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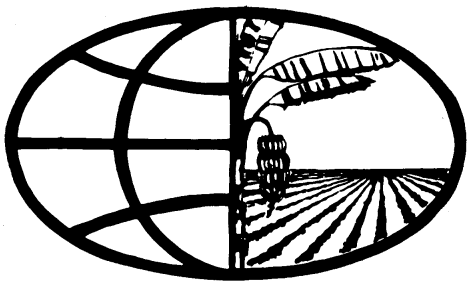

Agricultural Extension Approaches in India: Contract Farming vs. Price Support Mechanism

M.Sc. thesis

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Certification

I hereby declare that this thesis and its intellectual content is my original work unless otherwise referenced.

Ritesh Kumar

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ABSTRACT

The thesis is engaged in Contract farming in India, its importance and functions within the country.This study was focused in the Punjab, a northwest state of India to analyze the farmer's reactions regarding different aspects of contract farming,areas covered by different crops under contract farming,influence of price support machanism system and difference between contract farming and Price support machanism system. Subsequently, socio-economic context, agriculture extension approach, poverty, labor force of women and children working in agriculture are also discussed. Based on the literature review and field research carried out in the area of interest, problems of contract farming and suggestions of farmers for improving contract farming scheme in future and apply the system to the other part of Indian states are analyzed.The findings of the study shows that Contract farming proved to be high source of income for both companies as well as for the farmers although this system is restricted with the scope only to big landholder farmers due to the high profitablity idea of the company.On the other hand, PSMS approach is benefical for the small landholder farmers by supporting their efforts with minimum guarantee of price and it helps them to get the optimum use of their labouring skills.The disadvantage of PSMS system is that it applies only to few crops; e.g. wheat and rice paddy. Therefore, government and agriculture institution has vital role to play in it if they would like to get the maximum benefits of both the systems.

Keywords: Contract farming, India, Punjab, Price support mechanism system, agriculture extension approach, socio-economic problems.

ABSTRAKT

Diplomová práce se zabývá problematikou přístupu v zemědělském poradenství označovaném jako smluvní hospodaření (*contract farming*) a jeho úlohou v rámci ekonomiky země. Studie je zaměřena na oblast severozápadní Indie, stát Punjab, zejména pak na postoje farmářů vůči různým dopadům smluvního hospodaření, jeho možnosti aplikace pro různé zemědělské plodiny a fungování a principy mechanismu podpory cen v zemědělství a jeho interakce se výše zmíněným smluvním hospodařením. Vše je konfrontováno se specifickými socioekonomickými aspekty, zásady přístupu zemědělského poradenství ve smluvním hospodaření, distribuci chudoby a postavení žen či dětí jako pracovní síly. Na základě literárního rozboru dostupných dat a informací, spolu s výzkumem v místních podmínkách, jsou vyzdviženy nedostatky a předložena možná doporučení stran zlepšení smluvního hospodaření, zejména ze strany samotných farmářů. Studie prokázala, že smluvní hospodaření může být fungujícím partnerstvím mezi soukromým kapitálem a farmáři, a že pro obě strany představuje značný potenciál při generování zisku. Toto se týká především farmářů s větším půdním potenciálem. Systém mechanismu podpory cen je přínosem i pro malé farmáře, jelikož podporuje jejich úsilí pomocí garance minimálních cen. Nevýhodou tohoto systému je především to, že je aplikován pouze na omezený počet rostlin, např. pšenice a rýže. Pro další fungování a pozitivní vývoj je nutné, aby vláda i zemědělské organizace hrály dál aktivní roli ve vytváření zdravého prostředí pro efektivní fungování obou systémů.

Klíčová slova: Smluvní hospodaření, podpora cen v zemědělství, zemědělské poradenství, socio ekonomické podmínky, Punjab, Indie.

CONTENTS

LIST OF ACRONYMS

AMS	Aggregate measure of support
APC	Agricultural Prices Commission
APMC	Agricultural Produce Marketing Committee
CACP	Commission for Agricultural Costs and Prices
ERC	Expenditure Reforms Commission
FCI	Farmer Service Centre
FSC	Food Corporation of India
GOI	Government of India
HKB	Hariyali Kisan Bazaar
HLL	Hindustan Lever Limited
ICAR	Indian Council of Agricultural Research
ICICI	Industrial Credit and Investment Corporation of India
KRBL	Khushi Ram Bihari Lal Company
KVK	Krishi Vigyan Kendra
MIS	Market Intervention Scheme
MNCs	Multinational Corporations
MOU	Memorandum of Understanding
MSP	Minimum Support Price
MSSL	Mahindra ShubhLabh Services Limited
NAP	National Agricultural Policy
NGO	Non government organization
PAFC	Punjab Agro Food Corporation
PAIC	Punjab Agro-Industries Corporation
PDS	Public distribution services
PMP	Prevailing Market University
PSMS	Price Support Mechanism System
R&D	Research & Development
SMP	Statutory Minimum Price
UP	Uttar Pradesh
WTO	World Trade Organization

IMPORTANT UNITS

Currency Unit	Indian Rupee (Rs.)
US$1.00	=Rs. 40.36 (as on August 3, 2007)
1 crore	=10 million
1 million	=10 lakh
1 lakh	=100,000
1 acre	= 0.4047 ha

1 INTRODUCTION

Over the last five decades Indian agriculture has undergone a sea change altering significantly the rural landscape. The transformation is not only due to technological changes such as the Green Revolution, but is also associated with developments in the institutional arrangement for delivering various services such as credit, inputs, extensions as well as development of infrastructure for marketing the output.The changes in the institutional set up were made by deliberate government policies in order to accelerate agricultural development and thereby augment rural income. However, in a dynamic environment no policy initiative would bring about a lasting solution to the problems as the set of issues mutate with changing situations. Therefore, new initiatives need to be taken to deal with the emerging challenges faced by the farmers, especially the small and marginal farmers.Contract farming is one such institutional initiative that is expected to overcome some of the problems faced by Indian farmers. While the earlier measures were purely public in nature contract farming involves the private sector as well to bring about change in the rural areas.

Many national governments and international aid agencies view contract farming as an avenue through which rural income and employment can be increased. The National Agricultural Policy (NAP) (2000) announced by the Government of India, sought to give a prominent role to contract farming. It states, *"private sector participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer capital inflow and assured marketing of crop production."*
(Gurdev Singh and S.R. Asokan, 2004)

Globally, contract farming systems are a mutually beneficial mechanism for sourcing specific kinds of products. The prime advantage of a contractual agreement for farmers is that the sponsor will normally undertake to purchase all the produce grown, within specified quality and quantity parameters. Contracts can also provide farmers with access to a wide range of managerial, technical and extension services that otherwise may be unobtainable. Farmers can use the contract agreement as collateral to arrange credit with a commercial bank in order to fund inputs. Thus, the main potential advantages for farmers are: Provision of inputs and production services; Access to credit; Introduction of appropriate technology; Skill transfer; Guaranteed and fixed pricing structures; and Access to reliable markets.

The farm sector in Punjab is plagued with declining farm incomes, monoculture of wheat and paddy, decline of ground water table, ecological degradation, and over capitalization. But, agriculture is the primary engine of growth without which Punjab will neither be able to accelerate growth nor achieve fiscal sustainability. Therefore, diversification within agriculture is intended to stabilise incomes and employment in the farming sector. This diversification can either be in terms of variety of crops grown or technologies used for the same set of crops. Contract farming is being promoted to achieve this diversification by promoting high value crops, lowering costs of production with better extension and raising returns by assured market and higher prices for the produce. (Singh, 2000)

In India, domestic support for agriculture has been provided mainly through two channels: Minimum Support Price (MSP) or Price Support Mechanism System (PSMS) guarantees for basic staple commodities and provision of inputs subsidies. In addition, a complex array of other policy instruments has been employed.

The domestic price support policies for agriculture have remained largely unaffected by the economic reforms of 1991. Basic staples in India continue to be subject to MSP guarantees. These commodities include paddy rice, wheat, coarse cereals, maize, barley, pulses (i.e. gram, arhar moong, urad), sugarcane, cotton, groundnuts, jute, rapeseed/mustard, sunflower, soyabean, safflower, toria, tobacco, copra, sesamum, and Niger seed (GOI, 2001c). The stated objectives of the agricultural price policy are to ensure remunerative prices to the farmers, even out effects of seasonality, and promote agricultural diversification (GOI, 2001c), although the guaranteed prices can be below prices prevailing in markets. Recommendations concerning the MSP levels are made by the Commission for Agricultural Costs and Prices (CACP). In formulating its recommendation, the CACP considers a number of factors, including input/output price parity, trends in market prices, demand and supply, inter-crop price parity, effects on industrial cost structure, effects on general prices, cost of living, international market prices, and the terms of trade (GOI, Undated-b). CACP recommendations have generally been followed but the MSP can vary from the CACP recommended prices, such as when large bonuses were given for wheat in the years 1996-1999 (Hoda and Gulati, 2005).

The objective of the Government's price policy for agricultural produce is to set remunerative prices with a view to encourage higher investment and production. The price support policy was initiated by the Government to provide protection to agricultural producers against any sharp drop in farm prices. If there is a good harvest and market prices tend to dip, the government guarantees an MSP or floor price to farmers, which covers not only the cost of production, but also ensures a reasonable profit margin for the producers. MSP is announced each year and is fixed after taking into account the recommendations of the CACP (Commission for Agricultural Costs and Prices). Procurement prices are the prices of kharif and rabi cereals at which the grain is to be domestically procured by public agencies (for example, FCI [Food Corporation of India]) for release through PDS (public distribution services). Normally, the procurement price is lower than the open market price and higher than MSP.

Among these both systems under favourable conditions, contract farming may provide small farmers with an array of agricultural services to which they would otherwise have no access. All agricultural services are financed privately (by sponsors and out growers) and if the contracts are made fairly and government regulate and monitors then contract farming can solve many socio-economic problems. Therefore, governments might be interested in promoting contract farming in other regions of country. The government of India, with help of research institutions, domestic or local, and foreign donors, has managed to improve many aspects in this sector. But much more must be done to make India, and especially Indian highly important agricultural sector and its production, more effective and really self-sufficient.

2 OBJECTIVE

Contract farming is a well established concept in developed nations. Although relatively new in India, it is rapidly gaining popularity and is being increasingly practiced across the Country. Leading industrial houses, especially for whom agriculture produce forms an integral part of processing functions, has evinced significant interest in the practice. With a well established agriculture practice, India presents vast opportunities for contract farming industry and companies across the globe are keenly evaluating the value proposition offered by various States in the country to practice contract farming. With Indian agriculture dominated by small-scale land holdings, food processors struggle to procure adequate supplies to high-quality produce; huge agriculture and horticulture produce get damaged due to poor technological and financial constraints, under such conditions contract farming seems to be the best alternative. Punjab government realizing its importance has started multi-year multi-crop diversification plan under nodal agency Punjab Agro Food grains Corporation. The project is very important as traditional rice-wheat rotation creating both economical and ecological problems for Punjab state. Since, this venture is new there is a strong need to conduct a study in this area, so as to understand the reactions of farmers towards this system, areas covered by different crops in acres under this system, the problems faced by farmers while dealing with contract agencies. Corrective measures will be taken after thorough analysis of this diversification plan which will help in better implementation and growth of multi-year multi-crop diversification strategy of Punjab government.

The Price Support Mechanism System (PSMS) is introduced only for the safeguard of the farmer's interest to avoid the exploitation by companies and to support the farmers those are not abiding by the Contract farming. Therefore, government policy, its regulation and role is very important in both systems. Thus, general objective of the thesis is to assess whether the contracted farmers reach higher economic efficiency and if contract farming is more suitable and regardful to local environment.

Specific objectives of the thesis are:

- To understand and describe the natural and socio-economic conditions of Punjab state in India in order to find out eventual critical aspects for contract farming implementation and Price Support Mechanism.

- To understand and describe the farmer's reactions regarding different aspects of contract farming, area covered by contract farming and problems faced by the farmers.

- To understand the principles and specifics of contract farming, and difference between PSMS with special regard to household economy in order to anticipate the problems dealing with role of women, childrens and labour etc. in contract farming.

- To analyze the results of the studies and reccomendations for applying the system to other crops and in other states of India.

3 METHODOLOGY

Methodology, following thesis objectives, uses secondary data from database of international organizations, Punjab and Indian government database, reviewed articles, research studies and discussion papers in order to assess the impact of contract farming in on household economy and local environment in Punjab state, India.

Secondary data denotes using already existing information, which is not originally collected for the ongoing project; this was generated from published as well as unpublished sources. Secondary data for the study was collected from various sources for the research study. Initially information were gathered from Internet for general overview; data were gathered from the relevant study material from different agricultural institutions but mainly from Punjab agricultural university in Ludhiana, ministry of agriculture, Punjab government and ongoing projects in this field.

