



Approach Paper



WEST BENGAL FOOD PROCESSING SECTOR POLICY 2023





CONTENTS

FOREWORD	3
VISION	4
COORDINATED ACTION AREA 1	6
COORDINATED ACTION AREA 2	9
COORDINATED ACTION AREA 3	10
COORDINATED ACTION AREA 4	11
COORDINATED ACTION AREA 5	12
ATTACHMENTS	13



FOREWORD

The Department of Food Processing Industries and Horticulture Government of West Bengal has initiated the process of developing a Food Processing Industries Policy 2023 for the state of West Bengal, which will encompass produce in horticulture, agriculture, animal resources, dairying and fisheries. The Department of Animal Resources Development and Department of Fisheries are working jointly with the Department of Food Processing Industries and Horticulture to develop this policy.

Aspiration Bengal Foundation has been entrusted to do the drafting work, consult experts, industries and their associations and other concerned stakeholders. The National Bank for Agriculture and Rural Development is a collaborating institution and is providing required assistance to facilitate the policy development process.

This approach paper has been prepared to initiate discussions and seek inputs from all concerned stakeholders. We, from Government of West Bengal, look forward to having your valuable comments and suggestions to the policy making process.

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Vision



To put West Bengal on a path to become the leading state in post-harvest operations and food processing through adoption of indigenized and other innovative technologies; and by creating an enabling framework and conducive investment ecosystem, improving productivity, minimizing wastages and expanding distribution reach; all of these to be achieved in an environmentally sustainable manner, thereby, generating higher returns to farming, manufacturing, and trading stakeholders.

The policy envisages



West Bengal to become a premier food processing hub in India in the medium term (in 5-7 years) by capitalizing on rich and diverse food production base in the State and favourable agro-climatic conditions.

Provides a fillip to farmer livelihoods and small agro-industrial units in the state by encouraging growing of processable varieties, expanding distribution reach including aspiring for exports through excellent land connectivity to other states of India and neighbouring countries, and maritime connectivity for exports, enabling labour-intensive food processing sector framework to harness skilled human capital.

At the same time, the policy will also seek to address challenges that exist in sector related problems: such as the lack of economies of scale, deficiencies in technology adoption, incubation and growth of processing industries with scalable business models.

