



Jeevani Project

A Mitigation Proposal for Revitalizing

AGRICULTURE IN KERALA

In the Background of COVID 19

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in the background of COVID-19

1. INTRODUCTION

The Covid 19 pandemic is a global crisis seriously affecting the food and agricultural sector. The United Nations has [warned](#) that the Covid-19 crisis could trigger “food shortages” around the world. The World Food programme (WFP) has [noted](#) that the Covid-19 crisis is “threatening to affect millions of people already made vulnerable by food insecurity and malnutrition.” Small and marginal farmers will be badly affected if they are unable to continue working on their land, produce commodities remunerative product prices, and gain access to markets.

Prompt measures ensuring enhanced food supply by cultivating adequate food crops and maintaining uninterrupted food supply chains are of paramount importance for Kerala State.

COVID 19 will result in reverse migration of non-resident keralites to a great extent. Maintaining food security both at household and intra-household levels will be challenging. The presence of additional members in the household without income and contribution to food production could worsen the nutritional security of households in both short and long term. This may have a gender dimension too, as women could become further marginalised. But this trend also has a positive side. Reverse migration due to COVID-19 especially from the Gulf Countries provides an opportunity for us to engage them in gainful employment, and one of the viable short-term options is to leverage the potential of agriculture. The labour force due to the reverse migration can be involved in creation and revamping of the farm rural infrastructure. Further, the increased labour input will result in increased factor share of labour in the agricultural sector thereby enhancing production

Economists have delineated agriculture's major role of agriculture in economic development, broadly in terms of contributions like products, markets, factors and foreign exchange. Product indicates supply of both the goods like foods and several raw materials for the industrial sector, while absorbing labour.

COVID-19 could reinvent the importance of the agriculture sector as the one on which our human resource can fall upon at a time of crisis. Reviving this sector will be the key in the post-COVID-19 phase of the reviving State economy.

Kerala is endowed with unique and diverse agro-climatic specialities, which enable it to cultivate a wide variety of crops. In the earlier days agricultural land utilisation was according to the agronomic conditions of land and food crops occupied a major part of cultivated land. There has been a gradual shift from the food crops to cash crops and at present the cropping pattern in Kerala is dominated by cash crops. Food crops comprising rice, tapioca and pulses account for just 10.12 per cent of the total cropped area. Moreover an area of 1.09 lakh hectares of land is kept as fallow.

With the COVID-19 pandemic threatening the availability of food supplies in the long term, the State Government is pushing for modern farming techniques and practices to maximise produce to reduce our dependence on other states. Large scale interventions are needed to increase the output of food grains, fruits and vegetables. The State needs to be self-sufficient in production of food grains and in the cultivation of fruits and vegetables so as to be prepared for any eventuality in the future.

Realising all the factors mentioned above, Government of Kerala proposes to focus on increased food production by enhancing the area under cultivation and adopting innovative technologies. An integrated project comprising fallow land cultivation, Homestead cultivation, crop improvement activities for the existing cultivation, improved market facilities and interventions in the post-harvest management is also proposed. In order to sustain this, long term interventions are also included in the project.

The proposal is in line with the focus of the Government of India on increased focus on nutritional (besides food)-security and raising farmers' income and strengthening supply chain and related marketing activities.

2. PROBLEMS TO BE ADDRESSED

Kerala is currently dependent on other states for its supply of food grains, fruits and vegetables. The COVID-19 pandemic affected the agricultural sector in many ways: shortage of manpower and machinery due to disruption of supply chain and restriction on its movement, lowering of prices of the produce due to demand variation, and increased sense of insecurity among farmers. The State has to ensure supplies of food grains and vegetables on a long term basis.

Kerala state has a total cropped area of 26, 24,624 ha of which more than 85% of the area is covered under perennial crops and only 15% of the area is utilised for food crops as mentioned earlier. It is estimated that there is 1, 09,278 ha of fallow lands available in the State of which 41,626 ha is current fallow. This offers the opportunity for full utilisation to boost domestic production.

Farming is to be started on all fallow lands of the state. Farm Mechanization should be improved and youngsters should be encouraged to take up farming. The state needs to adopt modern farming techniques and practices to maximise the production from the available limited area. Rice cultivation in the State needs to be increased by 25,000 ha in the next two years. More cereals, tuber crops, and plantains / bananas especially culinary varieties should be produced through area expansion programmes. AS the size of operational holding size is low, therefore, homestead cultivation has a wide scope in urban areas. It is proposed to give assistance to existing cultivation to encourage crop improvement activities by farmers.

Harvesting and Marketing crops at farm level is in crisis across the country due to disruption in procurement of food grains and collection of produce from farms by private traders. There is a shortage of workers to harvest and transport agricultural produce and the markets are either closed or have limited operations. So there is a need for a good marketing strategy throughout the state.

These problems also need to be addressed and synchronised with the national efforts of electronic trading (e NAM) and direct payment to farmers. More farmers markets are to be encouraged to be linked to e NAM platform which has been opened as a new module by government of India during this COVID -19 crisis. Similarly different stakeholders may use the Kisan Rath app developed by NIC of the Ministry of Agriculture for movement of agriculture produce.

