monitoring (seasonal) – Village, cluster levels
Capacity building programme details – State level, Cluster level, CP, FPO level

District level:
Green certification details
Status of greening value chains (Business Plans)
Internal monitoring – Village, cluster levels
Capacity building programme details - Cluster level, CP, FPO level

FPO level:
Green certification details by third party monitoring
Status of EA for value chains and other activities
Internal monitoring – PG level
Capacity Building Programmes – FPO level

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3. TOR for hiring Technical Agency for EMF implementation.

Introduction:
Society for Elimination of Rural Poverty (SERP), Proposes Telangana Rural Inclusive Growth Project (TRIGP) which aims at supporting the SERP's goal of making the State poverty free by 2017 strategy of including poor into benefits of economic growth and this is consistent with the India Country Strategy (CAS) FY 2009-2012 and aligned with the three CAS objectives of (a) achieving rapid, inclusive growth, (b) ensuring that development is sustainable, and (c) increasing the effectiveness of service delivery. The project is also consistent with approach for XII Five Year Plan for a 'faster, sustainable and more inclusive growth' and growth target of 8.2 percent. The overall strategy is to look beyond growth and focus on generation of employment to the millions of the youth in the State. This would eventually result in a faster reduction in unemployment and poverty through skill development and also help bridging multiple divides.[20] Finally, the project also supports the GoI's "Finance Plus" approach by investing in building community institutions that can foster higher order impacts, bringing various schemes together on to one synergistic platform (gender, nutrition, education and livelihoods), improving service delivery in a sustainable manner, innovations and pilot approaches, besides leveraging financing from public and private sources through convergence and partnerships.
The objective of TRIGP is 'to enable selected poor households to diversify and enhance sources of income and secure increased access to human development services and social entitlements'.
This will be achieved by supporting Government of Telangana in consolidating the rural poverty reduction initiatives under previous IDA supported projects (Andhra Pradesh District Poverty Initiatives Project and Andhra Pradesh Rural Poverty Reduction Project) with an emphasis on inclusive growth and livelihoods sustainability.

A very brief description of the project components is given below:

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This component will work with small and marginal producers who have built up productive assets and have previously participated in productivity improvement and technology introduction programs. This component will have two sub-components viz. Rural Value Chains and Rural Retails Chains/Small Enterprises.

Component 2 - Human Development:

This component will invest in 'lifecycle approach' through targeted mobilization of poor households for achieving MDGs in health and education leveraging the existing community institutional network. This would include special packages for tribal areas in the State.

Component 3 - Access to entitlements:
Access to social safety nets and entitlements will be the core agenda in the strategy for inclusion of the poorest households. This component will invest in leveraging existing institutional platform to ensure reliable and universal access to entitlements and public services (like food security, MNREGS, social pensions, scholarships, etc.).

[20] Socio-Economic Survey 2011-2012; Department of Planning, Government of Andhra Pradesh, March 2012

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Component 4: TA, ICT & Partnerships:
The objective of this component will be to improve the performance of project implementation and enhance coordination mechanisms with supply/demand side partner institutions by providing them technical assistance, strategic advisory and knowledge management services. The project will encourage productive partnerships to increase the integration of poor in performing and remunerative value chains.

Component 5 - Project Implementation Support:
The objective of this component is to strengthen the project implementation and will finance dedicated staffing for the project activities that are attributable to outcomes of the project, consultancies, training and related material, office equipment, and operational costs. It will also support establishing Monitoring, Evaluation and Learning (MEL) systems, Financial Management systems, Procurement Management, Governance and Accountability Systems, Knowledge Management and Communication, etc.

For more details on the project refer to Project Implementation Plan (PIP).

Background Analysis:

The Environment Management Frame Work (EMF) for the TRIGP is an integral part of the implementation arrangements related to activities concerned with environmental implication. An Environment study was undertaken and an Environment Management Framework has been developed for the TRIGP to ensure that interventions of projects are environmentally sustainable and compliance with applicable laws and regulations of the Government of India, the Government of Andhra Pradesh and triggered safeguard policies of the World Bank.

The EMF is applicable to all components of the project in general and particularly to 'Value chain enhancement through producer organizations' and 'Human development components'as the activities proposed under these two components are likely to have a bearing on the surrounding environment.