The CACP's cost calculation methodology for fixing up MSP of various crops is analysed in details to have a closer look on various factors involve in it and the level of competition with the normal available prices in the market. This analysis is going to be helpful in understanding the relation between MSP and market price and the impact of it on farmers.

Data was collected with a high level of detail from secondary sources and the Indian directorate of economics and statistics. Emphasis was given to projects and studies which had been conducted in this regard. Maps in the study were taken from websites on the internet. Various relevant websites were used to collect information about the research which particularly played an important role as the present research was area specific and was more difficult to find relevant information while being away from the study area.

Punjab Agro Food grains Corporation Limited has identified the contract farmers in different districts of Punjab. District-wise list of identified contract farmers was prepared.

Table 1 District-wise number of farmers cultivating basmati rice under contact farming in 2003-2004.

Sr. No.	District	No. of farmers
1	Amritsar	1036
2	Bathinda	829
3	Faridkot	1008
4	Fatehgarh Sahib	108
5	Gurdaspur	548
6	Hoshiarpur	88
7	Jalandhar	593
8	Ludhiana	30
9	Moga	87
10	Mansa	795
11	Patiala	1053
12	Ropar	79
13	Sangrur	707

Source: **PAFC, 2003-2004**

Five districts namely, Amritsar, Faridkot, Patiala, Bathinda and Mansa with maximum number of contract farmers were included in the study.

4 FOCUSED AREA DESCRIPTION

4.1 General background

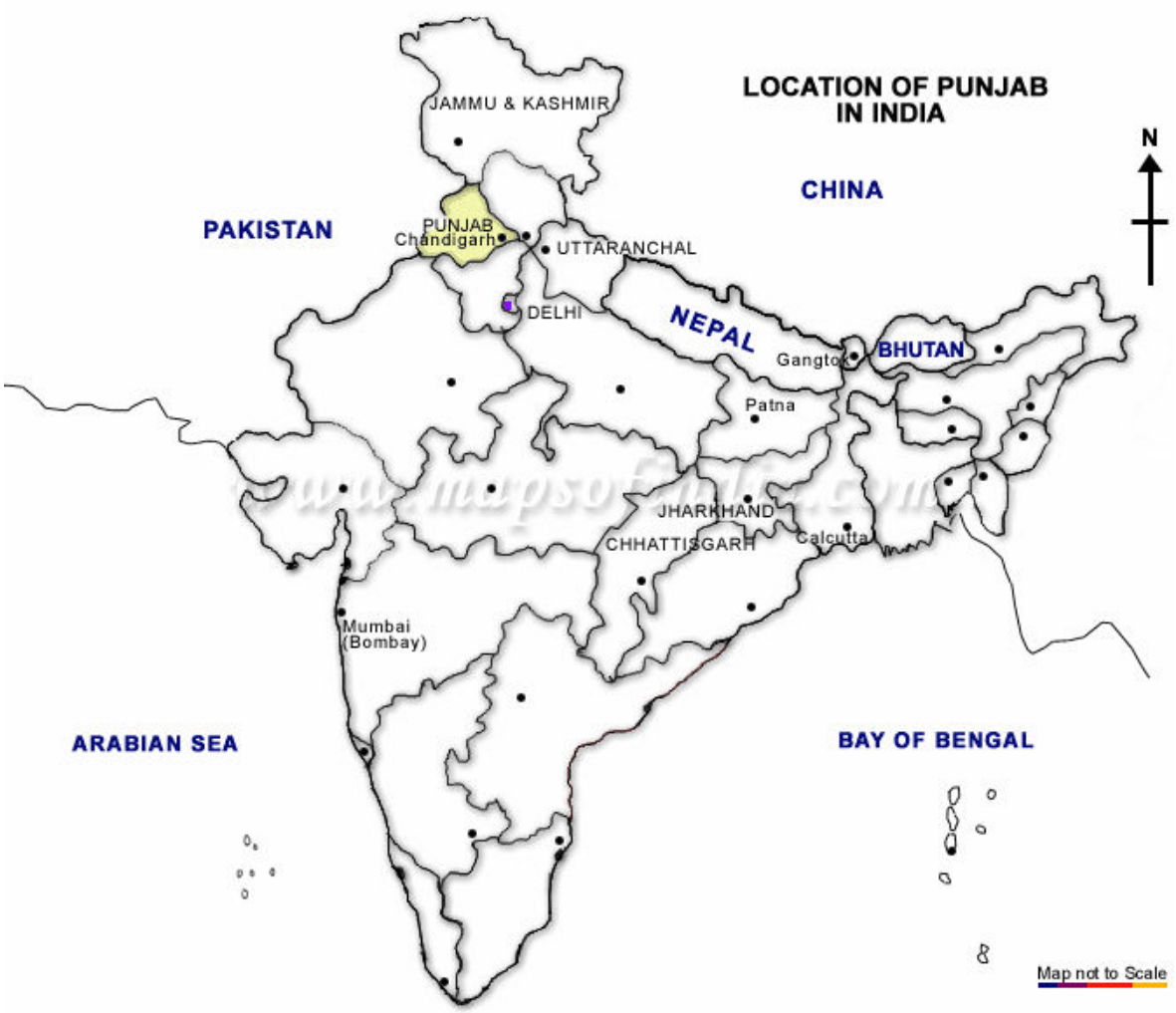
Punjab is India's most prosperous and developed state with one of the lowest poverty rate's in the country. At the end of the 1990s, more than 94 percent of Punjab's citizens were above the poverty line, 70 percent were literate, 94 percent of the six year olds were enrolled in primary schools, and 72 percent of the children fewer than twelve months were immunized. 99 percent of households had access to safe drinking water, and the average life expectancy was 68 years (Punjab development report, 2004). Its remarkable development record can also be inferred from the fact that it has already achieved, or is well on the track to achieve, most of the millennium development goals. According to India's national human development report, Punjab was ranked second only to Kerela in terms of the overall level of human development among the major Indian states. Most citizens of Punjab have thus already achieved the level of socio – economic status that the majority of Indian citizens are unlikely to experience in their lifetime.
Yet there is a sense of uneasiness regarding what the future holds for Punjab. Concerned citizens of the state wonder whether the younger generation will grow up in the most affluent and developed state in the country like their parents and grandparents once did. Will the heady days of the green revolution ever return to Punjab? Will the state be able to hold on to the impressive gains made on the socio – economic front? Such anxieties are not without reason: the state's public finances are under severe stress, the economy has stagnated, employment opportunities are shrinking and human development indicators are beginning to languish or even deteriorate.

With the advent of high yielding, input-responsive dwarf varieties of rice and wheat during 1960s, the entire agriculture production system in Punjab got revolutionized. Major shifts were witnessed in the cropping pattern, especially, in irrigated ecosystems where cereal based multiple cropping came into prominence, relegating less productive, risk prone legumes and oilseed crops to marginal lands. The farmers found the rice - wheat cycle most profitable. Consequently, they abandoned other crops such as pulses, mustard, vegetables, etc. The practice resulted in depletion of organic content and plant nutrients in the soil. The farmers are now compelled to use more and more chemical fertilizers and other inputs to achieve the same production level. The law of diminishing returns has set in. There are indications of significant changes in the natural resource base e.g. falling ground water table over large portions of the state, water logging in the south-western part, degradation of soil health (loss of organic carbon and deficiency of micro and secondary nutrients like zinc, manganese, iron and sulphur) and severe soil erosion in the sub-mountainous Kandi belt in the eastern part of the state (Sondhi and Khepar, 1995).

4.2 Introduction

The word Punjab is made up of two Persian words 'Punj' means five and 'Aab' means water. This name was given to this land due to presence of five rivers within its territory. Prior to independence of India in 1947, Punjab extended across both sides of what now is India – Pakistan border with Lahore its capital. But after independence, Punjab was again divided into two parts, one going to Pakistan and the other half staying with India. Chandigarh, the first planned city of India was build and it became Indian Punjab's capital. In 1966 Punjab was again bifurcated into two states, predominantly Punjabi speaking state of Punjab and Hindi speaking

State of Haryana. However, due to the partition of the state during the independence of India and creation of Pakistan in 1947, presently only three rivers remain in Punjab. Presently, Punjab is one of the smallest states of India, with an area of 50,362 sq km, which constitutes about 1.54 percent of the total geographical area of the country. It is located between 29'30'' N to 32'32'' N latitude and 73'55 E to 76'50 E longitude.According to Indian census, 2001, this modest – sized state tucked away on the north-western border of the country has a population of 25 million.
The state is divided into 17 districts with its capital in Chandigarh. Physically the state may be divided into two parts; sub shivalik strip and Sutlej - Ghagger plain. Punjab has an uncommon prominence in India. For more than four decades now, it has remained the most prosperous state in the country with lowest rates of poverty (Punjab development report, 2004). Its turbulent history, including redrawing of its borders at the time of independence in 1947, huge grain surpluses produced by its farmers since the green revolution which helped the country gain self sufficiency in food, its location as a frontline state on an often hostile border, it has contributed positively in the development of the country.
Location of Punjab state which lies in the north western part of India as shown in the map below.



Source: **www.mapsofindia.com**

As, seen the location of Punjab within India, Punjab is sharing international borders with Pakistan on its west, with Jammu and Kashmir in its north, Himachal Pradesh in its east, Haryana and Rajasthan in its south. The capital of the state 'Chandigarh' is about 300 kilometres north to New Delhi, the capital of India.

Majority of the state's population lives in villages and agriculture is the most important activity of the state. Agricultural land is the state's most important natural endowment. The Punjab's prosperity has been largely due to the state's development of agriculture. There are some major factors that have led to the Punjab's highly productive agricultural system. One factor is its fertile soil. Punjab is for the most part a large, flat plain of fertile alluvial soil. Other factors include extensive irrigation works, suitable climate, hardworking farmers and above all the advent of green revolution.

Punjab is divided into 17 Administrative Districts with 143 towns and 12413 villages. Further more it has 72 Tehsils (a district is divided into smaller areas called Tehsils) and 140 Development blocks. The major economic activities apart from agriculture are industries which are located in cities but mainly in central city of Ludhiana, southern district of Patiala and the northern district of Amritsar.

Population of the state is rural dominated which accounts for 16.04 million (66.05 %) while urban population accounting for 8.24 million (33.95%). With this population the density is 482 persons per sq km. The overall literacy rate in the state at present is 69.95% which constitutes 75.2 percent male literacy and 63.4 percent is precisely the female literacy rate in the state (India census, 2001).

In terms of connectivity, the state capital, Chandigarh has excellent air services, linking with New Delhi. Amritsar airport is an international airport making an important link between the state and rest of the world. By air, from Delhi one can reach any city in Punjab within two hours. Other well connected airports are situated at Chandigarh, Amritsar & Ludhiana.

Ludhiana district boasts of having an Inland container depot which serves to major industrial requirements. All major towns and district headquarters have excellent rail links for both passenger and goods traffic. Chandigarh, Ludhiana, Amritsar, Ferozepur and Jalandhar are on the main line and have excellent daily train services to other states for both passenger and freight transportation.

A detailed population and area of all the districts of Punjab is given below (Table 2) with three districts highlighted as being the study area for this research work.