3. AIMS & OBJECTIVES

Jeevani Sanjeevani project aims to attain self-sufficiency in food which includes the following objectives:

- To increase the production of essential food crops for meeting the challenges in food security posed by the COVID-19 crisis.
- To bring maximum available fallow land area under food crops for enhancing food production.
- To ensure local food security by strengthening the supply chain in case of prolonged lock down due to Covid-19 crisis.
- To provide support to farmers for taking up farming and ensuring sustained income
- To engage local productive and young manpower resources in farming for mitigating the impacts of Covid19.
- To focus and invest in agriculture as the primary economic revival activity.
- To improve the efficiency of the existing extension system.
- To ensure better income to the farmers through post-harvest management (reduction in post-harvest losses) and value addition
- To support farm labourers in their livelihood by providing immediate employment opportunities through Integrated Farming system approach
- To promote organic farming, GAP& Supply of safe-to-eat agricultural produce to the public.

4. STRATEGY

Wide publicity and people's participation are needed to successfully implement this project. The strategic interventions needed for the implementation of the project are stated as follows:

4.1 Assessment of Fallow Land for Crop Cultivation.

The first and foremost critical factor for implementation of this project is to identify and map the fallow land available at LSG level for immediate cultivation.

Fallow lands include the revenue land along the sides of rivers, ponds and Government institutions apart from the land kept fallow by the owners of the land for various reasons. The Agriculture Department will assess the fallow land readily available for cultivation in coordination with Local Self Governments and map them.

The estimated area under current fallow in Kerala is 41,626 ha. The entire fallow land should be brought under cultivation in a phased manner. Private lands should be brought under cultivation by the owners themselves or they should be made willing to give it for cultivation on temporary lease. The private landowners may be unwilling to hand over the land for cultivation to others who are willing to cultivate due to fear of losing the ownership in due course. Assurance shall be given to the private owners by the LSGD that this is purely a temporary arrangement for cultivation and the ownership will not be affected by any means. A tripartite agreement can be executed among the Panchayat concerned, owner of the land and the cultivator, in a specified format.

To make these efforts to sustain in the long term, sharing of income between the cultivator/farmer owner of land and so that fruit bearing trees and other crops can be taken up which may involve a period of 5-10 years to get returns and profits. The Local Self Government shall take a necessary proactive role in

identifying prospective farm land under them or under the revenue department for undertaking fallow land cultivation with the active involvement of elected members, NGOs along with the department officials on a mission mode.

As these are fallow land, there may not be any soil health card for these lands. It is essential to know the nutritional status of these lands before the start of the cultivation. The Agriculture department and the Soil Conservation department has to take soil samples proactively of the selected land for cultivation and share their recommendations. If necessary, KAU may also be involved in the process.

4.2. Ensuring Institutional Support and Integration with Local Self Government and other allied Departments

The implementation of the project shall be by the Department of Agriculture through its Krishi Bhavans. An active role of local bodies is a must and an integral part in the smooth implementation of this programme. Hence, proper coordination between the Department of Agriculture and LSGD shall be ensured.

Coordination with other State/ National Agencies such as KAU and its research stations, CTCRI, VFPC, HORTICORP, and KUDUMBASREE etc. shall also be established at the grass root level.

4.3 Massive Campaign for Participation in Fallow Land Cultivation

Fallow land cultivation requires a great extent of people's participation in order to make available sufficient land for cultivation and for undertaking the farming activities.

A massive State-wide campaign will be launched jointly by the Department of Agriculture and LSGD. Support from Print, Audio, Visual and Social media shall be ensured to establish maximum reach out for the programme. Apart from voluntary service by farmer groups / agencies, there is ample scope for utilizing the labour force of the Mahatma Gandhi National Employment Rural Guarantee Scheme with help of Panchayat. Migrant workforce from other States can also be used wherever possible. Agricultural machineries of ASC, KKS, custom hiring centres, KSAMM also can be used, which will help in reduction in cost of cultivation and time consumption.

4.4 Selection of Crops

Crops and varieties suited for each Agro ecological unit (AEU) may be selected as per local requirement and marketability in accordance with the KAU's recommendations. The crops suggested for fallow land cultivation includes Paddy, Vegetables, Tubers, Fruit plants (mainly banana), Pulses, and Millets. For homestead cultivation, the crops proposed are vegetables (including terrace cultivation) and tuber crops. Crop improvement programmes mainly focus on Paddy, Vegetables, fruits and intercrops in garden lands to maximise the production.

4.5 Selection of Farmers and Agencies

Fallow land cultivation could be implemented successfully by establishing a wide network of stakeholder agencies and farmers. The massive campaign for farming for food security and economic revival is expected to attract many agencies. The project also aims to attract youth and NRI people to Agriculture.

The department has an aadhar based individual farmer registration facility integrated in the Agriculture Information Management System (AIMS) developed by NIC Kerala. The system was developed for providing assistance for Natural calamity. Now a separate registration module has been developed for capturing details of other groups including institutional cultivators which is under testing. This module accepts own land as well as the leased land details. It is proposed to utilise this software for the entire activities of the programme for effective monitoring and release of assistance by the Agriculture department. Release of assistance by other departments can be collected in the system through the message exchange so as to get a full picture about the project. It is also proposed to collect the data of production of the system through the Krishi Bhawans which would help in strengthening evidence based policy.