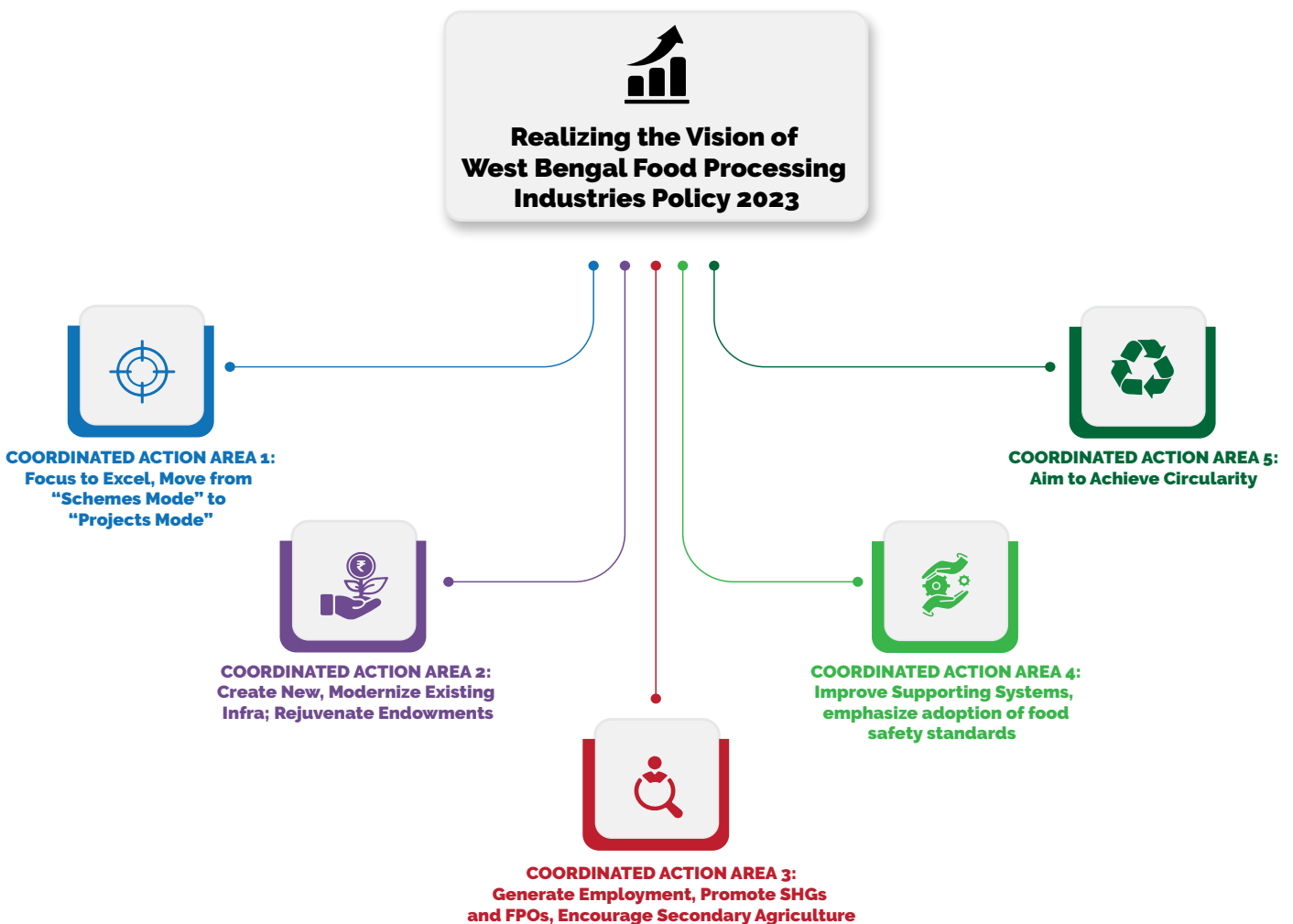
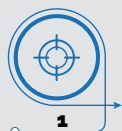


Figure 1: Five coordinated action areas to achieve Vision

Five coordinated action areas have been formulated to achieve the vision. These coordinated action areas are encapsulated in Figure 1 and discussed thereafter.

FIVE COORDINATED ACTION AREAS TO ACHIEVE THE VISION



Coordinated Action Area 1: Focus to Excel move from “schemes mode” to “projects mode” Most other state policies are scheme-based policies applicable to the food processing sector as a whole, and commodity-based differentiation is not carried out. However, each of these sectors merit separate consideration. The West Bengal FPI policy 2023 will deep dive into each of the major sectors such as Horticulture, Animal Resources and Dairying, and Fishery which will drive the need to focus on creating a basket of opportunities which then can be assessed for bankability. A first list of potential opportunities will be published with the policy announcement, which can be assessed by the public and private sector for bankability assessments. This will reinforce the message that Bengal means Business and is moving away from “schemes mode” to an even more proactive “projects mode” to achieve the overall vision.



Coordinated Action Area 2: Create New, Modernize Existing Infra; Rejuvenate Endowments: Attract private investments in provisioning infrastructure is one of the thrust areas of the Policy. The policy will enlist a basket of new infrastructure creation opportunities on which due diligence can be done by investors / entrepreneurs. Similarly, another list of existing infrastructure which can be renovated and modernized shall also be included, which has (so far) been largely done by the public sector. Last, but not the least, the policy will include a third category where private investments can be attracted to rejuvenate resources and endowments which cradle production systems, such as horticulture and animal farms of lower productivity, senile orchards, derelict ponds and other endowments. This policy will also endeavour to attract private investments in building and operating facilities for Testing and Quality Assurance.



Coordinated Action Area 3: Generate employment, Promote SHGs and FPOs, Encourage Secondary Agriculture by adopting entire value-chain approaches. Promoting secondary agriculture expands the domain of food processing and facilitates starting value chains from farm gates. Livelihood opportunities start getting created right from farm gate till the point of sale and promoting SHGs and FPOs in this area supported by converging relevant central and state schemes will give a boost to the sector. Support to scale-up processing of ethnic food products, having demand and brand recall, can be another initiative in this coordinated action area benefitting small enterprises and artisanal workers, linking them to value chains and artisanal workers, linking them to value chains.