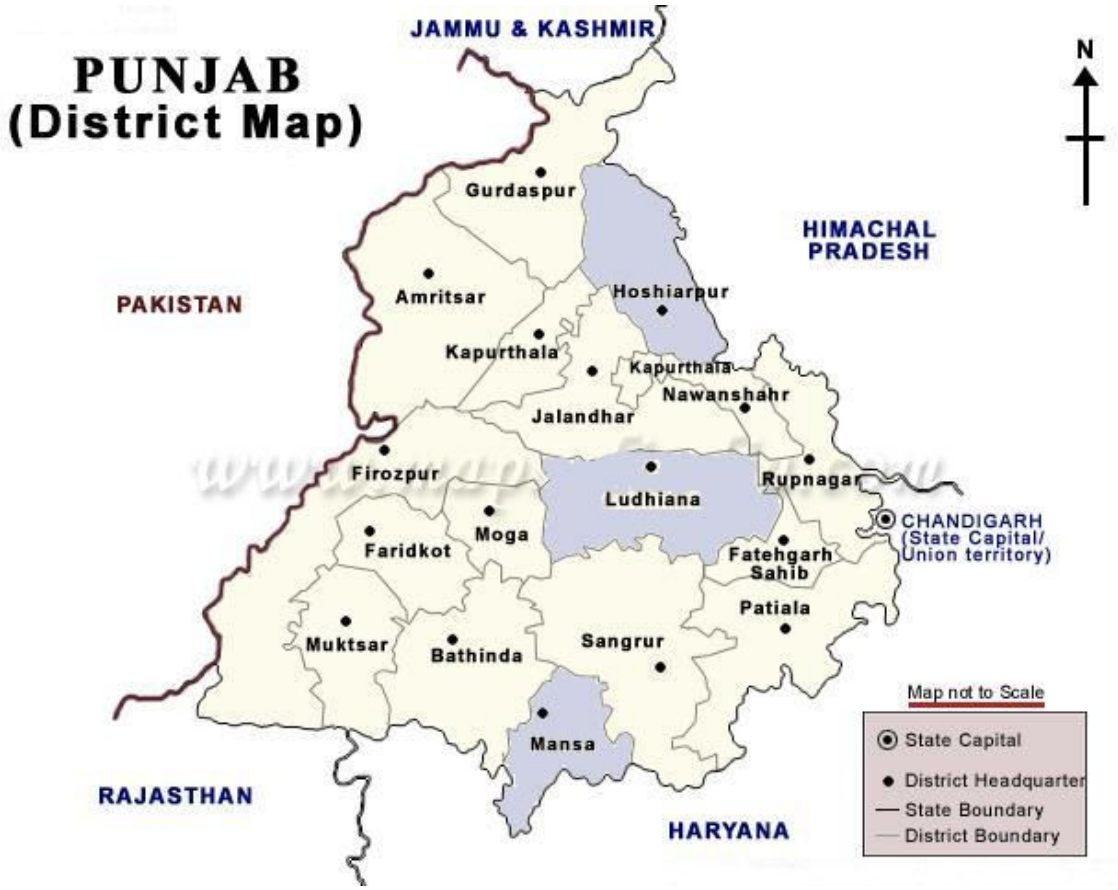
Table 2 District-wise area and population

District	Area (sq km)	Population (2001)
Amritsar	**5075**	**3074207**
Bathinda	**3377**	**1181236**
Fatehgarh Sahib	1180	552466
Faridkot	**1472**	**539751**
Ferozpur	5865	1744753
Gurdaspur	3570	2096889
Hosiarpur	3310	1478045
Jalandhar	2658	1953508
Kapurthala	1646	752287
Ludhiana	3744	3030352
Mansa	**2174**	**688630**
Moga	1672	886313
Muktsar	2596	776702
Nawan shehar	1258	586637
Patiala	**3627**	**1839056**
Roopnagar(Ropar)	2117	1110000
Sangrur	5021	1998464

Source: India census 2001, **www.mypind.com**

4.3 Study Area and its Characteristics

Study work was focused in the five districts of Punjab, namely Amritsar, Faridkot, Patiala, Bathinda and Mansa. **Amritsar district** is one of 19 districts in the state of Punjab in West India. **Faridkot district** is one of the twenty districts in the state of Punjab in North-West India. The Faridkot district contains a number of small towns. More than 7 villages are quite notable in Faridkot area. Faridkot is a hub for premier educational institutions. **Patiala district** is one of the twenty districts in the state of Punjab in North-West India It is surrounded by Fatehgarh Sahib and Rupnagar districts and the Union Territory of Chandigarh to the north**. Bathinda district** encompasses an area of 3,344 sq km. Bathinda is cotton producing belt of Punjab, while Mansa is located in the southern part of the state with 3 tehsils. The exact location of the study area can be visualized from the district map of Punjab as below.



Source: www.mapsofindia.com

4.3.1 Location and size

Punjab, located between the Indus and Ganges River, is largely an alluvial plain irrigated by canals. Punjab's arid southern border edges the Thar or Great Indian Desert. The Shivalik Ranges rise majestically in the North. As mentioned earlier the study area compromising of three districts. One of the districts 'Hosiarpur' lie in the north eastern part of the state having an area of 3,310 sq km. This district is situated at the base of Shivalik hills therefore is a semi hill area at the latitude of 31.32 N and longitude of 75.57 E. The second district to be studied was 'Ludhiana', situated in the heart of the state has an area of 3,744 sq km; the district is one of the biggest districts in the state both area and population wise and is located at 30.55 N and 75.54 E. The third district ´Mansa` is situated in the southern part of the state with an area of 2,174 sq km. This district shares its borders with the neighbouring state of Haryana and is generally considered to be the isolated district of the state partly due to its cornered position.

4.3.2 Relief and Drainage

From the geographical and physiographic point of view, Punjab falls into two regions: the Shivaliks and the Plain. The Shivalik region covers the outer range of the Shivalik Hills which is approximately 6 to10 kms in width. Their height ranges between 400 and 700 metres above sea level. It consists of conglomerates, clays and silts-all having the character of fluviatile deposits of rivers and stream. The low range of the Shivalik Hills separates the Himalayas from the plains. The Shivalik region covers the eastern most areas of Ropar, Hoshiarpur and Gurdaspur districts.

The Punjab plain is a part of the great Indo-Gangetic plain which is a synclinal basin formed by the elevation of the Himalayas. The Punjab plain lies between 180 and 300 meters above sea level. It is higher near the Shivalik Hills but slopes away from them. The tract covering central Punjab ranges between 230 and 270 metres above sea level while western Bhatinda and Ferozepur districts lie below 230 metres above sea level. The land slopes from east to west. The gradient is much more in the east than in the west but generally except for the strip of the shivalik hills along the states eastern border, the entire area is a flat, alluvial plain with elevation ranging between 180 and 300 meters above sea level.

The 'Hosiarpur' district is situated on the foothills of Himalayas, so it has gently undulating terrain becoming mountainous towards the eastern border. The district of 'Ludhiana' is almost plain in terrain and is very fortunate to have 'Sutluj', which is one of the major rivers passing through the state. 'Mansa' district is characterized by semi sandy soil but more or less the district has plain terrain except for few sand dune areas. As mentioned earlier, the state of Punjab is fortunate to have three rivers namely Ravi, Beas, Sutluj and the seasonal river Ghagger. River Ravi touches the northern most part of the state partly passing through the districts of Amritsar. Beas River enters Punjab through its western border and joins river Sutluj which passes through the middle of the state. This pattern of rivers divides the state into three cultural zones namely, Majha, Doaba and Malwa. The state has majority of its land under the Ganga plains region which is one of the most fertile lands in the country and has been formed by the slow deposition of alluvial sediments from the rivers over long time.

4.3.3 Vegetation, Climate and Soil

There are three well defined seasons in the Punjab. These are: Hot Season (mid-April to the end of June), Rainy Season (early July to the end of September), and Cold Season (early December to the end of February). The transitional seasons are Post-monsoon (September to end of November), this is the most welcome season and the agricultural year starts with its advent. Monsoon winds reach the region normally in the first weeks of July. The Bay of Bengal branch of the monsoon current is the main source of rainfall. It is transitional period between the rainy and cold seasons. Pre-hot season (March to mid-April), it is a transitional period between the cold and hot seasons. The sub-tropical latitudinal and continental location of Punjab makes the variation of temperature from month to month very high. Though the minimum air temperature rarely drops below 0˚C, ground frost is a common phenomenon in mid-winter. The rise in temperature is gradual when the air has high moisture content with the sky remaining overcast; the rise is however steep when the sky is clear and there is little moisture content in the air.

But generally the climate of Punjab is typically subtropical with hot summers (temperatures reaching as high as 47°C) in certain areas and cold winters (lowest temperatures touching up to -2°C).The annual rainfall is around 462 mm in plains and 890 mm in the northern submontane regions characterised by the lower Shivaliks. About 70 percent of the annual rainfall is received during monsoon months (June to August) and a part of it is received during winters (January), (PSCST, 1995). During the winter season, weather in Punjab is normally cool and dry. This type of weather is associated with the passage of western disturbances through the region. The importance of winter rainfall in Punjab is immense primarily because of its time and effectiveness. In the area adjoining the Shivalik Hills, winter crops are dependent upon this rainfall. The sub-Shivalik region receives more than 100 mm of rainfall from December to March.

In Punjab the soil characteristics are influenced to a very limited extent by the topography, vegetation and parent rock. The variation in soil profile characteristics are much more pronounced because of the regional climatic differences. Punjab can be divided into three distinct regions on the basis of soil types.

1. SOUTH-WESTERN PUNJAB

This region covers the tehsils of Fazilka, Muktsar, Bhatinda, Mansa and parts of Ferozepur which border Haryana and Rajasthan states in the south-west. The soil is predominantly calcareous, developed under hot and arid to semi-arid conditions. The pH value ranges from 7.8 to 8.5 which shows that the soil is normal in reaction. Grey and red desert, calsisol, regosol and alluvial soils are found in this zone. This soil zone with less moisture content is ideal for cotton crop. Mansa which is one of the study districts has been traditionally known for good cotton production.

2. CENTRAL PUNJAB

The soil of this zone has developed under semi-arid condition. The soil is sandy loam to clayey with normal reaction (pH from 7.8 to 8.5). The soil covers the districts of Sangrur, Patiala, Ludhiana, Jalandhar, Kapurthala, and Amristar, parts of Gurdaspur, Ferozepur and fringes of Kharar tehsil of Ropar district. This clayey soil type has characteristics of holding water and

moisture which makes it fit for rice cultivation. Ludhiana district was selected from this soil zone as a representative district.

3. EASTERN PUNJAB

The soil has developed in the sub-humid foothill areas bordering Himachal Pradesh covering eastern parts of Gurdaspur, Hoshiarpur, Ropar and north-eastern fringes of Patiala district. Because of the undulating topography and fair amount of rainfall, normal erosion is quite common. The fertility of the soil is medium to low and the texture is loamy to clayey. District Hosiarpur was selected from this third region of soil types. So, in a way, Punjab is very fortunate to have good soils which result into exceptional agricultural capability in terms of production.

4.3.4 Land Utilization

Being primarily an agricultural state, majority of the land is devoted to agriculture. Although the land under agriculture has not changed much since 1970s but there has been some difference in the utilization of the land. It can be seen in the table below which shows the land utilization in Punjab with two time series.

Table 3 Land utilization in Punjab (in 1000 ha)

Item	1970-71	2001-02
Geographical area	5033	5033
Area under forests	123	281
Unculturable and barren land	208	45
Non-agricultural use	416	409
Culturable land	92	14
Fallow land	139	26
Net area sown	4053	4268
Cropped area	5678	7941
Cropping intensity (%)	140	186

Source: **Singh *et al*, 1997**

As in the table, above shows the land division in the state. It can be noted that the barren land in the state is almost negligible and the fallow land has also reduced drastically. Net shown area is almost stagnated due to the limitation of fixed land available for agriculture. Non agricultural land includes urban areas and the areas which are not used for either agriculture or urban settings. But basically, it is used for expanding cities with the ever increasing population. Due to pressure on land, cropping intensity has also increased significantly during the last three decades. Interestingly area under forests has increased because of various forestry schemes which were launched intensively by the government. It should be noted that the cultivable land, which is not

yet utilised is not much left resulting in the state with limited opportunity to increase the area under agriculture horizontally.

4.4 Socio – Economic Activities

It is the rich tradition that has made this part of India a laboratory of the process of economic, social and cultural transformation, through the participation of the people in building their own destiny. Punjabi's are fortunate to have a long cultural history. The typical Punjabi is an extrovert, a sociable fellow who likes to eat well and dress well. Punjabi's are known for their ability to learn quickly and assimilate new cultures without difficulty. Family honour is of great importance to Punjabi's, but generally Punjabi's tends to be liberal minded. It is a matter of pride for Punjabi's to be "up to date". There enterprise and capacity to work hard are legendary and their deepest ambition is to "be there own boss".

The social bonds are normally strong between families. The major social activities include marriages and festivals which are celebrated with great favour. Marriages hold important place in the family traditions and are generally celebrated on a grand scale. An average Punjabi spends considerable amount of money in organising marriage ceremonies which include catering to large gatherings and often expensive dowries in case of girl marriage. The rich lifestyle is exhibited in all forms in Punjabi culture whether it is functions or festivals.

Punjabi society is marked with some discriminations also particularly: - consistently low and declining sex ratio (the gender ratio is only 874), which is one of the lowest in India (Punjab development report, 2004). The high costs of dowry involved in girl marriages are one of the reasons which lead to sex selective abortions in the state.

When it comes to economic activities, apart from agriculture, industries contribute in providing employment and income. For the industrial development of an area infrastructure plays a significant role. The rapid industrialization depends on the adequate availability facilities like road, Railways, power, water and developed transport and communication network, financing and administrative support from Central/State Govt. etc. Except for some major cities, industries are not very wide spread in the state due to non availability of any kind of raw material in the state.

Particularly the districts of Ludhiana, Patiala, Amritsar and Jalandhar have considerable industries but rest of the state has negligible industrialization. The reason for the above mentioned districts to be industrialized may be accreted due to their well connectivity with other states through national highways. Particularly, the Ludhiana district is the hub of hosiery and called the Manchester of India. A variety of items such as cycle and cycle parts, sewing machines and components, automobiles parts and accessories hosiery and knitwear goods, industrial fasteners, machine tools and components rubber goods, woolen garments, electronic goods etc. are being produced in the small scale sector. The industry in large and Medium sector is producing items as bicycles, hosiery goods, tyres, tubes, electronic goods, steel and alloy steel castings, beer, sugar, flour rice/rice bran oil and cattle feed etc.