As such, each local body can identify the participants from among the broad stakeholder network as follows:

- A. Individual Farmers (Land Owners & farmers cultivated in others land)
- B. Youth and other innovative farmers

- C. NRKs returned as part of reverse migration.
- D. Agro Service Centre / Karshika Karma Sena under Agricultural department.
- E. Other Farmer Groups / Samithies under Krishi Bhavans
- F. Registered Farmer Producer Organizations (FPO)
- G. Primary Agricultural Cooperative Societies (PACs)
- H. Kudumbasree Units
- I. Youth Clubs / Similar Associations
- J. Social Organizations/NGOs
- K. Farmer Interest Groups with a minimum of 5 progressive farmers.(JLG groups)
- L. Self Help Groups (SHGs)
- M. Other Suitable Agencies functioning in the Local Body

4.6 Organization and Project Support

The responsibility of organizing and executing the project shall be vested with the Agricultural Officer of the local body concerned. Farm plans and maps should be prepared for each panchayats based on their requirements by considering the recommendations of KAU.

Agricultural officers shall rework the projects of LSGD based on the farm plan prepared for their panchayat with the concurrence of local self-Governments, and execution of projects with proper time frame prepared as per farm plan.

The Assistant Directors of Agriculture and Principal Agricultural Officers shall monitor the organization and the project execution at block and district levels respectively.

4.6 (a) Technical Support for production

For successful cultivation technical guidance in production and farm operations etc. is highly essential. **Krishipadasala** will be conducted through all krishi bhavans by having a registering facility for 2 days . The Technical Officers of the Krishibhavans will be responsible for giving timely technical guidance to farmers throughout the cropping period. Expertise of KAU, KVK can also be utilized. Training to the beneficiaries can be arranged by converging the various Department schemes including ATMA.

(b). Project Assistance

Under this project, eligible farmers / interest groups will be providing financial assistance for successfully undertaking the farming activities as per standard existing norms. The Agriculture Department has established these standard norms based on the actual cost of cultivation of the crops selected. The amount would be provided through DBT in two instalments.

(C). Ensuring Seeds and Inputs

Suitable machinery and implements are required for making fallow land fit for the cultivation. The inputs such as seeds and planting materials, manures and fertilizers as well as pesticides (need based) should be ensured for the successful cultivation of the fallow land. Farm mechanization is an important item of input for fallow land cultivation. Agro service centres and Karshika Karmasena's MGMNRGS, shall be involved in farming operations.

Quality Seeds and Planting materials can be procured from various sources such as farmers, department farms, KAU, CTCRI, VFPC and such other agencies and also through farmer-to-farmer exchange.

(d). Ensuring Credit

In order to initiate cultivation in fallow land, rather huge investment is required for land preparation and hence the cost of cultivation of the crops in the fallow land will be higher than that of normal crops.

Credit facilities may therefore be required for the fallow land cultivators. The primary cooperatives can play a major role to extend credit facilities to the needy fallow land cultivators / agencies. As the cultivators may not be having the ownership of the land in most cases, special directions may be issued from the Government to make available the credit facilities to the fallow land cultivators. KCC can be issued to the farmers and subsidy will be credited to this account.

NABARD has provided Rs 2500 cr credit facility to Kerala which is 10% of the total credit facility for COVID-19 at national level. This credit would be available through State Cooperative Bank and Regional Rural Banks. There is a need to utilise this credit facility effectively. Credit up to Rs 1.6 lakh is available without collateral security documentation. Farmers with KCC would be eligible to get interest subvention from the Government of India. Therefore, in case of timely repayment, farmers would be able to get credit @4%. Therefore it may be considered to pay the govt assistance amount through the KCC account.

(E). Risk Coverage on Crop Loss

Crop failure due to various reasons is common in agriculture such as occurrence of natural calamities, outbreak of pests and diseases etc. So the crops intended for commercial cultivation must be insured in the State crop insurance scheme/PMFBY scheme by farmers themselves as per the scheme guidelines. This may be made a mandatory condition to avail the benefit of the scheme.

5. ACTIVITIES PROPOSED

Main activities proposed in this project includes

5.1 FALLOW LAND CULTIVATION

Under this project, it is proposed to focus on fallow land cultivation of **Paddy, Vegetables, and Fruit plants (Banana), Tubers, Pulses, and Millets**

(A). Paddy: Rice has a prominent place in the daily life of Keralite, both as a staple food and as a component of rituals. Overcoming the onslaught of misleading information regarding the 'negative' aspects of rice consumption on health, it still forms a major part of the average Keralite diet. However, the area under rice has been declining consistently over the last three decades. Various factors like high cost of cultivation, high labour charge, labour shortage, low yield, and invasion of cash crops and conversion of land for non-agricultural purposes contributed to this decline in the area. It may simultaneously be noted that after a period of continuous decline, the area under rice has shown an increase in previous years with a marginal increase in productivity. This upward trend can be attributed to focused interventions through State Plan Schemes, LSGD Schemes and Central Sector Schemes like Rashtriya Krishi Vikas Yojana (RKVY) and introduction of paddy procurement in all districts. **In this project it is proposed to bring 5000 ha of fallow land under paddy cultivation with financial assistance @ Rs.40000/ Ha.**