Coordinated Action Area 4: Improve supporting systems, emphasize adoption of food safety standards. The state recognizes deficits exist in food testing facilities and that food testing network with certification and traceability protocols are needed to assure food safety and quality. These deficits will be addressed in the short-to-medium term through a combination of public and private initiatives. Besides this, the state will work to provide potential investors a single window view of all prevailing policies and schemes relevant to the state (see, Attachment 1). Further, all major on-going public projects and approved private projects in the organized sector will be enlisted to ease access to relevant information by potential investors, interested entrepreneurs, and other stakeholders in this sector.



Coordinated Action Area 5: Aim to achieve circularity: While food processing has positive attributes, drive economic growth, benefit growers, processors and the workforce, appropriate measures should be taken to control its carbon foot-print. As a significant first step, the policy recognizes this and places achieving circularity at par with the other four socio-economic policy action areas. The importance of adherence to upcycling and circular bio-economy mandates, intent to promote green food processing industries, utilize offal / wastes for processing into value added products will be placed at the center of this coordinated action area.



Some details on each of the five coordinated action areas are set out below:

1. Coordinated Action Area 1: Focus to Excel, move from “schemes mode” to “projects mode”

Focus on crops and commodities produced in reasonable quantity within the state that have a potential for processing, and can give a competitive advantage to the food processing industries based in the state. Identify a first list of potential opportunities to be published with the policy announcement, which can be assessed for feasibility and bankability by the private sector. This list can be updated at regular intervals.

Horticulture, Cereals, Value Added Milk Products

The following fifteen processing areas has been identified (without any order of preference) to give an initial momentum to the consultative process. Opportunities identified in these processing areas will be collated and shortlisted for inclusion in the final policy paper.

- Rice-based fortified foods manufacture
- Manufacture of milk and fruit-based beverages
- Natural colour extraction from flowers and vegetables
- Flavour manufacturing unit
- Extraction units for colour, flavour, protein and anti-oxidants from fruit and vegetable processing wastes
- Promotion of ethnic sweetmeat products
- Jute and other natural fibre-based packaging materials manufacture
- Manufacture of flavoured plant-based milk and other beverages
- Manufacture of immunity-boosting food products
- Ice-cream manufacture using energy efficient alternate methods
- Fruit and milk-based kulfi manufacture
- Manufacture of bio-degradable or edible

cutlery for use in household and social function applications

- Processing of organic spices
- Millets-based functional foods manufacture, milling industry for millets to obtain high quality, ready-to-use products
- Manufacture of organic palm jaggery and jaggery based products
- Manufacture of fermented fruit-based beverages
- A few more being identified: to be inserted

Besides the above, a few horticulture crops and other products have also been identified (Table 1) which are produced in adequate quantities that can support processing industries based on them. Investments into processing units based on these crops will depend on the processable varieties and how remunerative the grower – procurer arrangements emerge and how competitive the processed products finally become when they reach the consumers.

Table 1: Initial list of horticulture crops and other products

Fruits	Vegetables	Other products having potential
Pineapple	Potato	Turmeric (spices)
Mango	Tomato	Ginger (spices)
Banana	Garden Peas	Marigold (flower)
Jackfruit	Carrot	Orchids (flower)
Guava	Chilly	Chrysanthemum (flower)
Coconut	Drum Sticks	Honey (apiculture)

Some basic data on the above horticulture crops is provided in Attachment 2.



Specific investment opportunities in Animal Resources and Dairy Sector

- West Bengal has the largest cattle population in India, second largest goat population and fourth largest pig population, as per the latest Livestock Census. The State is the largest producer of goat-meat in the country and third largest producer of all meats.
- Two Large Capacity Chicken processing plants may be set up with a slaughtering capacity of at least 4,000 birds per hour in South Bengal & North Bengal to cater to demand for poultry meat.
For providing broiler birds inputs to these plants, Broiler Integration Programme may be established with farmers in cluster basis.
- One Cold Storage of minimum 50 MT capacity for storage of Processed Meat needs to be developed in each District.
- Reefer Vehicles for transporting Chilled & Frozen Meat products are necessary in

each District to maintain the Cold Storage chain system.