Industries in Ludhiana provide ample job opportunities for the surrounding areas of the city. Large number of migrant labour is employed in these kinds of factories within the city. This migrant labour is mostly from the other economically backward states of India. The nature of employment in these factories is permanent except for some like hosiery which is seasonal in nature.

5 CONTRACT FARMING

In contract farming, a processing unit purchases the harvest of independent farmers under certain pre-negotiated terms and conditions on price, quantity, quality and input supply. It enables the firm to reduce much of uncertainty and have a steady supply of necessary raw materials.

Roy (1963) defines contract farming as those contractual arrangements between farmers and companies whether oral or written specifying one or more conditions of production and/ or marketing of an agricultural product. This definition was considered too broad as it included marketing or forward contract. Contract farming has to be distinguished from such simple marketing contracts. Contract farming entails relations between growers and private or state enterprises that substitute for open market exchange by linking normally independent family farmers owning widely variant assets with a central processing, export or purchasing unit that regulates in advance the price, production practices, product quality and credit (Davis, 1979). Thus, contract farming or vertical coordination stands between the open market and the vertically integrated agribusiness firms.

Little and Watts (1994) provide a more comprehensive definition of contract farming. They define it as a
"…form of vertical coordination between growers and buyer processors that directly shape production decisions through contractually specifying market obligations such as value, volume, quality and at times price, provide specific inputs and exercise some control at the point of production."

This definition is also not adequate as there could be buyers other than processors. Gurdev Singh and Asokan (2004) gave a more universal definition of contract farming as they visualised it in the Indian context. According to them

"Contract farming is a form of vertical coordination between producers and the contractor (processor or marketing firm or a third party such as input manufacturer or service provider) where the latter directly influences the production decisions and exercises some control at the production point under the obligation of purchasing certain quantity of produce at specific price from the producers. The quantity and price relate to delivery of specific quality produce at designated location and for a period of time."

There are several types of contract farming from just buying a certain quantity at a predetermined price to having complete control over production from supply of seed to harvesting. Broadly speaking, there are two types of contract namely, marketing and production contract. In the marketing contract, most management decisions remain with the growers since they retain ownership till the final disposal of the commodity. The producer bears all the risk of production, but share the price risk with the contractor. On the other hand, the production contract specifies in detail the quality and quantity of a particular commodity to be procured and the type of compensation the producer would receive for his efforts. The contractor may supply all the inputs to the growers. As the contractor closely monitors the quality produced and the production practices followed, he tends to dominate the terms of the contract. The type of

Contract depends on the nature of the crop, the company's objective, area of operation, etc. Contracting out production is a commercial decision of the firm to facilitate adequate supply within a designated period at an economic price (Easton and Shepherd, 2001).

Contract farming, as a corporate strategy for procuring quality raw materials at least cost requires that the farmers may remain a source of reliable and inexpensive raw materials. In case these materials become either unreliable or expensive, the firm would have to find a more effective way to maintain its control over the farmers. Successful contract farming arrangements require a long term commitment from both the parties, i.e. the agribusiness firm and the farmers. Exploitation of the farmers by the firm would result in a breakdown in supplies jeopardising the investments made. Similarly, farmers should not be tempted by the occasional spurt in prices in the open market for short-term gains but should honour the contract instead, in order to ensure a fair return over a period of time. (Gurdev Singh and S.R. Asokan, 2004)

Studies on contract farming in Latin America and Africa (Glover and Kusterer, 1990; Little and Watts, 1994) found that the initial enthusiasm of the donors and others about the potential of contract farming as a development tool had been belied. The case studies brought out many problems faced by the farmers in the contract arrangements. Barring some exceptions like the Kenya Tea Development Authority, the Lam Nam Oon project in Thailand and the mushroom cultivation in Taiwan (Benziger, 1996), etc., overall studies found that contract farming unduly favoured the agribusiness firms. There were several ways in which the firms circumvented the contract agreements to their advantage.

For the neo-classical economists and proponents of agribusiness, the contract ensures a sort of mutualism between parties. Freely entered into, the contract allows growers to make better use of their specific endowments in imperfect markets and to arrive at combinations of income, effort and risk reflecting their resources and tasks (Little and Watts, 1994). Sharing of transaction cost advantage is the crux of contact farming. The distribution of this advantage depends on factors like bargaining power, availability of alternatives and access to information (Glover and Kusterer, 1990). The strength of a party in any one of these factors leads to its opportunistic behaviour, which was defined as unanticipated non-fulfillment of the contract. This leads to strains in the contractual relationship and may result in the failure of the contract.

Bruch *et al* (1990) stated that contract farming represent a significant change in the organization of farm production in both the developed and the developing world. It integrated farmers and farm families into the wider national and global economy by separating land ownership from the power to make land use decisions. This included cropping- use of chemicals (pesticides, herbicides, fertilizers) and harvesting decisions and are no longer the exclusive province of farm owners and operators. The study reported that the primary benefit of farm owners and operators. The study reported that the primary benefit for the farmers of contract farming is the reduction of economic risk and allowing investment in large scale processing system.

Carney (1992) reported that contract farming was the distinct social organization of labour which linked farmers, producers to the state through the supply of agricultural commodities specified in advance by a written or oral contract which was intended to raise the productivity. Contract farming began with a description of the production contract implementation in the project area. Then, the next attention was focused on the labour process and specially the changing land and crop rights induced by contract farming.

Contract farming can be structured in a variety of ways depending on the crop, the objectives and resources of the sponsor and the experience of the farmers. Contracting out production is a commercial decision to facilitate an adequate supply within a designated period and at an economic price.

5.1 Types of contract farming

Eaton and Shepherd (2001) present five organisational models for contract farming:

1. The centralized model.

2. The nucleus estate model.

3. The multipartite model.

4. The informal model.

5. The intermediary model.

1. The centralized model This is a vertically coordinated model where the sponsor purchases the crop from farmers and processes or packages and markets the product. Except in a limited number of cases, farmer quotas are normally distributed at the beginning of each growing season and quality is tightly controlled. A sponsor may purchase from tens of thousands of small-scale farmers within a single project. The centralized scheme is generally associated with tobacco, cotton, sugar cane and bananas and with tree crops such as coffee, tea, cocoa and rubber, but can also be used for poultry, pork and dairy production. Where fresh vegetables and fruits are grown under contract, the term "processing" may include grading, sorting and packaging as well as the provision of cool storage facilities (Eaton C. and Shepherd A, 2001).

2. The nucleus estate model Nucleus estates are a variation of the centralized model. In this case the sponsor of the project also owns and manages an estate plantation, which is usually close to the processing plant. The estate is often fairly large in order to provide some guarantee of throughput for the plant, but on occasion it can be relatively small, primarily serving as a trial and demonstration farm. A common approach is for the sponsors to commence with a pilot estate then, after a trial period, introduce to farmers (sometimes called "satellite" growers) the technology and management techniques of the particular crop (Eaton C. and Shepherd A., 2001).

3. The multipartite model The multipartite model usually involves statutory bodies and private companies jointly participating with farmers. Multipartite contract farming may have separate organizations responsible for credit provision, production and management, processing and marketing. Multipartite structures are common in China where government departments as well as township committees and, at times, foreign companies have jointly entered into contracts with village committees and, since the early 1980s, individual farmers (Eaton C. and Shepherd A., 2001).

4. The informal model This model applies to individual entrepreneurs or small companies who normally make simple, informal production contracts with farmers on a seasonal basis, particularly for crops such as fresh vegetables, watermelons and tropical fruits. Crops usually require only a minimal amount of processing. Material inputs are often restricted to the provision of seeds and basic fertilizers, with technical advice limited to grading and quality control matters. A common example of the informal model is where the sponsor, after purchasing the crop, simply grades and packages it for resale to the retail trade. Supermarkets frequently purchase fresh produce through individual developers and, in some cases, directly from farmers. Financial investment by such developers is usually minimal. This is the most transient and speculative of all contract farming models, with a risk of default by both the promoter and the farmer (Eaton C. and Shepherd A., 2001).

5. The intermediary model Formal subcontracting of crop production to intermediaries is common in Southeast Asia. In Thailand, large food processing companies purchase crops from individual "collectors" or farmer committees, who make their own informal arrangements with farmers. The use of intermediaries must always be approached with caution because of the danger of sponsors losing control over production and over prices paid to farmers by middlemen. subcontracting disconnects the direct link between the sponsor and farmer. This can result in lower income for the farmer, poorer quality standards and irregular production (Eaton C. and Shepherd A., 2001).

Eaton and Shepherd (2001) stated that agreements, in the form of a written contract or a verbal understanding, usually cover the responsibilities and obligations of each party, the manner in which the agreement can be enforced and the remedies to be taken if the contract breaks down. In most cases, agreements are made between the sponsor and the farmer, although in the case of multipartite arrangements and some others, the contracts are often between the sponsor and farmer associations or cooperatives. In the case of arrangements through intermediaries, the sponsor contracts directly with the intermediaries who make their own arrangements with farmers. Four aspects need to be considered when drafting contracts:

1. The legal framework: The formal law of contract in a particular country, as well as the manner in which that law is used and applied in common practice.

2. The formula: The clarification of the managerial responsibilities, the pricing structures and the set of technical specifications that directly regulate production.

3. The format: The manner in which the contract is presented. The various formats are: formal agreements; simple registrations; and verbal agreements

4. The specifications: The details of the implementation of the contract. These details are: contract duration; quality standards; production quotas; cultivation practices; crop delivery arrangements; pricing arrangements; payment procedures; and insurance arrangements.

5.2 Other important aspects of contract farming

5.2.1 Political Requirements

Governments must be interested in promoting contract farming arrangements or monitoring existing ones. Contract farming is politically more acceptable than plantation production in which companies often own large estates while middle and small farmers remain excluded from high-value agricultural production and from participating in profitable markets. If large plantation production is disliked, contract farming is an alternative, as the product volumes required are provided by medium-sized and small-scale farmers.

5.2.2 Services

The sponsors/purchasers of large volumes of produce usually provide one or more of the following services:

- The coordination of production;
- The provision of extension advice on new cultivation/harvesting practices, appropriate use of chemicals, and efficient farm management;
- The supply of inputs (seeds, chemicals, mechanisation);
- The supply of credits;
- The transport of crops from the farm gate.

5.2.3 Process of Service Delivery

Good service delivery by the sponsor is a precondition for successful contract farming. Poor services, which jeopardise production, may lead farmers into the so-called debt-trap. Sponsors must therefore take responsibility for coordinating production and marketing activities well. Managers must ensure the transparency of all interactions with the farmers and they must ensure that farmers understand both their own obligations and those of the sponsor.

Two kinds of services are examined in more detail below: coordination of the production process and the provision of extension advice.

Coordination of production process involves

- Identifying suitable production areas
- Selecting farmers
- Forming working groups (farmers)
- Providing material inputs
- Providing logistical support
- Purchasing the product.

The provision of extension advice involves

- Ensuring the quality of extension staff (product knowledge, communication skills, empathy with farmer culture)
- Providing suitable and profitable technology.
- Clarifying the timing of production and harvesting activities.
- Organising training programmes for extension staff and farmers.

5.2.4 Extension Methods

The extension methods used in the context of contract farming relate to the transfer of knowledge and technology. However, improving two-way communication between management and extension staff, on the one side, and farmers, on the other, seems to be crucial for making the commercial relationship successful and beneficial to all in the long run. Methods used include:

- Individual extension
- Group extension
- Field day
- Demonstration, demonstration plots
- Lectures
- Handouts
- Training on technical issues (farmers, extension staff) training on managerial issues, i.e.
- Providing the knowledge about
  - Production timing
  - Record keeping
  - Product quality
  - Requirements of export markets.

5.2.5 Tools

The tools mentioned aim to clarify the obligations of the company and of the out- growers, or provide transparency to the relationship.

- Clear contracts between sponsors and farmer
- Farmer performance records
- Open discussion groups (farmer-manager forums)
- Facilitation and conflict.

5.2.6 Costs

Costs for the government are incurred by providing

- Public infrastructure (sanitation, water, streets, etc.).
- A reliable legal framework
- Protection of out-growers against exploitative agreements.

Costs for the sponsors are incurred by

- Delivering extension advice
- Providing inputs, credits
- Sharing production and marketing risks with the farmers.

Costs for farmers are incurred by

- Using their own land for production
- Paying back extension advice (eventually)
- Paying off inputs and credits
- Sharing production and marketing risks with the sponsor.

5.3 Scope of Contract Farming in India

Indian agriculture is predominantly a smallholder's occupation. More than 80% of the holdings are of size less than two hectares and these are getting further subdivided and smaller. The income from such small holdings is naturally low.