(B). Vegetables: Vegetables play a significant role in our nutrition, especially as a source of vitamins, minerals and trace elements apart from being the major supplier of dietary fibre. Despite the climatic advantages, Kerala is still a consumer state with dependence on neighbouring States. However, there is no other crop which has attained much importance in farming priority than vegetables in the State. This is due to the social awareness created by the Agriculture Department on the ill effects of the vegetable supplied from other States with suspected high residue of toxic pesticides. The massive programmes launched by the Government under JEEVANI have not only helped in enhancing vegetable production but also in bringing the public fold back to the spirit and culture of farming. Despite all these Kerala is still short of its annual requirement on vegetables. The State needs 20.00 Lakh MT of vegetables every year while the production during the last financial year

was 14.72 lakh MT only which indicates that we can attain self-sufficiency with more combined effort. Vegetables indigenous varieties such as Amaranths, Bhindi, Brinjal, Tomato, Chillies, Pumpkin, Ash Gourd, Snake Gourd, Bitter Gourd, Cucumber, Cowpea etc. are suitable for cultivating across the State, where as cool season vegetables such as Carrot, Cabbage, Cauliflower etc. are suitable for high altitude regions. In this project it is **proposed to undertake fallow vegetable cultivation in 7000 ha with assistance@Rs.40000/Ha.**

(C). Fruit plants (Banana): Banana is one of the oldest and most popular fruit crops in Kerala. In our State, there are about 50 cultivars of Banana, making it one of the most important ingredients of [Kerala Food](#). Different varieties of banana grown in Kerala are Palayam kodan, Annaan, Kappa Pazham, Nendran Morris, Rasakadali and Red banana. The Nendran Banana is Kerala's most famous variety. Red banana or Chenkadali are known for its softer and sweeter taste, commonly available in markets. There is also widespread preference for Rasakadali. Banana cultivation can be successfully undertaken in the fallow lands throughout the State under varying climatic conditions. **It is proposed for 7000 ha of fallow land cultivation of banana, with assistance @Rest. 40000/Ha.**

(D). Tuber Crops: Tubers, earlier called 'beggarman's food' now decorate the food tables of the elite. It continues to be the major crop contributing significantly to human and animal food in our state. They can meet our carbohydrate requirement to a great extent. They are adapted to broad agro ecological conditions and yield reasonably well under marginal environments. Kerala is well suited for its cultivation. It is worth mentioning that the tuber crops have a glorious past in our State due to its role in saving thousands of lives during the times of famine. Tapioca, Amorphophallus, Colocasia, Greater Yam, Lesser Yam, White Yam, Sweet Potato, Coleus etc. are much suited for varying climatic conditions across the State. **It is proposed for 5000 ha of fallow land cultivation with Tuber crops Assistance proposed is @30000/Ha.**

(E). Pulses: Pulses are very high in protein and fibre, and are low in fat. Pulses are part of a healthy, balanced diet and have been shown to have an important role in preventing illnesses Pulses are nitrogen-fixing crops that improve the

environmental sustainability of annual cropping systems. Pulses suitable for our State include black gram, horse gram, red gram, Green Gram and cowpea. Black gram may be grown as pure crop in rice fallows after the harvest of the first or second crop of paddy it can also be grown as pure or mixed crop during kharif season. Green gram is grown as a pure crop in rice fallows after the harvest of the first or second crop of paddy. It can also be grown as a mixed crop with tapioca, colocasia, yam, and banana or as an intercrop in coconut gardens. Horse gram can be grown in uplands during Rabi season. Cowpea can be grown throughout the year under Kerala conditions. It can be grown as a floor crop in coconut gardens and as an intercrop in tapioca during May-Sept. It can be grown as a pure crop in single-crop and double-crop rice fallows during Rabi and summer seasons. Cowpea can be grown in garden lands throughout the year and in kole lands of Thrissur district during summer where rice crops cannot be raised due to water scarcity. . **It is proposed for 500 ha of fallow land cultivation with Pulse crops Assistance proposed is @30000/Ha.**

(F). Millets: As the State faces acute food shortage and produces less than 20% of its food requirement especially rice, traditional millets are gaining importance. Millets can be used as staple food like cereals. They can be consumed as porridge, snacks, and other types of bread. Millet is a good source of carbohydrates and fibre, like other grains. It is also a good source of nutrients, vitamins, minerals, and organic compounds that can boost human health in various ways which is why they are often referred to as Nutraceuticals. Furthermore, there contain high levels of dietary fibre, which contribute even more to our health. Nowadays the demand for millet is increasing among the public.

Among the main millets grown in Kerala, Maize can be grown throughout the year at altitude ranging from sea level to about 300 m. As a rainfed crop, maize is grown in June-July or August-September. Ragi is not a season bound crop and hence can be cultivated throughout the year, if moisture is available. It is usually grown during June-September, July-October and Dec-Jan to March-April. Sorghum is a plant of hot and warm localities and is fairly tolerant to alkalinity and salinity. It

can be grown as a Rainfed crop during May-August and as Irrigated crop during January-April.