- Goat & Sheep farming should be developed through Farmer Producer Companies to provide ready animals for domestic market and exports.
Mini abattoir for Sheep & Goat can be established by the FPCs in close proximity to the cold store.
- One Blast Freezer having capacity of minimum 5 MT should be established per 3-4 district so that chilled mutton and chevon can be transported to the blast Freezing unit from the abattoirs. After Blast Freezing the ready meat will be transported to the Cold Storage.
- A Buffalo Meat Processing Plant should be set up in Kolkata/nearby district for exporting Buffalo Meat to South East Asia/ West Asia/ Europe.
- Hygienic Chicken Dressing Units (HCDU)



may be established in municipal markets for supply of Meat as per FSSAI guidelines.

- West Bengal has a high human population density and faces chronic shortage of green fodder which is linked to the small size of land holdings and preference for agricultural use. Fodder silage units have very good prospects to cater to the perennial demand for green fodder.

There is a growing demand for poultry feed and cattle feed across the State. Some inputs such as soya cakes which are presently imported from other States, can be produced in the State to cater to the local demand.

- Increasing egg production, achieving self-sufficiency - The State has an annual requirement of 1,440 crore eggs out of which 1,146 crore eggs are presently produced in the State. About 590 crore eggs are produced in the unorganised (domestic) sector, 550 crores through the organised sector and 6.1 crores through WBLDCL. Approximately 294 crore eggs are imported from other States.

The state aims to attain self-sufficiency in egg production by December 2023, through a combination of investment by the Government, supplemented by private sector investment aided by West Bengal Incentive Scheme 2017 for Commercial Layer Poultry Farms and Poultry Breeding Farms.

Thereafter, it is expected that the State will become surplus in egg production, in which case minimum three cold storages of 3 crore eggs capacity each will be required across the State within the next few years.

- West Bengal is renowned for a variety of milk-based sweets such as rosogolla, lyangcha, kalakand, ledikeni, labangalatika, malaikari and a variety of sondesh, peetha, patishapta, some of which have Geographical Indication tags. Most of the processing and production takes place through unorganised

sector. Modern processing and production units can be set up in cluster form closer to doorstep of primary producers, along with developing cold chain and marketing as well as export infrastructure.

- Banglar Dairy, State Dairies and Milk Unions are procuring milk directly from primary dairy farmers and processing and marketing the same. There is scope for investment in processing, cold chain and export of milk products across the State.

Specific investment opportunities identified by Department of Fisheries, GoWB

Brackish Water Aquaculture: investment opportunity

High growth rate: (Source: Department of Fisheries, GoWB)

- Fisheries sector has shown high growth rate, during the last 2 years the growth rate was 19.2%.
- The share of quantity of frozen shrimp in the export items have grown from 44% to 51% during 2018-19 and 2019-20.
- This has been possible due to use of good quality SPF seeds, quality feed and management.

Highest share in exports value:

- The export share in fisheries has shown a growth of 31.71% during the last two years.
- The share of frozen shrimp in the export items have grown from 69% to 73% during 2018-19 and 2019-20.

Scope of good hatcheries and feed plants:

- Shrimp Hatcheries cannot be installed due to ecological factors of low salinity and high turbidity.
- However more Naupli rearing centers can be introduced.
- Feed plants may be considered in PPP mode.

Solar and wind energy-based aerators:

- Energy consumption in terms of diesel or



electricity for using pumps and aerators can be shifted to solar power where grid is available or wind driven system which are eco-friendly.

Fish clinics and labs: Matsya Seba Kendra to be introduced with the following facilities:

- Soil –water testing facilities with recommendations.
- Single window for fishery inputs.
- Primary disease detection facility with remedial measures.
- Occasional awareness camps.
- Awareness on institutional linkage.
- Awareness on scientific culture.