The cropping pattern on small farms is dominated by small food needs and food crops occupy more than 83% of the cropped area. The emphasis on self-sufficiency centered production led to low value addition (Vyas, 1994; Jha, 2001). Even if one assumes that these farmers can cultivate the best possible crops, the return remains meagre (Asokan and Singh, 2001). The problem gets further compounded as these farmers choose to remain close to their land and try to supplement their income by working as agricultural labour and rearing one or two milk animals. The share of workers engaged in agriculture fell by 8% in four decades, that is from 72% in 1951 to 64% in 1991 (Chand, 2001). At the same time the share of agriculture in the national GDP decreased sharply from 55% to 25% for the same period. This had exacerbated the rural and urban disparity in development and living standards.

Several studies that investigated the problems confronting the small farmers over the decades were more or less unanimous in their findings. The major bottlenecks facing the small and marginal farmers were lack of access to credit, poor marketing channels for inputs, less developed markets for agricultural outputs, weak extension service, etc. Even recent studies point to the persistence of such problems in many parts of the country (Basu, 1997; Acharya, 2001; Ahuja and Punjabi, 2001). Crop insurance schemes can enable the small farmers to invest in new technology and crop as it insulates them against the production risk. As their lending is secured against unexpected contingencies, financial institutions would not be hesitant to lend to these farmers. However, crop insurance schemes in India have been a failure (Mosley and Krishnamoorthy, 1995) as they were not able to mitigate the losses to the farmers.

There are several agricultural and horticultural crops such as tomatoes, potatoes, chillies, gherkins, baby corns, onions, cotton, wheat, basmati rice, groundnut, flowers, medicinal plants, etc. produced under contractual arrangements with the farmers in India. Big corporate houses and several small players are involved in contract farming. Broiler chicken production in the state of Tamil Nadu is entirely under contract arrangement. Though most of the arrangements are bilateral between the firm and the farmer, there are tripartite and multipartite agreements as well, which include commercial banks and input suppliers. Contract farming in most of the crops mentioned above is mostly on a pilot basis.

Recently, the Punjab government started contract farming in a number of crops in an attempt to diversify the cropping pattern of the state to fulfill the government's objectives of moving 10 lakh hectares away from the paddy – wheat rotation. Several companies like Escorts, Mahindra and Mahindra, Rallis, Pepsico, United Breweries, etc. were involved in the contract. The state government through the public sector organisation, Punjab Agro Food Corporation (PAFC) became the party to the contract. It had committed to buy the produce in case the firm could not procure. These contracts for some crops were ill conceived and had run into several problems. As many companies reneged on the contract agreement, in order to pacify the angry and agitating farmers, the Punjab government stepped in and procured the crops.[1] Instead of

[1] "Contract Farming in a Mess in Punjab", The Times of India (Chandigarh edition), December 7, 2003. "Farm Guru Picks Holes in the Contract", The Indian Express, February 20, 2004.

Withdrawing gradually from procurement the government ended up procuring more because of the lacuna in the contract farming models pursued in the state. Farmers were dissatisfied with the inputs supplied by the firms and the extension service provided by them, as they had charged the Farmers. The high open market price of some commodities compared to the contract price also contributed to the dissatisfaction of the farmers. Quality interpretation of the produce also became a source of dispute.

For about a decade now, contract farming has been expanding steadily in India; at present, it is practised practically in all products of Indian agriculture.

Some of the more prominent examples are:

- Tomato cultivation in Punjab, Haryana and Rajasthan
- Mushrooms in Haryana
- Sunflower cultivation in Andhra Pradesh and Karnataka
- Gherkins in Karnataka
- Fruits and vegetables in Tamil Nadu, Maharashtra and Andhra Pradesh.

Besides local agribusiness firms, a number of MNCs are involved in contract farming in India. Pepsico and Hindustan Lever Ltd. (HLL) in Punjab and Haryana, Maxworth Fruits in Andhra Pradesh, Karnataka and Tamil Nadu, VST Natural Products Ltd. in Andhra Pradesh, Cadbury in Karnataka, etc. are a few notable examples.

5.4 Model of contract farming being practiced in Punjab

S.Singh (2002) stated that The Punjab agriculture has been known for its Green Revolution of the late 1960s and the 1970s and overall agricultural development. The state achieved this though 70% of the holdings are less than four hectares each (Table 4). But during the 1980s, the Green Revolution momentum could not be sustained. The number of operational holdings in 1980–81 declined as compared to those in 1970–71, especially in marginal and small categories, due to the phenomenon of ‘‘reverse tenancy’’ under which small and marginal farmers leased out land to medium and large farmers (Table 4).

Table 4 Distribution of operational holdings in Punjab: 1970–71, 1980–81 and 1990–91

Type and size of Holdings	Percentage share of all holdings			Percentage change		
	1970–71	1980–81	1990–91	1980–81 over 1970–71	1990–91 over 1980–81	1990–91 over 1970–71
Marginal (0–1 hectares)	37.63	19.21	26.47 (4.07)	-61.89	50.07	-42.78
Small (1–2 hectares)	18.91	19.41	18.25 (8.14)	-23.34	2.24	-21.62
Medium (2–4 hectares)	20.40	27.98	25.86 (20.87)	2.25	0.47	2.73
Large (4–10 hectares)	18.01	26.20	23.41 (40.22)	8.60	-2.82	5.54
Very large (Above 10 hectares)	5.01	7.20	6.01 (26.70)	7.34	-9.15	-2.48
Total	100.00	100.00	100.00	-25.32	8.79	-18.76

Source: **Ghuman (2001)**

Note: Figures in brackets are percentage of area under respective category of holdings in total area.

There was stagnation in yields accompanied by increasing costs of cultivation. By the mid-1980s, a wheat grower in Punjab was obtaining lower net returns per hectare, even after incurring higher costs per hectare on modern inputs, compared to a wheat grower in Madhya Pradesh (Nadkarni, 1988). The proportion of agricultural labor in the total rural male workers went up by 2.2% and that of the cultivators down by 2.7% during the 1980s. The jobs generated in the nonfarm sector were only 19% of the ones lost in the farm sector (Fisher, Mahajan, & Singha, 1997). The net annual income of a seven hectare farm family in the 1980s was found to be lower than the annual salary of a government department assistant (Johl, 1996). Punjab ended up growing largely wheat and rice (71% of the gross cropped area) and food grain crops accounted for 75% of the total cropped area (Table 5).

The net sown area was 84% of the total area and the cropping intensity 178, with 94% of the total area being irrigated by the early 1990s (Table 6). The area under vegetable crops has been declining since the 1970s in relative terms (Chand, 1999b). By the late 1980s, Punjab had 82 tractors and 160 pump sets per 1,000 hectares of cropped area each, and the fertilizer consumption was of the order of 170 kg/hectare (Ghuman, 2001; Sidhu & Johl, 2001). This high degree of mechanization led to the problem of rural unemployment. The intensive production led not only to monocultures but also to higher incidence of pests and diseases which, in turn, led to the ecological problems of decline in water table, water logging, soil salinity, toxicity, and micro-nutrient deficiency (Sidhu & Johl, 2001).

Table 5 Changes in cropping pattern in Punjab (1960–98) (% of gross cropped area)

Year	Food grains	Cereals	Wheat	Rice	Cotton	Oilseeds	Sugarcane	Pulses
1960–61	64.73	45.65	29.59	4.80	9.45	3.91	2.81	19.08
1970–71	69.18	61.89	40.49	6.87	6.99	5.20	2.25	7.29
1980–81	77.77	66.76	41.57	17.49	9.60	3.52	1.05	5.04
1990–91	75.55	73.65	43.63	26.86	9.34	1.39	1.35	1.91
1994–95	76.64	75.41	43.04	29.44	7.77	1.92	1.04	1.23
1995–96	74.17	72.94	41.77	28.33	9.62	3.07	1.76	1.23
1996–97	72.87	71.63	41.34	27.62	9.16	3.15	2.23	1.24
1997–98	74.60	73.55	41.94	28.94	9.20	1.77	1.60	1.05

Source: **Sidhu and Johl, 2001**

Table 6 Some important aspects of Punjab agriculture: 1950–51 to 1998–99

	1950–51	1960–61	1970-71	1980–81	1990–91	1994–95	1997–98	1998–99
Net sown area as percentage of total area	-	75	81	83	84	84	85	83
Cropping intensity	118	126	140	161	178	183	185	184
Irrigated area as percentage of gross cropped area	55.7	56.0	74.7	85.5	94.0	95.1	96.1	96.2
Area under food grains as percentage of gross cropped area	67.9	64.8	69.2	71.8	75.6	76.6	74.6	78.3

Source: **Ghuman, 2001**

5.4.1 Corporate-led Contract Farming

Sukhpal Singh (2002) Indian Institute of Management, Ahmedabad in his paper "Contract Farming for Agricultural Development and Diversification in Punjab: Problems and Prospects" stated that Contract farming in Punjab which was in place by the early 1990s with the entry of Pepsi Foods - an MNC (Pepsico) subsidiary - into tomato and chillies, and a local firm - Nijjer Agro Foods Ltd. - into tomato, got further rooted with the selling off of its tomato facility by Pepsi to Hindustan Lever Limited (HLL) - a Unilever multinational subsidiary which processes one tenth of world tomato production and is the largest food processing and marketing company in India) in 1995, and Pepsi's entry into potato contracting by the late 1990s. The HLL plant in Punjab (set up by Pepsi) was the biggest tomato paste plant in Asia with a capacity to process 650 tonnes of tomatoes a day. HLL worked with about 400 contract growers during the late 1990s. Pepsi which had been working with hundreds of tomato and chilly farmers until 1997, later worked with only about a few dozen in chillies and potatoes each. Its potato contracts accounted for only about 10 per cent of its total procurement. Nijjer Agro Foods' tomato paste plant capacity is half that of HLL plant's and the company worked with about 400 contract tomato farmers in the late 1990s. Contract farming in Punjab by the corporate sector has so far

Been more of a case of buy back, input supply (figure 1) and also credit supply or linkage as depicted in figure 2.

Figure 1 Bi-partite Contract Farming Model

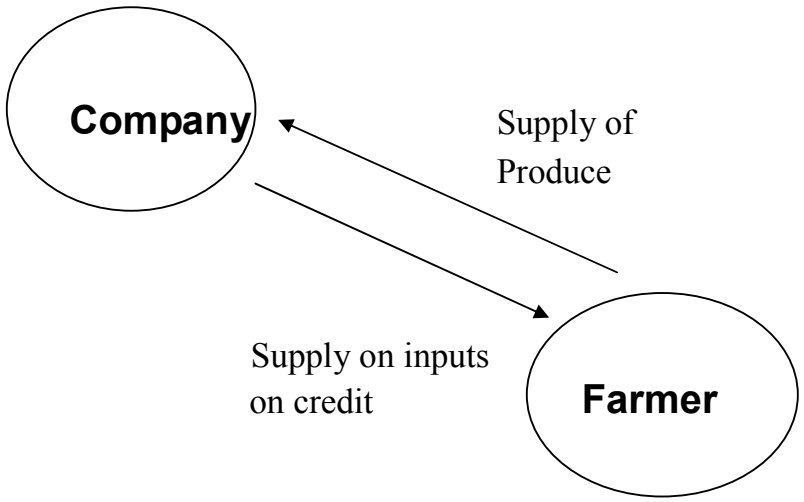
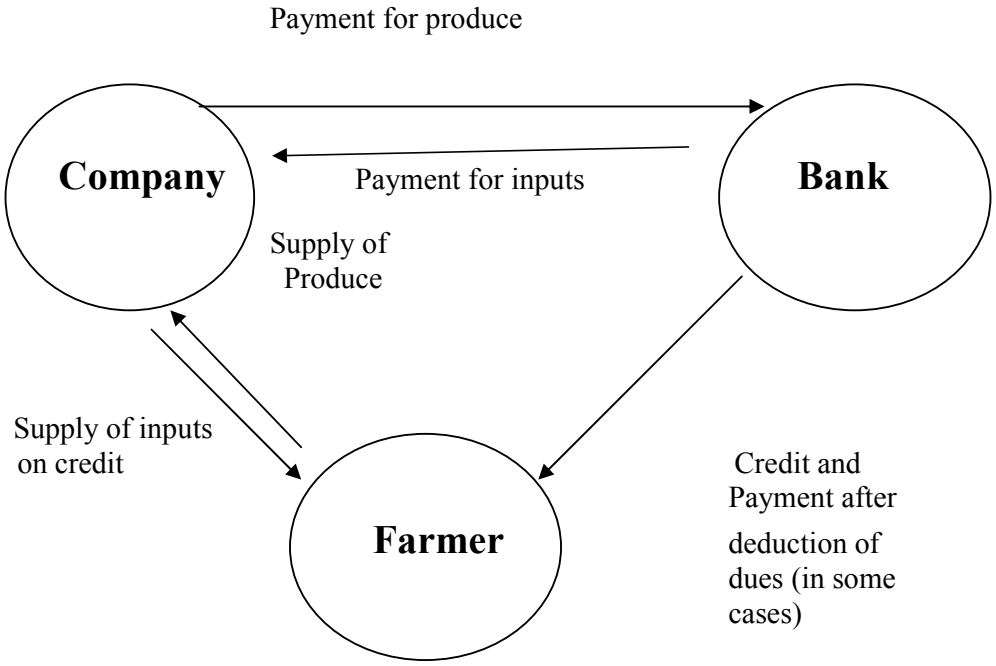