At present in Kerala the main areas of millet cultivation are Attappady in Palakkad district and Thayannamkudy in Idukki district. Through this project the area of cultivation of millets can be expanded.

It is proposed for 500 ha of fallow land cultivation with millets with financial assistance proposed is @30000/Ha

Table giving the details of Fallow land cultivation

Amount in lakhs

Sl.No.	Crop	Area (Ha.)	Rate of assistance	Total amount required	Convergence With Debt. schemes	Convergence with panchayat fund
1	Paddy	5000	0.40	2000	1000	1000
2	Vegetables	7000	0.40	2800	1400	1400
3	Fruit plants	7000	0.40	2800	1400	1400
4	Tubers	5000	0.30	1500	750	750
5	Pulses	500	0.30	150	75	75
6	Millets	500	0.30	150	75	75
	Total	25000		9400	4700	4700

5.2. HOMESTEAD CULTIVATION

The homestead is an operational farm unit in which a number of crops (including tree crops) are grown, along with rearing of livestock, poultry or fish, mainly for the purpose of meeting the basic needs of the farm family. Kerala is the

home for homestead farming wherein a farmer cultivates an array of crops including coconut for his household needs ensuring economic and nutritional sustainability. Homestead farming satisfies the requirements of sustainability by being productive, ecologically sound, stable, economically viable, and socially acceptable. In this project the crops proposed for homestead cultivation are vegetables and tubers crops.

(A). Vegetable cultivation in homesteads

The components of **vegetable cultivation in homesteads** includes distribution of seeds, seedlings and grow bag cultivation.

The project aims to promote homestead cultivation through distribution of 75 lakh no of vegetable seed kits and 5 lakh no of seedlings

It is also proposed to provide assistance for popularising vegetable cultivation in urban areas, in terraces as well as homesteads. This component will be implemented through residence associations. For terrace vegetable gardens 25 nos. grow bags (1 unit) planted with seedlings of 4-6 major indigenous vegetable crops, worth Rs. 2000/-, will be supplied in a need based manner allowing 75% subsidy i.e., subsidy of Rs.1500/- per unit. It is proposed to supply 1.5 lakh such units. The grow bag should contain vegetables, seedlings of tomato, chillies, brinjal, cabbage, cauliflower etc. along with seeds of cowpea, amaranthus or other varieties. Supply of seedlings of cool season vegetables like cabbage and cauliflower, if any, should be done in the appropriate season.

(b). Tuber crops in homesteads

To promote homestead cultivation of **Tuber crops** it is proposed to distribute 15.3 lakhs of tuber seed kits containing tapioca stem 2 nos & sweet potato vines for 2cents @Rs. 200/kit.

(c). Integrated Farming System

The Scheme approved under RKI (50 Crores) for the implementation of IFS can be converged with the Animal husbandry department schemes for income generation with support of Cooperative department

Amount in lakhs

Crop	Component	No.(Lakh)	Amount	Dept. schemes	Municipality Schemes	Corporation schemes	Panchayat schemes
Vegetable	Seed kit @Rs10/	75	750	250			500
	Seedlings @Rs2.5/	5	12.5	12.5			
	Grow bag units @Rs 2000/ unit with fin. Assistance of rs 1500/ unit	1.5	2250	150	450	900	750
Tuber	Tuber seed kit for 2cents @Rs.200/kit	15.3	3060		60		3000
IFS	Integrated farming system	0.14	5000	5000			
Total			11072.5	5412.5	510	900	4250

5.3. CROP IMPROVEMENT

Financial assistance to farmers for better management of existing crops helps in crop improvement and better production. Project proposes input

assistance to paddy for 2.5 lakh Ha @Rs.5500/ha, vegetables area expansion of 1.25 lakh hectares @Rs. 15000/Ha. For Area expansion of fruit plants it is proposed to distribute one crore fruit plants throughout Kerala. An amount of Rs.44 crores is the projected requirement.

Amount in Lakhs

Crop	Component	Area (Ha.)	Rate of assistance	Total requirement	Dept. schemes	Panchayat schemes
Paddy	Input assistance	250000	0.055	13750	3500	10250
Vegetables	Area Expansion	125000	0.15	18750	3900	14850
Garden lands	Inter cropping	100000	0.10	10000	520	9480
Fruit plants	One crore fruit plants			4400	2900	1500
Total		475000		46900	10820	36080

5.4. Long term requirements

Infrastructure improvement for fallow land cultivation

It is proposed to facilitate improvement of basic infrastructure for making fallow land suitable for paddy and vegetable cultivation. Areas of 10000ha each are proposed for improvement. Total Assistance proposed is Rs 400.00/cores for paddy cultivation and Rs100.00 crores for vegetables. RIDF/RKI/LSGD funds are proposed as sources of funds.

In garden lands, to improve irrigation for facilitating intercropping, assistance @ Rs25000/- per unit for 2000 units of **wells and pump sets as per the existing**. RIDF/RKI/LSGD funds are proposed as sources of funds.