The objective of the project is to bring in numerous livelihood activities that would help the federations and the producer groups to increase their household incomes. Meanwhile it is very important to keep in mind that all the livelihood interventions by the federations and producer groups should be compliant with the laws and regulations of the country and the state i.e. the legal and regulatory frameworks based on Government of India and Government of Andhra Pradesh and Safeguard policies of World Bank. Compliance with these rules and regulations ensure alignment of these investments with sustainable management of resources. Also the environmental benefits accrued will bring in economic enhancement in terms of premium for the green production process and produce. Also the interventions under Human development component such as drinking water provision, nutrition and sanitation will have environmental implications. Integration environment sustainability measures into these interventions is required.

The EMF implementation will be through the process of integration of environmental guidelines into the plans developed by the community under each component, Environment Appraisal of the plans developed for verifying the integration of environment guidelines and ensuring the implementation of specified guidelines and measures. An EMF manual and Environment Appraisal (EA) tools will be developed to screen the activities for any adverse impact on environment and to check the compliance

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with WB safeguard policies and legal and regulatory frame work of GOI and GOAP (erstwhile). Environmental Guidelines Suggests alternatives for mitigating potential risks and suggest negative list for both the component 1 and 2.

Monitoring (through green audits) for the compliance is very critical for smooth implementation of EMF and to enhance the income levels of the beneficiaries by exploring business opportunities for fair trade, clean development mechanism etc.

Scope of Assignment:
The assignment is expected to develop EMF manual in local language, developing EA tools, Capacity Building modules for community and staff at different levels and IEC materials and video films on greening value chains and green business opportunities. It also includes conducting the capacity building programs and internal monitoring of the implementation of environment management frame work (EMF).

Objectives:

- Develop operational manual on EMF in local language
- EA tools and guidelines in local language,
- Information Education and Communication (IEC) material and Capacity Building (CB) modules for TRIGP functionaries, Green Community Professionals, Front Line Workers (FLW) of HD component. and Producer Groups
- To deliver the capacity building programmes at State and cluster levels
- To monitor the progress of EMF implementation through yearly internal audits.

Key Tasks and Responsibilities:

Developing EMF manual:
The technical support agency is expected to develop an operational manual on EMF in line with the framework developed for the project.
Environment Appraisal (EA) tools and Guidelines:
Environment Appraisal (EA) tools are to be developed for the list of activities (please refer to EMF document for details) proposed under Value chain and Human Development components to screen the activities for any adverse impact on environment and to check the compliance with WB safeguard policies and legal and regulatory frame work of GOI and GOTS. Environmental guidelines to Suggest alternatives for mitigating potential risks are to be part of the tools. The agency is expected to develop simple EA tools and Guidelines which can be used by community professionals and Farmer Producer Organisation (FPO) leaders. Further these tools should be useful as monitoring tools for accessing carbon credits, premiums for fair trade/ethical farming, green business etc. so that the beneficiaries can accelerate their incomes.
IEC material:
Agency is expected develop and print following IEC material to be placed in offices of FPOs, K marts or office of the enterprises, Village Organisations, and to be used by green Community resource person who are the community facilitators for implementation of EMF.

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- Booklets on value chains for all 10 commodities – Agriculture, Livestock and Knitting of Rural Self Help Enterprises (KRuSHE) enterprises and Marts (list of value chains and enterprises is provided in EMF document)
- Posters or calendars on environmental guidelines for various commodities (commodity wise posters) –10
- Posters or calendars on sustainable dairy, small ruminant, poultry fisheries management. - 4
- Posters or calendars in environmental aspects in farm based and nonfarm enterprises - 10.
- Posters or calendars on safe drinking Water - 2
- Posters or calendars on Sanitation -2

Capacity Building modules:

Capacity building modules are expected to cater the needs of capacity building of project teams at different levels, Spear Head teams (SHTs) who operate at cluster level, FPO leaders, micro entrepreneurs and Green Community Resource Persons & Front Level Workers under HD component . Capacity building modules should cover value chains (agriculture, livestock, micro enterprises) and thematic areas in Human Development component

1. Sustainable agriculture, Livestock management etc.
2. Environmental issues and in the selected value chains commodities
3. Impact of Climate Change on Rural livelihoods and Adaptation
4. Environmental issues in micro enterprises
5. Environment guidelines for safe drinking water, deflouridation and sanitation

Delivery of Capacity Building Programmes:

Agency is expected to provide intensive capacity building programs for various stake holders. SERP will support the agency in organizing capacity building programs in terms of mobilizing the target groups. The training would involve class room sessions and field visits. Capacity building program should include video films on Environment Appraisal.