Brackish Water Aquaculture: Additional Scope

Product diversification is the need of the hour:

- New types of finished products/ ready to cook items, value added items to be introduced through training.
- This will increase the shelf life of the shrimp as well as make it more acceptable to many consumers.

Invest more in processing and exports sectors:

- This has to be surveyed and discussed with different players in the field to decide the quantum of investment needed.
- Export requires traceability, CAA compliant culture, and other ethical standards like good quality, non tampering of shrimps with injectables (saboo), etc.

Opportunities in Marine Sector

Dry Dock for fishing boats and trawlers building/ repairing workshops:

- Repairing and upgrading of trawlers is a regular need so dry dock is essential for such activities.
- Coastal areas of South 24 pgs and Purbamedinipur will be explored, some existing facilities would also be up graded.

- Private players will be invited to participate.

Jetties and fish landing centres by private players in PPP model:

- Fish landing centers are linkages between the harvest from the sea and the market.
- This too is to be explored in a business meet.

Export oriented processing plant:

- Like brackish sector some processing plants may be setup but only after a survey and discussion with the key players in the field.

Modernization of fishing harbours:

- Modernization of fishing harbours may be taken up to meet EU (European Union) standards. Management of jetties and fish landing centres by private players in PPP mode can also be explored.

2. Coordinated Action Area 2: Create New, Modernize Existing Infra; Rejuvenate Endowments

Bridge infrastructure deficits: Infrastructural investment to create the food processing ecosystem in West Bengal needs serious consideration. The food processing ecosystems needs robust infrastructure either new or improvised. Except food grains, all other commodities are highly perishable and, therefore, require seamless cold-chains, uninterrupted electrical power, packaging materials, water, food testing laboratory and marketing arrangements.

For reasons of economy, efficiency, and sustainability, it is important to utilize the existing infrastructure through renovation, expansion, and upgradation. The state will need to put a Standard Operating Procedure (SOP) in



place for scouting abandoned or poorly utilized infrastructure and then making it available for modernization and use. If there is human resource attached to such infrastructure, it will also be repurposed and skilled for the new application. Such special efforts will create a favourable and positive ecosystem for food processing.

Once a favourable eco-system for food processing is created in the state, private investment can be attracted. An indicative list of such possibilities is:

- Collection of Global G.A.P compliant produce, aggregation, and supply through well monitored supply/cold chain.
- Food Testing Laboratories
- Biodegradable packaging materials' supply, manufacture of packages
- Raw materials and processed products' certification facilities
- Refrigerated and controlled environment warehousing for raw as well as processed products
- Manufacture of green refrigeration systems
- Ingredients' manufacturers and suppliers
- Establishing knowledge and skilling centres in the state for meeting the requirements of the Food Processing industries
- Supporting research and development for innovations in green food processing techniques, packaging and products.

3. Coordinated Action Area 3: Generate employment, Promote SHGs and FPOs, Encourage Secondary Agriculture

Upskill workforce: to contribute in achieving greater efficiency, safety, and quality in food processing units, creating a win-win-win for the

growers, processors and their workforce. Skill development centres in the state running technical and vocational training need to be aligned to the food processing industries requirements. The active participation by the industry in the skill development process, especially through apprenticeship and on-the-job training programmes is critical to achieve success.

Encourage entrepreneurship: start-ups, and trade (domestic as well as export) in food processing. Handhold, incentivize and guide entrepreneurs with special emphasis on micro scale sector for setting up food processing units including cold/controlled/modified atmosphere storages, logistics warehouses, cold chain connectivity, sorting/grading/packing hubs, food testing laboratories. Promoting SHGs and FPOs in food processing in an even bigger way supported by converging relevant central (such as RKVY, MIDH, AIF) and state schemes will give a big boost to the sector.