5.5. Community irrigation projects 28 no.s for facilitating intercropping are also proposed with a total outlay of Rs84 crores. RIDF/RKI/LSGD funds are proposed as sources of funds

Amount in Crores

Sl. No.	Type	Component	Crop	Area '000 Ha.)	Total requirement	RIDF/RKI Agriculture	RIDF/RKI irrigation	Block panc hayat
1	Wet land	Irrigation infrastructure	Paddy	30	400	150	250	
			Vegetable	10	100	50	50	
2	Garden lands	Well & pump set @Rs 0.25 lakh/unit	Intercropping	20 no.s	50			50
		Community irrigation	Intercropping	28 no.s	400		8400	
Total					634	200	384	50

6. INTERVENTION IN MARKETING

The agriculture produce obtained from the cultivation should get a reasonable price for which the procurement and marketing facilities of farm produce should be ensured. Marketing support shall also be provided through Agricultural wholesale markets & District procurement centres, Block Level Federated Markets, Eco shops and Weekly Markets under the Department of Agriculture. The services

of the agencies like HORTICORP and other Government marketing/Primary Agriculture Co-operative societies (PACS) will be utilized. HORTICORP shall be the nodal agency for procurement of produce. **Gramachandhas (weekly markets) can be established on a permanent basis to facilitate local marketing.** Funds under the Market Intervention Scheme of the Department of Agriculture shall be utilized for procurement activities.

6.1. ESTABLISHMENT OF JEEVANI SANJEEVANI GRAMACHANDHA

Grama chandhas (weekly markets) can be established by Co-operative banks/KUDUMBASREE/ ASC/KKS/VFPCK in selected areas is proposed the state with credit support and convergence with LSGD projects.

6.2. Strengthening KKS/Eco shops /Weekly markets

Establishment of District level apex body of markets are proposed as part of the project.

Amount in Lakhs

Component	Unit cost	Total required	Dept. schemes	Panchayat Schemes	PACB	RKI
Infrastructure	1	1000		1000		
Equipment's & accessories	0.40	400	400			
Credit support	3	3000			3000	
Strengthening/Eco shops/WeeklyMkts 1000 nos	2	2000		2000		
District level Apex body	15	210				210
Total		6610	400	3000	3000	210

7. INTERVENTION IN POST HARVEST MANAGEMENT

Disruption in the food supply chain due to blockage of transport in present condition results in increased levels of food loss and waste, especially in case of perishable products like vegetables. The closure of restaurants and street food outlets removes a key market for many producers and processors which may result in glut or trigger upstream production. Urban supply and demand for fresh produce are both in decline due to restrictions and aversion behaviour by traders and consumers. Accordingly, it is imperative that measures for procurement of food grains with minimum support price are to be encouraged. Primary processing units and cold storage facilities are also to be established. HortiCorp has a vital role to play in this matter. Harvesting and marketing of agricultural produce at farm level is in crisis across the country. The Procurement of food grains, collection of harvest from the farms, shortage of workers to harvest crops, hurdles in the movement of agricultural commodities and shut down in retail agricultural markets are causing a crisis in the state.

7.1 PACK HOUSE

The objective of pack house is to encourage quality of horticultural produce with quarantine safety. The pack house development is done as per the requirement for material handling, holding, pre-inspection, sorting, grading, washing, standard treatment, packaging, stacking, pre-coling, cold storage, quarantine check etc., encouragement to backward linkages, maintain in the traceability. It is proposed to establish 140 no of pack houses in (one in each LA constituency) through cooperative departments/SKS of VFPC with their own lands or panchayat lands having a minimum of 50 cents, with the technical support from KAU and other technical institutions. **The design and cost estimates would be as per the MIDH norms.**

7.2 REFRIGERATED TRANSPORT VEHICLE

The agricultural products especially cool season vegetables require refrigerated transport system, since it is perishable

Assistance for purchase 14 no of Refrigerated Transport vehicles is proposed through LSGD funding.

7.3 ONLINE MARKETING

Online marketing is a set of tools and methodologies used for promoting products and services through the internet. Online marketing includes a wider range of marketing elements than traditional business marketing due to the extra channels and marketing mechanisms available on the internet. There is more scope for online marketing in the situation of COVID -19, since it regulates social distancing by making available products at the doorstep of the consumer. Assistance for online marketing including infrastructure & operational support is also included in the project.

Setting up of Collection centres at appropriate locations would help in collection of fresh vegetables, segregation and marketing. Collection centres can act as packaging from where the e-commerce companies can pick up for delivery to consumers or it can be linked to the nearby supermarkets for sale.