The target groups and frequency of trainings is:

State level orientation for Project Management Unit: 1 orientation followed by refresher once every year.

State level staff (project teams): 1 main training and yearly refresher trainings for four years

Cluster level staff (project teams, selected Community Resource Persons, FLWs of HD component): 1 main training and yearly refresher trainings for four years.

Video films on Environment Assessment (EA) and green business opportunities:

Agency is expected to produce at least one video film on EA each value chain, micro enterprises, K marts and Human development component. Further the agency is expected to produce video films on green business opportunities which can accelerate incomes of the beneficiaries.

Internal monitoring (Green audits):

Agency is expected to do desk review of 10% of value chains per cluster and field visits to 10% of VPGs covering different commodities and preparing feedback report to FPOs and SERP. Exact sample could be finalized in discussion with PMU. Agency is expected to deliver monitoring reports (green audit reports) in such a way that FPOs should able to access carbon credits or premiums under fair trade, ethical trade etc.

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Identification, hiring and coordination of the third party agencies for Setting Green Standards and Green certification:

The Agency is expected to bring on board the expertise for setting green standards, and for conducting green audits by third party agency in order to ensure premiums through green labeling. The inputs for the ToRs with the technical agencies is attached with this ToR as *Annexe 1*.

Output and timeline:

Out put	**Expected time line**
Development and printing of EMF manual and booklets (local language)	First six months
Development of EA tools (local language) IEC material	First six months, Year 1
Capacity building Modules	First Six months
Capacity building programs for state teams	First six months
Capacity building programs for SHTs, FLWs /Project staff	First nine months
Development of video films on EA and green business opportunities	First 12 months
Refresher trainings	Yearly once
Monitoring	Once in every year from second year onwards
Setting Green standards with support from Techncial experts	Second year
Green audits and certification, green audits and green labeling involving third party agency	Year 2,3,4,5 (once every year)

Duration of assignment:

This assignment is for five years from the date of contract.

Reporting:

The agency will report to CEO, SERP and the thematic heads. Coordination point will be State Environment Expert

Eligibility Criteria:

- The agency should have proven experience (5-10 years) in context of environment and rural livelihoods. The agency should have experience in working with rural communities on natural resource management for sustainable livelihoods.
- Should have experience of working with Government.
- Should have presence/reach in all the districts.

Key Human Resource Requirements with profile:

A 3 member dedicated task team (including a team leader) is required. The team leader should have an experience of 10 years and the team members at least 5 years in natural resource management for

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sustainable livelihoods, water and sanitation. The team should have both field and programme management experience.

The team members should have a master's degree in the following fields: Agriculture, Horticulture, Forest Management, Natural Resource Management, Animal Husbandry and Fisheries, Social Work, Rural Development.

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Annexe 1:

- ***Inputs for TOR for hiring Technical Agency for Setting Green Standards for enabling Economic enhancement through green marketing.***

Scope of Assignment:

Setting standards for 'Green Rating' of the value chains (selected commodities in agriculture commodities, livestock and micro enterprises) and other components through life cycle approach especially in productivity enhancement - green initiatives like non pesticide management, sustainable agricultural practices etc. and in processing for energy efficiency, water use efficiency etc. SERP will extensively promote the environment friendly alternatives in the value chains through demonstration, trainings and implementation support. The package of interventions are outlined in the EMF document prepared by SERP and under Community Managed Sustainable Agriculture (CMSA) component. Suggesting any additional environmentally sustainable practices with specific to the value chains is also part of the assignment.

The standards for 'Green Rating' of the value chains, micro enterprises and other components should enable the Producer groups to access premiums through carbon trading, fair trade, ethical farming etc. Developing user friendly 'Green Rating' tools for rating which can be used by the project for internal audits will be part of the assignment.
The concept and green rating standards specific to each intervention (value chains) and the tools should be presented in the form of a user manual.

Objectives:

- Develop a set of standards for 'green rating' of the agriculture commodity, livestock and micro enterprises specified under the project. Developing green rating criteria for Human development component.
- Developing 'green rating' tools that can be used by field staff in rating the project interventions (after an orientation)
- Preparing a manual with standards and tools
- Exploring the options for tie up for premiums under carbon trading, fair trade, ethical farming, green labeling etc. and suggestion on marketing
- Providing inputs for developing a traceability mechanism for consumer confidence.

Key Tasks and Responsibilities:

Developing green standards:
The agency is expected develop standards for each value chain, retail chains and human development components which would make the produce, products and commodities so that they are eligible for accessing premiums under carbon credits, fair trade, ethical farming etc.