Figure 2 Tri-partite Contract Farming Model



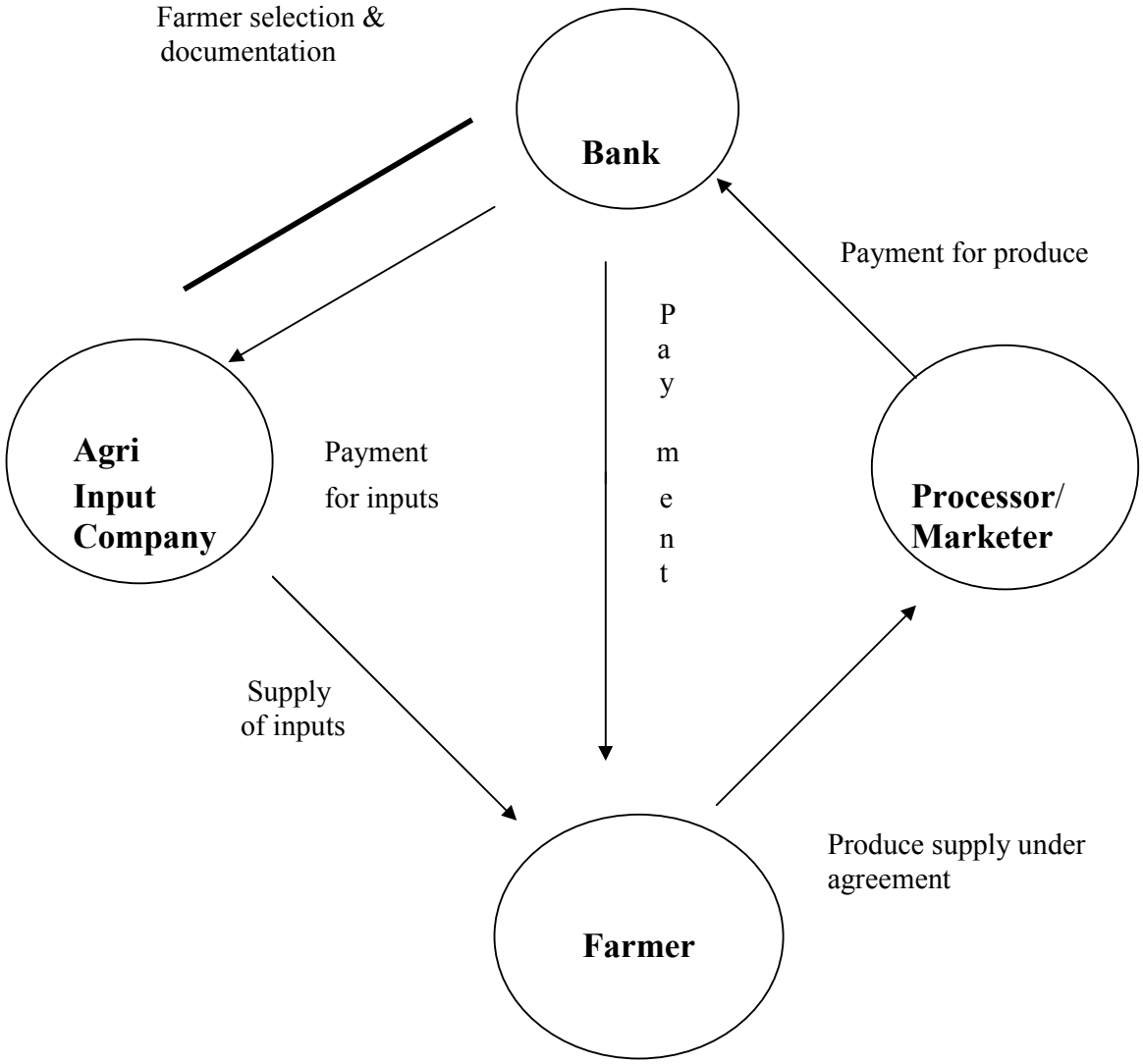
There have been some studies of the contract farming system in Punjab recently. Besides describing the contract system and operations of the companies, most of them look at the economics of the contract farming system in specific crops, compared with that of the non-contract situation and/or competing traditional crops of the region, e.g. in tomato (Bhalla and Singh, 1996; Haque, 1999; Rangi and Sidhu, 2000; Singh, 2000; Dileep *et. al*., 2002), potato (Satish, 2003; Singh, 2000), mustard (Singh, 2000). It is found that contract production gave much higher (almost three times) gross returns compared with that from the traditional crops of wheat, paddy and potato in case of tomato (Bhalla and Singh, 1996; Rangi and Sidhu, 2000) due to higher yield and assured price under contracts. The studies of tomato contract production in Punjab and Haryana (Haque, 1999; Dileep *et. al*., 2002) also found the net returns from these crops under contracts being much higher than those under non-contract situations though production cost was also higher under contract system (Dileep et. al, 2002).

5.4.2 The Consortium Approach

Several agribusiness companies have made forays into the farm service sector which is being perceived as private sector participation in agricultural development. They are facilitators of contract farming systems most of the time. One such model is that of Mahindra ShubhLabh Services Limited (MSSL) which has an agreement with the Government of Punjab to facilitate contract farming of maize and basmati paddy. It planned to increase farmer profitability by 35-60 per cent by better and cost effective input supply and better value realization from farm produce by finding better markets. For this, it tried to leverage its tractor brand, strong customer base, dealer network and first mover advantage. Its product portfolio includes seeds, pesticides, fertilizers, irrigation systems, equipment rentals, post harvest services, information provision, and finance. For this purpose, various partners i.e. retailers, agri input companies, logistics companies, farm equipment companies, food companies, and agri finance corporations and banks, besides agricultural universities and research centers are networked into the project. The company offers extension services to farmers for a fee but ensures a certain level of yield.

The MSSL plays the role of an integrated farming solutions provider. Other crops planned under the company's operations in the state are mustard, castor, pulses and vegetables. In basmati paddy contract farming, Escorts Ltd, LT Overseas Ltd., United Rice Land Pvt. Ltd., and Pepsi have MoUs with the PAIC (Grewal, 2003). LT Overseas Ltd. in collaboration with Rallis India Ltd. and ICICI Bank, have launched a programme for contract farming 30,000 acres of basmati paddy in Punjab initially for three years with a possible extension for further two years. The facilitator companies provide all the inputs, technical support and finance to the registered growers for a specific crop and facilitate the sale of produce at reasonable price. The companies follow a consortium approach (Figure 3). They tie up with banks like ICICI and SBI and with buyers of produce like HLL, Picric and Cargill. The ICICI Bank lays down pre-set criteria for farmer selection and informs input companies. The input companies/bank officials do the documentation. Input companies supply the inputs and send detailed accounts to the Bank, which debits farmer account, and credits the input company account. At the time of harvest, the processing/marketing company collects produce and pays the bank its dues and rest to the farmer. The bank credits the farmer's account and the account is closed. A MoU among the bank, the input company and the output company is signed for the above arrangement. An undertaking from the farmer to supply produce under this scheme to the output company is taken by the bank. The ICICI Bank prefers four sector projects as against tri-partite projects as it considers inputs service very crucial for cost reduction and quality enhancement leading to better value realization for the farmer.

Figure 3 The Quad-partite Contract Farming Model

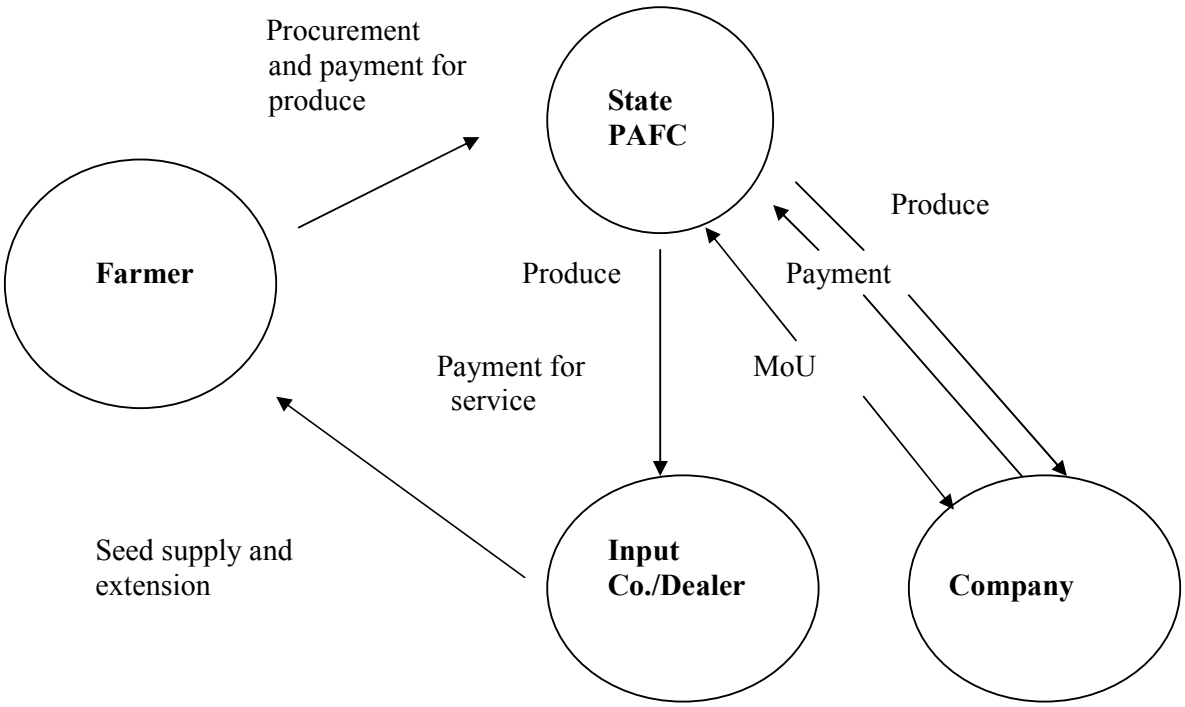


5.4.3 State-led Contract Farming

The contract farming programme launched by the Punjab government in October 2002 (for the *rabi* season) was aimed at taking away 10 lakh hectares from the wheat-paddy rotation over the next five years as part of the crop adjustment programme as recommended by the second Johl Committee. In 2002, a total of 29,000 acres had been proposed by the PAFC under the program, implemented jointly by the Department of Agriculture, Punjab Agro Industries Corporation (PAIC through its subsidiary Punjab Agro Foodgrains Corporation (PAFC)) and private companies. The PAFC not only provided seeds purchased from reputed seed companies like Adventa India Limited and Pro-Agro Limited, and technical supervision and follow up on agronomic practices to the contract growers, but also promised to buy back the entire produce at pre-agreed prices through a tri-partite agreement involving PAFC, seed company through its dealer, and the farmer (Figure 4). The tri-partite agreement specifies the

fixed price and bonus to be paid by the PAFC to farmer for the produce (bonus only if the PAFC is able to sell the produce at a higher price), type and quantity of seed to be supplied by the seed company at a given price for given acreage, farmer's responsibility of delivering the quality produce (produced by making use of recommended inputs bought from outlets prescribed by the PAFC) at a specified place, payment within two days after delivery and PAFC being the sole decider of weight of produce and the sole and only arbitrator in case of dishonouring of the contract by any of the parties. The contract is signed by the three parties in the presence of two witnesses for the farmer.

Figure 4 State-led Contract Farming System in Punjab (Tri-partite agreement among farmer, seed company/dealer and PAFC).