(Rs in lakhs)

Component	Numbers	Unit cost	Total cost	Source of fund
Integrated pack house	140	50	7000	RIDF/RKI through cooperative Dept.
Refrigerated transport vehicle	14	26	364	District panchayat
Online marketing including infrastructure & operational support	14	10	140	District panchayat
Total			7504	

8 .ROLE OF DIFFERENT STAKEHOLDERS

Role and responsibilities of different stakeholders to be involved in the project will be as follows:

Name of the Stakeholder	Role responsibility
Dept. of Agriculture	Identification of fallow land & Cultivators, Arranging inputs, Facilitating Marketing and credit support and Insurance Coverage under state schemes, orientation based on AEU.
Kerala Agricultural University	Technical advice and training
Panchayat Dept.	<p>Identification of fallow land (wet and dry) in their respective panchayats along with Agriculture Officer</p> <p>Effective integration of panchayat funds, changes in LSGD projects to ensure the fund requirement.</p> <p>Identification and formation of farmer groups to take up fallow land cultivation.</p> <p>Facilitating short term lease agreement with owner and tenant, Convergence with Schemes and fund arrangements @ 25 lakhs /Panchayat</p>
Block Panchayat	Establishment of grama chanda & Financial support @ Rs.32.00 Lakh / Block

District Panchayat	Financial support for logistics @ Rs 26 lakh/District
Cooperative Dept.	<p>Credit support to farmers, farmer clusters, SHGs, Youth etc. through KCC</p> <p>Ensure credit to the gramachandhas as a revolving fund for procurement.</p> <p>Establish integrated Pack house and make arrangement for its functioning, Training for the running would be provided by KAU, maintenance</p> <p>Facilitating farm input distribution</p>
Irrigation Dept.	<p>Creation of Irrigation Infrastructure & Community Irrigation Preparation of irrigation plan for the panchayat.</p> <p>Integrating irrigation schemes with panchayat and departmental schemes</p> <p>Involvement Of Major and minor irrigation department in agricultural activities especially in Kuttanad / Kole regions</p> <p>Ensuring quality and timely availability of irrigation water</p>
KSEB	Provide Agriculture Power tariff plan to these establishments
MGNREGS	Explore the involvement of MGNREGS work in fallow land cultivation

Animal Husbandry department	Promotion of Integrated farming by integrating LSGD schemes and agricultural schemes and fodder cultivation.
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9 .ABSTRACT OF FINANCIAL OUTLAY (Rs in Crores)

Agencies	Amount	Activities
Department of Agriculture	213.325	Fallow land cultivation ,Homestead cultivation ,Crop improvement ,Market intervention
LSGD	549.44	Fallow land cultivation ,Homestead cultivation ,Crop improvement Market intervention ,
Irrigation Dept. RKI/Ridf	384.00	Long term intervention
Cooperative Dept.	100.00	Homestead cultivation ,Market intervention ,Post-harvest Management
RIDF/RKI Agri	202.10	Market intervention ,Post-harvest Management
Total	1448.86	

9. Time frame

With the challenges created by supply chain breakdown, prolonged lockdown or short supply from other States, local food supply needs to be established. The project is proposed to be implemented with the ensuing crop season commencing in May 2020. Depending on the crop duration, the project could be extended from 3 months to 12 months.

10 .Risk Analysis

If we resort to critically analyse the potential issues that could negatively impact the project implementation, we could identify many factors. But it is expected that all such issues could be won over by strategic measures.

Bringing fallow land to fresh cultivation is indeed a major task as it may need additional investment for preparing the fallow land into cultivable land. However, voluntary works with massive people participation following the State-wide campaign will definitely transform this to a novel action platform. Suitability for production based on soil health cards is also a challenging factor.

Land owners in most cases may not be willing to take up fallow land cultivation on their own, but at the same time not be easily willing to temporarily lease the land to the interest groups. However, the massive campaign with involvement of local bodies and ensuring documental safety by means of tripartite agreement will help to tide over obstacles.

Making available timely supply of quality seeds / planting materials and other inputs could also be a challenge. The Department and LSGD shall jointly make efforts to ensure their timely availability.

Natural Calamity and pest and disease attack can also occur during the cropping period. But the Agriculture Department will take care of the risks through the established procedures and schemes of the department.

Adequate farm credit, inadequate marketing facilities and price fall for the produce may also become prospective challenges. It is high time to revisit the activities of the farmer cooperatives as in most cases they are keeping away from their mandatory role of supporting farmers. It is expected that the farmer cooperatives could be involved effectively in areas of credit and marketing for the successful implementation of this project.

11. OUTCOME

The project shall support ensuring local food security and uninterrupted food supply in case of prolonged lockdown or similar eventuality due to crisis like the present COVID19 pandemic.

A good number of people shall be motivated to invest in Agriculture

The project shall pave way for evolving a long term strategy for bringing the entire fallow land into regular and sustained farming.

The project shall provide livelihood to migrant and other labour force through increased employment opportunities.

The project shall depict itself as a viable option for economic revival during the post COVID 19 period.

11.1 Anticipated Production

Name of Crop	Action Plan 2020-21 Area ha	Expected Production in Lakh MT	Additional Area Proposed Ha	Additional Production In Lakh MT
Paddy	220000	8.89	28000	1.12
Vegetables	104000	15.60	28000	4.20
Tubers	89000	17.8	5000	1.0
Fruits (banana)	114298	13.72	7000	8.4
Pulses	1738	0.01303	500	0.00475

Millets	325	0.00215	500	0.00325
Total	529361	56.05218	69000	14.728

12. District wise Fallow land Details

A statement showing the district wise details of fallow land and area with potential for intercropping is attached as **Annexure**.

