and services signifies the importance of having a fuller understanding of the role and contributions of women so that extension services may accordingly be attuned to fully integrate them in the development of food processing. The study of different linkages seems to be necessary to gather this requisite information. For this reason, the present study was proposed with the following objectives:-

1. To study the role performance and linkages of different organisations and institutions working for fruits and vegetable processing.
2. To identify the appropriate food processing technologies for dissemination among the rural families.
3. To study the crucial factors influencing food processing at different levels.
4. To suggest the strategy for promotion of participation of rural women in food processing.

SCOPE OF THE STUDY

The present study is an attempt to analyze the role analysis and linkages of fruit and vegetable processing organisations and institutions. Efforts have been made to focus role analysis and linkages of large scale, small scale, training, co-operative and Khadi gramudyog units, rural families and development of a strategy for promoting participation of women in food processing. Since no study has been conducted on such an aspect, therefore, this study will provide some important and basic information and role analysis and linkages of various organisations at different levels and institutions. The finding of this study will also be of some use to the policy makers engaged in the promotion of various programmes for development of women by removing the various constraints encountered by rural families particularly by women at different levels. This study will act as a torch bearer for organisation's personnel.

LIMITATIONS OF THE STUDY

The present study was undertaken as a student research programme and hence it had natural limitations of resources,

the interests of the farmer and the industry to promote better utilisation of agricultural commodities, greater values addition to rural produce, generation of massive employment in rural areas, enhancement of the net level of rural incomes and induction of modern technology in food processing. Another specific role of the ministry is to convert the large scale wastages of fruits and vegetables into useful food items, promote agro-based industrialisation in rural areas and help to absorb women and youth in gainful employment.

Ministry of food is also actively engaged in the promotion of fruit and vegetable processing through its Community Food and Nutrition Extension Unit which acts under food and nutrition board and exists at regional level.

At State Level : State government is also engaged in the activities of fruit and vegetable processing. In Haryana, the Haryana Agro Industries Corporation Ltd. (HAIC) has been identified as the nodal agency for promoting fruit and vegetable processing by encouraging investment by enterpreneurs and providing technical assistance. The plant is situated at Murthal in which a range of canned/bottled foods like jams, jellies, juices, tomato-ketchup etc. are produced. The products are marketed under the brand name 'DELICIA.

At District Level : At district level the field unit of the central food department acts in promotion of food processing by organising training in food and preservation to housewives, students and field personnel of women and child development, Health, Education, Agriculture and Rural development departments. These units are working for promotion of nutritional awareness through education and in providing service facilities to the needy community.

Non-Governmental Organisation

By the non-governmental organisations fruit and vegetable processing is done at different levels, i.e., by large scale units, small scale units, cottage units and at home level (Fig.2.2).

Large Scale Units : The definition of large scale units as given in FPO is the factories with installed capacity of two metric tonnes of fruit products per day or having total annual

Organisational Linkages

Mukhopadhyay (1981) suggested the idea of linking, growing and processing in the form of captive farms attached to processing units.

Tiwari (1981) reported that there are very few processing and manufacturing industries in the country which have such strong and direct linkages with the growth and development of our vast rural areas as the food preservation industries.

Jain (1982) in his study on the Inter-Organisational Linkages at village level reveal that there is absence of organic relationship due to social environment in which formal relationships among the individuals and groups have yet to become a way of life. No assistance, both financial and physical, was extended by any organisation to others.

Srivastava (1982) reported that organisations such as panchayat samiti, co-operative society and Agriculture Development trust have entered into operational linkages so as to avoid duplication.

Pandit (1983) stated that food processing industry has significant backward linkages. It can significantly contribute to the farm sector with better returns to the farmer by providing the incentives for improved varieties for horticultural produce and increasing overall employment.

Singh (1984) suggested that the industry should forge closer links with the farmers, agricultural universities and research bodies.

Joshi et al. (1989) suggested about the backward linkages of food processing industry that a shift in product-mix in favour of agro-based industries would have a favourable impact on income and employment generation.

Naik (1989) realised the importance of co-ordination and linkages among scientists and women so that their combined resources could render better services to women.

Chaudhary (1989) viewed that the linkages must be set up for transfer of technology by the research institutions like CFTRI, UDCT, Bomby and HBTI, Kanpur to KVI units free of

condition when treated with wax. they reported that evaporative cooling storage gave 6 times longer storage life for apples and 4 times longer storage life for oranges than at ambient conditions.

Maninck and Manimegali (1988) introduces Evapocooling chamber, a simple device to preserve the fruits and vegetables, extends the storage life of vegetables and reduces the weight loss in storage.

Mandhyan *et al.* (1988) studied dehydration of winter vegetables like peas, spinach, carrot and cabbage in the sun and in the solar cabinet dryer and drying constants were calculated. It was observed that the rate of moisture depletion in all the vegetables was high in the beginning and declined later. Reduction in the drying time was observed to be 15-20 percent when solar cabinet dryer was used in place of direct sun-drying.

Pawar *et al.* (1988) studied the comparison of drying in various solar dryers with that in mechanical and open air drying and indicated that the drying rate was the fastest in mechanical cabinet dryer followed by those in matrix bed air heater, rock type air heater (both solar dryers) and open air drying.

Sethi and Maini (1989) reported treatments like pre-cooling, waxing, disinfection, oiling, colouring, chemical treatments before the final grading and sizing for packing houses increases the shelf life.

Type of packing material also influences in reducing the weight loss. Packing of individual fruits either in paper, ventilated polythene bags, wax paper showed better quality and less shrivelling.

Zero energy cool chamber is best for retaining the freshness of fruits and vegetables during storage for a short period.

Processing of fruits and vegetables by sun drying, pickling, chemical preservation and lactic fermentation (vegetables especially) into more durable products will make them available over a longer period of time beyond harvest under the present socio-economic conditions prevailing in India.