Promote Secondary Agriculture: The primary and secondary processing operations can be carried out in the production catchments, providing employment opportunities and reducing the quantities to be transported to tertiary processing units. The effluents, residues, and by-products generated during the primary and secondary processing stages are processed there, creating more employment and income generation opportunities. An investment of Rupees One Crore can create direct employment for eight persons and indirect employment for 64 persons. The approach needs to consider establishing commodity-based processing complexes in the production catchments such that the value-chains for the particular commodity starts from there with zero environmental burden. Livelihood opportunities are then created right from farm gate to collection centres, packhouses, reefer vans, storages and warehouses, processing plants, marketing, skilling,

food testing, and product certification. This will not only shorten the supply/cold chain and reduce the number of middlemen; the post-harvest losses will be minimized and the quality of raw material reaching the processing plant will be higher. The producer / farmer would get better returns.

Scale-up of ethnic processing: Encourage the development and manufacture of 'Made in Bengal' ethnic foods and products from the state which have higher brand recall, national and international demand (such as in sweetmeats). An initiative in this coordinated action area will integrate ethnic food producers into domestic and international value chains, benefit small enterprises and expand livelihood possibilities of their artisanal workers.

4. Coordinated Action Area 4: Improve supporting systems, emphasize adoption of food safety standards

Augment testing facilities, food quality assurance mechanisms, and emphasize adoption of food safety standards: Food safety and quality are important considerations. The state recognizes deficits exist in food testing facilities and that food testing network with certification and traceability protocols are needed to assure food safety and quality. This is achievable by developing functional linkages with FSSAI, MOFPI, and APEDA to ensure food safety and quality through food testing labs, risk analysis, seamless



Figure 2: Circular Economy (illustrative)



supply/cold chains, skills, HACCP trainings, and traceability expertise. These deficits will be addressed in the short-to-medium term through a combination of public and private initiatives.

Provide a single window view of all prevailing policies and schemes to potential investors:

Government of India and Government of West Bengal Departmental that are relevant to the Food Processing Sector in the state. Enlist major on-going public projects and approved private projects in the organized sector. This will ease access to relevant information by potential investors, interested entrepreneurs, and other stakeholders in this sector.

Success of the food processing policy depends on the transparency and the ease of doing business. In today's digital world, it is conveniently possible to implement the single window clearance policy in a defined time frame. Once a request for the project is submitted at the designated window, the process begins to examine the proposal in a transparent and time-bound manner keeping the applicant aware of the scrutiny. Thus, the approval process becomes interactive. The basket of schemes available from different sources are scrutinized for providing the maximum advantage for the proposed project. A project submitted for approval is either approved or recommended for suggested modifications; there is no rejection.

5. Coordinated Action Area 5: Aim to achieve circularity

Circularity leads to sustainability, and achieving circularity is necessary to achieve sustainability. The principle of upcycling and circular bio-economy mandates that in long run all materials from agri-

food production and processing are turned into value-added products. Circular bio-economy in contrast to a linear bio-economy is shown below.

An example in the livestock sector relates to the reduction of live animal transportation and utilizing offal / wastes for processing into value added products. Efforts have been made in the past to recover meat processing wastes by using acid hydrolysis, anaerobic digestion, pyrolysis, pelletizing by immersion frying, and direct incineration for heat production. Recently, a pulsed electric field process has been developed for extracting proteins from waste chicken breast muscle to produce antioxidants such as DPPH and ABTS.

Similarly, in fisheries, achieving circularity (especially in municipal market fish vending zones) is essential for sustainability. The effort should be to encourage the circularity and discourage waste generation.

In case of mango, the processing waste includes peels (13% to 16%) and seeds (9.5% to 25%), most of which are usually discarded even though they are good sources of macronutrients such as carbohydrates (58% to 80%) that include high fibre, protein (6% to 13%), and lipids (6% to 16%). Mango seed flour has been used for foods such as cakes, cookies, and breads, either as full flour or combined with other flours. Residues from mango processing are converted to high-value products such as 5-hydroxymethylfurfural (HMF), a high-value food additive, and xylo-oligosaccharides (XOS) extracted from mango seed shells are used for making high-value prebiotics.

Some more examples of agricultural and food processing wastes and their value-added products can be found in research literature¹.

¹Adedeji AA.2022. Agri-Food waste reduction and utilization: A sustainability perspective. Journal of the ASABE. Vol. 65(2): 471-479. American Society of Agricultural and Biological Engineers. ISSN 2769-3295 <https://doi.org/10.13031/ja.14797>



Policy Targets

Each of the above five Coordinated Action Areas will get translated into a medium-term target (say over the next 5-7 years) in the policy paper when it gets finalized.