13. Evaluation & Monitoring

Critical evaluation of the project implementation should be done by a committee at regular intervals. Committee including selected members from Officials of different departments, LSGD, Karshikavikasana samithy, Karshika karma samithy of panchayat regularly evaluate the progress of the project. At district level and state level also constitute similar committees for evaluation.

The Department of Economics and Statistics may also be involved in capturing the area of cultivation under the project and capturing the yield of different products.

14. Conclusion

It is expected that this project will pay the way for our long cherished dream of attaining self-sufficiency in major food crops to the maximum possible extent. This has become a necessity as evident in the present crisis.

Annexure a

Sl No	Name of District	Total cultivated area (Hectares)	Fallow Land in Hectares										Cultivated Area with scope for Inter cropping (Hectares)
			Wellland					Garden Land					
			Own (Ha)	Public (Ha)	Total	Irrigation facility available out of the total fallow area (d+e)	NOT available in the total fallow area (d+e)	Own (Ha)	Public (Ha)	Total	Irrigation facility available out of the total fallow area (f+g)	NOT available in the total fallow area (f+g)	
d	e	(d+e)	f	g	(f+g)	h							
1	Thiruvananthapuram	128157.15	1175.6	69.58	1245.18	342.6	347.68	1000.31	115.66	1115.97	247.3	658.47	24846.86
2	Kollam	131076.42	1099.39	28.76	1128.15	504.7	567.59	1834.99	81.92	1916.91	529.865	1372.87	6148
3	Allappuzha	99664.18	2345.44	100.25	2445.69	1067.44	1478	3160.5	341.5	3502	933	2559	18021
4	Pathanamthitta	76950.33	1409	289.69	1698.69	602.7	994.992	1633.95	509.2	2143.15	356.75	338.9	1641
5	Kottayam	175528.304	1707.5	58.7	1766.2	814.2	927.7	509.24	39.06	548.3	233.7	314.2	2679.5
6	Idukki	176400	430.55	23.8	454.35	218.7	232.2	641.2	596.5	1237.7	137.8	1077.9	2384.1
7	Ernakulam	99448.1	2704.574	195.4	2899.974	1057.024	1842.15	916.8	131.7	1048.5	592.9	452.6	2512
8	Thrissur	133303.66	3778.84	10.8	3789.64	1152.844	2446.396	2212.38	67.7	2280.08	801.9	1639.78	4705.1
9	Palakkad	147684.5	1179.858	104.6	1284.458	466.238	811.22	3401.36	78.608	3479.968	181.4	3283.568	3880.18
10	Malappuram	186166.3	1195.98	38.3	1234.28	432.38	796.9	657.77	47.8	705.57	228.67	457.9	24749
11	Kozhikode	166181.17	1724.35	34.9	1759.25	951.72	741.03	721.2	74.4	795.6	243	447.6	19141
12	Wayanad	134833	542	11.5	553.5	149	403.5	354.5	48.5	403	43.5	362.5	18170
13	Kannur	228708.45	853.6	31.2	884.8	142.8	647	422.9	76	498.9	129.25	344.65	6867.4
14	Kasargod	133621.9	477.3	7.2	484.5	128	326.3	311	11	322	63	257	5469
	Total	2017723.46	20623.982	1004.68	21628.662	8031.146	12562.658	17778.1	2219.548	19997.648	4722.035	13566.938	141214.14

AGRO-ECOLOGICAL ZONES

The Government of Kerala has approved the proposal of delineation of Kerala into five Agro Ecological Zones (AEZs). These have 23 agro ecological units based on the geographical and climatic specifications to increase household incomes, improve resilient and preserve biodiversity based on sustainable, responsible, integrated, inclusive, eco-friendly and resilient agriculture in the line with the policies of Government of Kerala and Government of India.

Five Agro Ecological Zones - AEZs

AEZ -1	Coastal Plain
AEZ -2	Midland Laterite
AEZ -3	Foot Hills
AEZ -4	High Hills
AEZ -5	Palakkad Plain

Ø The 23 AEUs are

The Agro Ecological Zones has been further subdivided in the following 23 (Twenty Three) Agro Ecological Units based on the local geographical conditions.

AEZ-1. COASTAL PLAIN

AEU -1	Southern Coastal Plain
AEU -2	Northern Coastal Plain
AEU -3	Onattukara
AEU -4	Kuttanadu
AEU -5	Pokkali Land
AEU -6	Coal Land
AEU -7	Kaippattu Land

AEZ-2 MIDLAND LATERITE

AEU -8	Southern Laterite
AEU -9	South Central Laterite
AEU -10	North Central Laterite
AEU -11	Northern Laterite

AEZ -3 FOOT HILLS

AEU -12	Southern Foot hills
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AEU -13	Northern Foot hills
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AEZ -4 HIGH HILLS

AEU -14	South High hills
AEU -15	Northern High hills
AEU -16	Kumily High hills
AEU -17	Marayoor hills
AEU -18	Attapadi Hills
AEU -19	Attapadi High hills
AEU -20	Wayanad Central Plate
AEU -21	Wayanad Eastern Plate

AEZ -5 PALAKKAD PLAIN

AEU -22	Palakkad Central Plain
AEU -23	Palakkad Eastern Plain