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Tools for green certification:
Agency is expected to develop simple but effective tools to assess the value chains against the preset green standards. Tools should be user friendly so that the field staff, community professionals and farmer Producer Group leaders will use these for internal monitoring.

Traceability mechanism:
Agency is expected to provide input support in developing software for tracing the produce to gain the trust of the consumers.

Support in the content for Capacity Building programme**:**
The Agency is expected to provide content support for capacity building the field staff and Community Resource Persons on green ratings and standards.

Output and timeline:

Out put	**Expected time line**
Setup green business standards	By month 6
Tools for green certification	By month 6
Capacity building content	6-8 months
Support for Traceability mechanism - ICT application	6-8 months

Duration of assignment:
Assignment is for a period of 8 months.

Reporting:
The agency will report to Team Leader, Environment Agency and the coordination point at SERP will be State Environment Expert.

Eligibility Criteria:

- The agency should have proven experience (5-10 years) in context of green certification, carbon trading, fair trade etc
- Should have experience of working with Government on Community related interventions, especially on sustainable agriculture and rural enterprises.
- Should have liaison or be able to liase with organic or green market groups
- Should have worked on traceability mechanisms

Key Human Resource Requirements with profile:
A five member dedicated task team (including a team leader) is required. The team leader should have an experience of 10 years and the team members at least 5 years in green certification.

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- ***Inputs for TOR for hiring Technical Agency for conducting Green Audits and Certification for enabling Economic enhancement through green marketing.***

Scope of Assignment:

Conducting Environment Audits or Green Audits of the value chains and other components once every year against the pre set green standards using the green rating tools prepared. The audits should follow life cycle approach especially covering productivity enhancement (green initiatives like non pesticide management, sustainable agricultural practices etc.) and processing (energy efficiency, water use efficiency etc.) and storage and transport. Followed by every green audit the qualifying value chain commodities and producer groups should be certified for linking with green market. The green rating and certification also should have feedback mechanism integrated into it.

Rating of the value chains, micro enterprises and other components should enable the Producer Groups to access premiums through carbon trading, fair trade, ethical farming etc .The agency should be able to link the certified products with the existing green markets within and Outside India.

Objectives:

- Conducting Green Audits and green ratings for all the value chains once every year or cycle (or crop season which ever may be relevant)
- Third party certification for the green initiatives - produce, products etc.
- Providing commodity wise or Producer group wise reports
- Exploring the options and tie ups for premiums under carbon trading, fair trade, ethical farming, green labeling etc. and suggestion on marketing
- Providing inputs for developing a traceability mechanism for consumer confidence.

Key Tasks and Responsibilities:

Green Audits and certification:
Agency should do regular "green auditing 'to all the value chains (on sampling basis) and other components at yearly intervals or once in crop seasons whichever is relevant. Qualified Groups should be provided with certification to enable the beneficiaries to access premiums through carbon trading, fair trade, green business opportunities etc. Commodity wise reports should be provided at end of every year or season.

Support in accessing premiums:
Followed by certification the agency is expected to support the Producer Groups to liase with the green markets to accessing premiums.

Traceability mechanism:
Agency is expected to support in develop software for tracing the produce to gain the trust of the consumers.

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Feedback:
After every green audit the agency should provide detailed feedback reports. Should also provide suggestions and content support on further capacity building in cases where required.

Output and timeline:

Out put	**Expected time line**
Green audit, certification, support in traceability mechanism and market links. Detailed feedback report.	Year 2
Green audit, certification, support in traceability mechanism and market links. Detailed feedback report.	Year 3
Green audit, certification, support in traceability mechanism and market links. Detailed feedback report.	Year 4
Green audit, certification, support in traceability mechanism and market links. Detailed feedback report.	Year 5

Duration of assignment:
Assignment is for a period of 4 years.

Reporting:
The agency will report to Team Leader, Environment Agency and the coordination point at SERP will be State Environment Expert.

Eligibility Criteria:

- The agency should have proven record (5-10 years) in context of green audits, certification, carbon trading, fair trade etc
- Should have experience of working with Government on Community related interventions, especially on sustainable agriculture and rural enterprises.
- Should have liaison or be able to liaise with organic or green market groups
- Should have worked on traceability mechanisms

Key Human Resource Requirements with profile:
A five member dedicated task team (including a team leader) is required. The team leader should have an experience of 10 years and the team members at least 5 years in green audits, certification and green marketing.

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