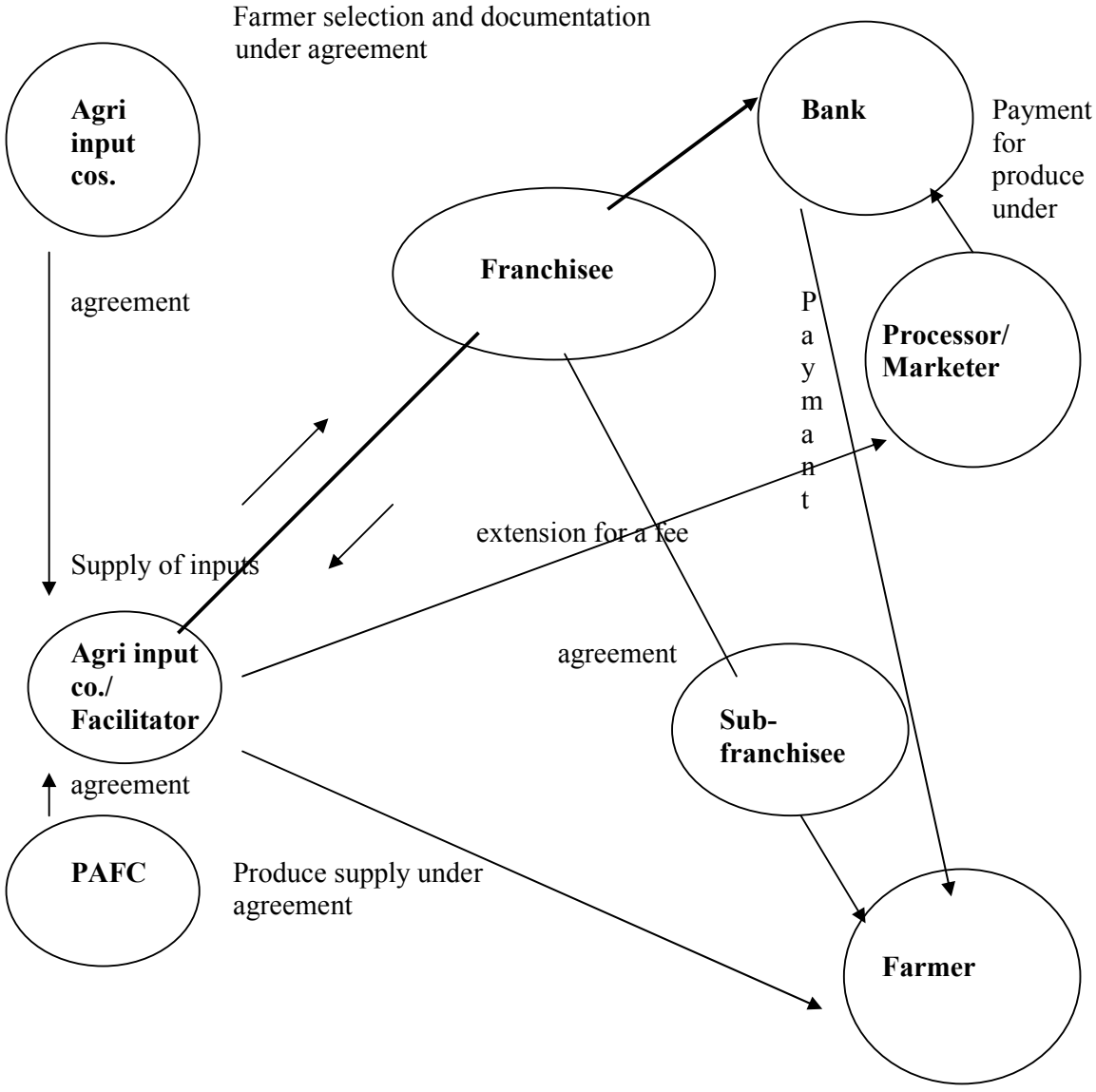
5.4.4 The Franchisee Model

The facilitator model has been modified with the inclusion of a local arthiya/commission agent/ input dealer as a franchisee for the agri. facilitator (Figure 5). It is more of inter-locking of factor markets coming back in another form. But, this model also does not seem to be working well as there are many problems in this model in Punjab though it has worked well in some other states.

The agribusiness facilitators are 'new players' with knowledge and resources and strategy for sustained growth through partnership for sustainability. They will make money while helping others, including farmers, make money. Their strategies involve bundling of inputs and linking up of credit with input supply, which is the agribusiness of the twenty first century (Boehlje *et al*, 1995). But, what is wrong with it if it can provide what state and co-operatives have not been able to provide for so long i.e. timely and cost effective supply of quality inputs and finance and even tractors, and combine harvesters etc. on hire basis and assured market for produce? Unfortunately, what local panchayats and farmer groups are not able to do (e.g. custom hiring out of tractors) is being undertaken by agribusiness companies. They focus on more efficient

Use of modern inputs with a two-pronged strategy i.e. yield increase or cost reduction through inputs and value addition (market improvement). This is a must for enhancing competitiveness whether domestic or international where quality and cost effectiveness are the driving forces. In fact, this is similar to what was proposed in 2001 by HLL Chairman M S Banga as a Farmer Service Centre (FSC) concept which can be a focal point for credit suppliers, crop insurers, agri input suppliers, food processors for buy back from farmers, and farm equipment leasing and specialized grain transport and storage agencies to help the farmers with specialized services (Banga, 2001).

Figure 5 The Six-Partite (networking/franchisee) CF Model



5.5 Case study of contract farming model practiced in Punjab

5.5.1 The Classic Case of Pepsi Foods Ltd.

The first large-scale demonstration of contract farming was the programme initiated by Pepsi Foods in Punjab. This cola giant was permitted an India entry only at the heels of other food processing activity. This led to a factory being set up in 1989 at Zahura, Punjab for manufacture of tomato paste. A hot-break process technology was set up with a capacity of 30 tonnes per hour. This required 40,000 tonnes of tomatoes annually for a 60-day working, typical in the industry.

In 1990 when Pepsi began contracting, there were about 35 farmers and 150 acres spread over in a procurement radius of 30 km. By 1994, the farmer numbers rose to 350, spread over 2700 acres. By 2000, the number of farmers enrolled was 600, some situated as far as 350 km distant from the plant. This spread fitted in well with a peak supply season of 60 days for the factory. In these 10 years, the material cost to factory has dropped from Rs 4.50 per kg to Rs 1.85 per kg. (Singh, Gurdev and S R Asokan , 2005)

Pepsi's own Research & Development (R&D) activities began at a farm near Jalandhar in Punjab that focused on developing varietal hybrids, perfecting agricultural practices and implements and demonstration farming. Multilocation field trials were taken up to target sequential crop maturity and handling, transport logistics were established. New farm technologies including deep chiselling, trellis cultivation, raised bed farming were adopted. A comprehensive nursery was set up to provide the right quality of seedlings to farmers for designated planting keeping in mind area-appropriate growing periods.

Pepsi's contract farming programme has met and exceeded its planned commercial viability. The tremendous goodwill generated with the farm community has carried over into other crops being grown on a contract basis including potatoes for a Group Company, Frito-Lay. These crops are chillies, basmati rice, aflatoxin-free groundnut, garlic and a special variety of maize, all destined for demanding overseas markets.

5.5.1.1 The social interface

There is no enforceable legal framework for contract farming. Farmer selection is very critical and Pepsi's ability to adapt to Punjab's farmland social structure has played a significant role at each stage in the induction of contract farming. The Pepsi Model has four distinct stages of implementation. Guidance and counselling is a clear and focal part of each stage, as is evident from the action steps detailed below:

A. Start-up R&D

- Evaluation of global planting hybrids
- Multi-location trials to shortlist a selection
- Agricultural practices adapted to local conditions
- Evaluation of a farm economic model
- Demonstration farming

B. Technology Transfer

- Selection & training of the extension team
- Farmer education programme
- Field trials at farmer fields
- Multi-location for crop timing

C. Commercialisation
- Land preparation & planting
- Crop monitoring during growing period
- Harvesting & transportation logistics
- Prompt payment mechanism in place
- Free technical advice at farmer's doorstep

D. Administration
- Social intervention to enforce contracts
- Farmer tours to witness yield benefits
- Technical skills to have a local focus/content
- Transparency in weeding out defaulters

5.5.1.2 Key elements of PepsiCo's success[2]

- Core R&D team
- Unique partnership with local agencies including a public sector enterprise
- Execution of technology transfer through well-trained extension personnel
- Supply of all kinds of agricultural implements free of cost to contracted farmers
- Supply of timely and quality farm inputs on credit
- Prompt dispatch/delivery/procurement of the mature produce from every individual contracted farmer through the system of 'Quota Slips'
- Effective adoption/use of modern communication technology like pagers for communication with field executives
- Regular and timely payment to contracted farmers through computerised receipts and transparent system
- Maintenance of perfect logistics system and global marketing standards.

5.6 PAFC led contract farming model in Punjab

Under this effort has been made to depict the type of contract farming taking place. Examples of various companies have been taken to give it more clarity and better understanding. Under recent proposed contract farming programme of Punjab state under nodal agency PAFC there has been 3 parties:

- Contracting agencies e.g., Hariyali Kisan Bazaar (HKB)
- PAFC
- Farmers

A Memorandum of Understanding (MOU) is to be signed between contracting agencies, PAFC, farmers and also if some banks or final buyer wants to get involved in it.

- PAFC is first established as a company of the Punjab Government; and registered under the companies act 1956.
- KRBL Ltd; a company registered under companies Act 1956, it will purchase produce from HKB which will act as a intermediary for carrying out whole production.
- HKB, a unit of DCM Shriram Consolidated Ltd; a company registered under company Act 1956.This company will work at grassroot level and will work with farmers for production of desired crops.

[2]"Contract Farming Ventures in India: A Few Successful Cases" Spice (MANAGE);Vol. 1 ;No.4, March 2003

5.6.1 Types of dealing

As a part of the overall crop diversification programme of the Punjab government, PAFC is facilitating contract-farming operations in Punjab for various crops except paddy-wheat. Among paddy only basmati rice is allowed. It is guiding the whole diversification plan based on Johl Committee report and crops recommended by that committee will be allowed to produce under contract farming agreements. KRBL, which is a leading rice exporter, is interested in direct procurement of basmati from the farmers registered with HKB in Punjab. HKB is capable of identifying farmers for contract farming and to provide field extension service to the farmers registered with HKB for raising of the required varieties of basmati rice crop.

5.6.2 Contents of the agreement

a) **Location/area covered:** The contracting agencies select areas on their own, PAFC provide them assistance in providing data regarding past production statistics, type of climatic changes, geo-socio statistics etc. It helps the companies in selection of areas according to their requirement. HKB selected the areas of Ferozpur, Moga, Sangrur, Faridkot and Rallis India Ltd. Selected the areas of Amirtsar, Gurdaspur, part of Patiala, after a detailed survey of the districts. The parties covered acreage of about 10000 acres under basmati in the season of Kharif 2003. Based on the initial performance, the acreage will be increased in the future.

b) **Identification and registration of farmers:** The agencies identified the farmers who are willing to participate and register them under the scheme of contracting farming; the agreement is signed in written form. PAFC provided necessary support through the district agricultural offices to the contract agency for propagating the scheme at the field level. Farmers selected on the basis of land holding and financial health. There is a fee of Rs. 100 for registration.

5.6.3 Support to farmers from the company

a) **Provision of seeds/ seedlings:** Either contracting agency or final buyer will decide about the variety to be grown. Recommended or certified seeds will be given to the farmers for cultivation. Seeds can either be certified by PAU or ICAR. In some cases seeds were imported to further multiplications under that conditions and permissions are taken from the respective government agencies. Under given example KRBL provides the requisite quantities of basmati to HKB, which would in turn sell the same to the registered farmers. Prices of seeds are determined by HKB and KRBL jointly.

b) **Extension services:** Contact agency provides support on field agronomic practices to the registered farmers. HKB and KRBL jointly decide the appropriate set of agricultural practices for cultivation. HKB charges a fee of Rs. 150/ acre for extension services for one crop season. HKB has established its retail outlets in these areas from where it sells all types of inputs and services under one roof. It sells not only of its own brands but also of its competitors. PAFC assists HKB in getting required testing for soil and water through universities and KVKs (Krishi Vigyan Kendras) and other approved agencies.

c) **Quality/grading/standardization:** Farmers are informed about the quality specifications regarding minimum quality standard for final purchase of the produce. Prices are fixed

based on the grades. Farmers are shown the quality of their produce at the time of arrival at the procurement centre. As KRBL mainly purchase crops for the export and it specifies the variety of basmati for cultivation and KKB is responsible to ensure the cultivation of the requisite or any other variety mutually agreed between KRBL and HKB. HKB communicates the quality specifications to the farmers registered under the scheme to ensure that the farmers reasonably understand the same so that the crop is produced accordingly.

d) **Observations and communications:** HKB montors the crops on an ongoing basis and intimate the progress to KRBL on 15 days interval for any adverse features, which may effect the yield and quality of the crop. HKB maintains record of farmers based on crop and its acreage and on time-to-time basis in co-ordination with KRBL they meet with farmers. Several types of seminars and functions are organized at district level at their outlets.

e) **Recording of identities:** Under export obligation, company has to give exact name of seeds and details of practices followed for raising those crops. To manage such types of problems, contract agency has been asked to ensure a complete chain of custody over the farming and procurement system to ensure a clear and complete trail and trace ability of the final output of basmati paddy, linking it backwards to the seeds.