ATTACHMENT 1:

Compiled list of prevalent schemes by Department and their weblinks

Agriculture

Agri-Marketing

Animal Resources and Dairying

Fishery

Food Processing Industries & Horticulture

- Food Processing Incentive Scheme 2021

MSME&T

- Banglashree
- Karma Sathi

ATTACHMENT 2: BASIC DATA ON THE IDENTIFIED HORTICULTURE CROPS

A. Fruits:

1. Pineapple

Area: 11927 Hectare

Production: 356531 MT

District: Darjeeling | Uttar Dianjore | Jalpaiguri

Scope of processing: Juice | Pulp | Concentrate | Jam | Jelly

2. Mango

Area: 113896 Hectare

Production: 944115 MT

District: Malda | Murshidabad | Nadia | Hooghly | Bankura

Scope of processing: Pickles | Puree | Canned or Frozen Slices | Juice | Squash | Powder | Mango leather (Amsatta) | RTS Beverages

3. Banana

Area: 55097 Hectare

Production: 1203728 MT

District: Nadia | North 24 Parganas | Hooghly | Murshidabad

Scope of processing: Ripened Banana | Banana Puree

4. Jackfruit

Area: 12311 Hectare

Production: 221311 MT

District: North 24 Parganas | Nadia | Murshidabad | Coochbehar | Jalpaiguri

Scope of processing: Nectar | Jam | pickle | Chips | Canned products

5. Guava

Area: 18840 Hectare

Production: 210667 MT

District: South 24 Parganas | Murshidabad | Nadia | North 24 Parganas | Midnapore (W)

Scope of processing: Guava Jelly | Puree | Fruit drinks | Pectin

B. Vegetables:

1. Potato

Area: 4500000 Hectare

Production: 13500000 MT

District: Hooghly | Midnapore (W) | Bardhaman (E) | Bankura | Howrah | Jalpaiguri | Coochbehar

Scope of processing: Chips | Flake | Frozen stick | Starch

2. Tomato

Area: 58171 Hectare

Production: 1258596 MT

District: Coochbehar | North 24 Parganas | Nadia | Murshidabad | Alipurduar | South 24 Parganas

Scope of processing: Puree | Juice | Concentrate | Ketchup | Sauce



3. Carrot

Area: 13231 Hectare

Production: 237010 MT

District: North 24 Parganas | South 24 Parganas
| Hooghly

Scope of processing: Fresh Cut | I.Q.F | Pickles

4. Green Chilly

Area: 63175 Hectare

Production: 214692 MT

District: Cochbehar | North 24 Parganas |
Murshidabad | Nadia | Jalpaiguri

Scope of processing: Powder

5. Green Peas

Area: 22420 Hectare

Production: 150659 MT

District: Nadia | Jalpaiguri | North 24 Parganas
| South 24 Parganas

Scope of processing: I.Q.F | Canned

C. Flowers:

1. Marigold

Area: 7762 Hectare

Production: 63772 MT

District: Nadia | Midnapore (E) | North 24
Parganas | South 24 Parganas

Scope of processing: Poultry feed | Abeer |
Natural dye

2. Orchid

Area: 4 Hectare

Production: 870000 sticks

District: Darjeeling | Kalimpong

D. Spices:

1. Turmeric

Area: 18793 Hectare

Production: 51000 MT

District: Murshidabad | North 24 Parganas |
Midnapore (E)

Scope of processing: Powder | Oleoresin

2. Ginger

Area: 12876 Hectare

Production: 141364 MT

District: Darjeeling | Uttar Dinajpore | Midnapore
(W) | Midnapore (E)

Scope of processing: Dried | Paste | Ginger oil

E. Other products:

1. Honey

Production: 16870 MT

District: North 24 Parganas | South 24 Parganas
| Malda

Scope of processing: Processed Honey | Bee
Wax | Bee Pollen | Propolis | Royal Jelly | Bee
Venom

2. Mushroom

No production data

Scope of processing: Fresh | Dried | Pickles