f) **Procurement:** Under the contract, contracting agencies have to purchase all the quality produced by farmers if it meets the quality specifications as listed in the contract. As grading based prices are followed, the company first measures the grade of the produce and the same is shown to the farmers. The material, which does not meet the quality specifications, is purchased on support price basis. However, companies have the option to reject if the quality is mutually accepted is sub-standard. HKB facilitates the purchase of the produce from the farmers on the behalf of KRBL. A representative of KRBL comes at the time of procurement and approves the material and fix as the price, which shall be final binding on KRBL. Efforts are made to complete the procurement with in 3 weeks if the registered area is around 5000 acres.

g) **Procurement prices:** KRBL purchases the product at the prevailing market price (PMP)**.** It is calculated in reference to neighboring *mandi* prices as per quality. This practice is not followed in case of flower export contract farming where prices are usually defined before the starting of cultivation.

h) **Minimum guarantee:** Usually a minimum support price is announced as per government standards. KRBL procures paddy as per PMP appropriate to the quality. KRBL announced a minimum support price at Rs. 1100 per quintal for "A" grade produce to all registered farmers of HKB. In case, the PMP is lower than the minimum support price, KRBL is responsible to buy the produce at the guaranteed MSP. The minimum support price of "B" grade material shall be about Rs. 25 per quintal lower than the "A" grade price.

i) **Licensing:** HKB obtains the necessary permission/ license from the related state Government agencies to procure the basmati paddy at their designated procurement centers, alternatively. PAFC would appoint HKB as a sub-agent for procurement within PAFC as own license. PAFC along with KRBL assist HKB in obtaining these approvals/

Permissions, in complying with all regulatory requirements pertaining to *mandi* licensing food control orders and tax regimes et. PAFC notifies the HKB procurement centers at approved *mandies* /sub-yards for direct procurement of basmati paddy. PAFC interfaces with government for necessary notification for *mandi* tax exemption as well as exemption of other taxes and duties as applicable for growing, storage and transportation for contract farming programme/ export market productions. It is clearly understood between the parties that the aforesaid *mandi* taxes and other taxes would not be borne by KKB in any case. In case nay such taxes are levied, the same shall be reimbursed on actual by the KRBL and HKB.

j) **Infrastructure support:** The procurement location is mutually agreed between PAFC and contracting agency. Any expenditure incurred on creation of platforms/sheds will be borne by PAFC. In this case the contracting agency HKB will be responsible to ensure that suitable infrastructure should be available at the procurement centers to enable the following operations:
   - Unloading of basmati
   - Cleaning
   - Weighing of basmati
   - Bagging of basmati
   - Stacking of bags
   - Handling and loading of trucks.

k) **Transportation:** HKB arranges for the dispatch of entire quantity of paddy procured on any particular day to the designated warehouse/location of KRBL by trucks on a "freight to pay" basis. The cost of transportation and transit insurance is borne by the KRBL.

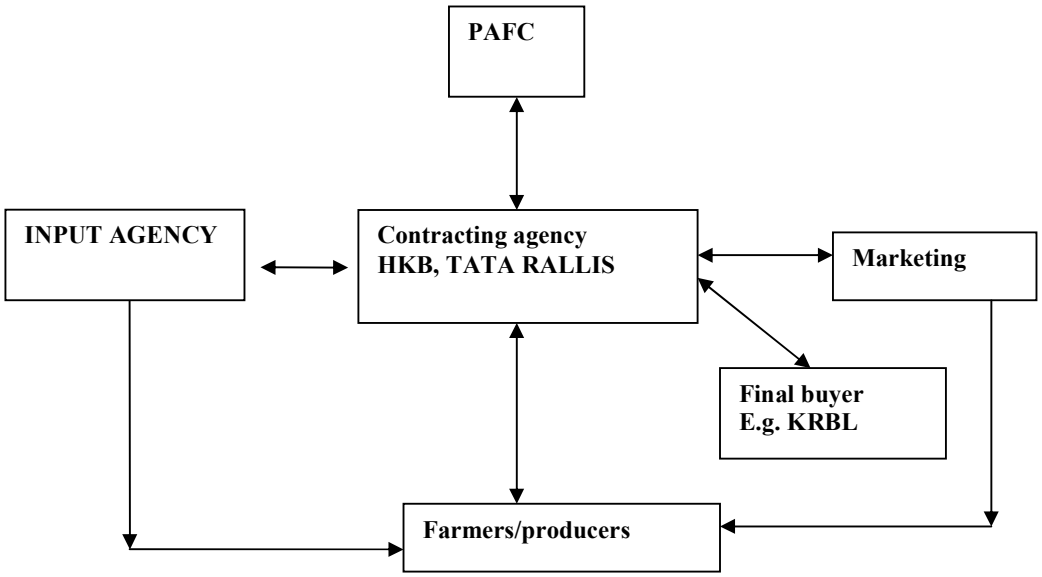
l) **Payments to farmers:** For all the produce procured from the farmers, the payments are usually made within 2 weeks to 2 months. For flower export contract-farming payments within 1-2 months. To compensate farmers, usually advance is given; in case of HKB it usually pays the farmers within 2 weeks for the purchase made for KRBL.

m) **Margins for contract agency:** Contracting agency's margin depends on the type of work done in the whole contracting process e.g. Rallis India, HKB sells various inputs and services of their own and they earn both form the sale of products/inputs to the farmers and earn commissions for the procurement made for ultimate buyers like KRBL etc. In the given case, KRBL pays a commission of 1.5% of the value of the total procurement to HKB. Commissions are paid on dispatch basis.

n) **Breakdown of contract:** All agreements are based on certain obligations. In case of malpractices adopted by the farmers, the companies hold the right to refuse the procurement for is produce. In case of agreement between companies; both companies hold the right of first refusal e.g. HKB have alright of first refusal in case of the KRBL wants to enter into a similar arrangements for extension/procurement with a third party or on its own directly. Similarly, the KRBL have a right of refusal if HKB wants to enter into a similar arrangement with a third buyer party. Each party is responsible for all its obligations towards its respective employees, no party to this agreement shall use the logo, trademark, trade name copyrights etc. in any advertisement publishing or the material without the written consent of party owing proprietary rights.

HKB coordinates of the respective projects are deputed to the factory of KRBL to understand the specifications practically. This is to avoid any confusion during the time of purchase and ensure a clear understanding of the specifications by both the parties.

Figure 6 Contract farming model of PAFC



Salient features of PAFC contract farming model

- Final buyers do not interact directly with farmers; every time they meet it is through the contracting agencies.
- PAFC brings farmers in contact with the contracting agencies. It helps the contracting agencies in dealing with government procedures and infrastructure bottlenecks.
- Farmers are free to procure basis inputs like pesticides, herbicides, fertilizers etc. from anywhere or they can take this material from company owned outlets. An only condition is that they must follow the recommended practices and inputs.

6 PRICE SUPPORT MECHANISM SYSTEM (PSMS)

Institutional intervention of some kind in agricultural marketing and trade in India has a long history. The strongest intervention began in the mid-1960s, which has been very closely associated with the adoption and spread of the new agricultural technology. Massive food shortages and near famine-like conditions in some parts of the country due to successive poor harvests resulted into dependence on food aid and costly food imports. This compelled the government to follow the policy of self-sufficiency in food production. This coincided with the advent of the high yielding varieties of wheat and rice, which later came to be known as the 'green revolution'. Adoption of these new varieties involved use of modern inputs and investments on the part of the farmers. For this, it was necessary to create adequate incentives through favorable price environment for the farmers. To achieve this objective, two new institutions, namely the Agricultural Prices Commission (APC) and the Food Corporation of India (FCI) were created which have been dominating India's food administration ever since their establishment

In recognition of the importance of assuring reasonable produce prices to the farmers, motivating them to adopt improved technology and to promote investment by them in farm enterprises, the Agricultural Prices Commission (Currently known as the Commission for Agricultural Costs and Prices) was established in 1965 for advising the Government on agricultural prices policy on a continuing basis. The thrust of the policy in 1965 was to evolve a balanced and integrated structure to meet the overall needs of the economy and with due regard to the interests of the producers and the consumers.
The minimum support prices (MSP) are announced by the Govt. of India with a view to ensuring remunerative prices to the farmers for their produce on the basis of the Commission for Agricultural Costs and Prices (CACP) recommendations. The minimum support prices are perceived by the farmers as a guarantee price for their produce from the Government. These prices are announced by the Government at the commencement of the season to enable them to pursue their efforts with the assurance that the prices would not be allowed to fall below the level fixed by the Govt. Such minimum support prices are fixed at incentive level, so as to induce the farmers to make capital investment for the improvement of their farm and to motivate them to adopt improved crop production technologies to step up their production and thereby their net income.[3]

6.1 Minimum Support Prices : A historical perspective

The Price Support Policy of the Government is helping to insure the agricultural producers against any kind of fall in farm prices. The minimum guaranteed prices are fixed in such a way that market prices cannot fall below. Till the mid 1970s, Government announced two types of administered prices :

(i) Minimum Support Prices (MSP)

(ii) Procurement Prices

[3] Information used from "Rice in India -A Status Paper" was first published by the Directorate of Rice Development, Patna during May'2002

The MSPs served as the floor prices and were fixed by the Government in the nature of a long-term guarantee for investment decisions of producers, with the assurance that prices of their commodities would not be allowed to fall below the level fixed by the Government, even in the case of a bumper crop.

Procurement prices were the prices of kharif and rabi cereals at which the grain was to be domestically procured by public agencies (like the FCI) for release through PDS. It was announced soon after harvest began. Normally procurement price was lower than the open market price and higher than the MSP.

This policy of two official prices being announced continued with some variation upto 1973-74, in the case of paddy. In the case of wheat it was discontinued in 1969 and then revived in 1974-75 for one year only. Since there were too many demands for stepping up the MSP, in 1975-76, the present system was evolved in which only one set of prices was announced for paddy (and other kharif crops) and wheat being procured for buffer stock operations.

6.2 CACP's methodology for cost calculation

The minimum support prices for major agricultural products are announced each year after taking into account the recommendations of the Commission for Agricultural Costs and Prices(CACP). The CACP, while recommending prices takes into account all important factors including cost of production, changes in input prices, input/output price parity, trends in market prices, inter-crop price parity, demand and supply situation, parity between prices paid and prices received by farmers etc. Among these multiple factors that go into the formulation of support price policy, the cost of production is the most significant. Thus, for making the support price policy functionally meaningful, the minimum guaranteed prices ought to cover at least the reasonable cost of production in a normal agricultural season obtained from efficient farming.

The CACP analyses the cost of production data for various States in respect of various commodities in consultation with the States. After a meeting of the State Chief Ministers, the MSP/procurement prices are declared. With costs of production for the same crops varying between regions and also across farms within the same region and for different producers, the level of costs that could be accepted as a norm poses enormous difficulties.

6.2.1 Cost concepts

In fixing the support prices, CACP relies on the cost concept which covers all items of expenses of cultivation including in that the imputed value of inputs owned by farmers such as rental value of owned land and interest on fixed capital. Some of the important cost concepts used by CACP are the C2 and C3 costs.

6.2.1.1 C2 cost

C2 cost includes all actual expenses in cash and kind incurred in production by actual owner

plus rent paid for leased land plus imputed value of family labour plus interest on value of owned capital assets (excluding land) plus rental value of owned land (net of land revenue).

6.2.1.2 C3 cost

Cost C2 + 10 percent of cost C2 to account for managerial remuneration to the farmer.

Costs of production are calculated both on a per quintal and per hectare basis. Since cost variations are large over States, CACP recommends that MSP should be considered on the basis of C2 cost. However, increases in MSP have been so substantial in case of paddy and wheat,that in most of the States MSPs are way above not only the C2 cost but the C3 cost as well. For instance, weighted average of C3 costs of eight wheat growing states is presently only Rs.532 per quintal while the weighted average of C2 cost is Rs.483 per quintal as against which CACP recommended MSP is Rs.620 per quintal. The producer subsidy at C2 cost is therefore Rs.137 per quintal (MSP minus C2 cost) and Rs.88 per quintal at C3 cost (MSP minus C3 cost).

Farmers are free to sell their produce in the open market or to the Government at the MSP, depending on what is more advantageous to them.CACP recommends MSP for these agricultural products. MSP of wheat and paddy and the increase in the MSP over the years is given in (Table 7). Keeping in view the hardships suffered by the farmers due to drought in the year 2003-04, a one time special drought relief of Rs.20 per quintal was announced in the case of paddy over and above the existing MSP for the purpose of procurement.

Table 7 Minimum support/procurement price of wheat and paddy

Rs. /quintal

Crop year	Wheat		Paddy				
	MSP	% change	Common	% change	Fine	Super fine	Grade'A'
1992-93	330	20.0	270	17.4	280	290	-
1993-94	350	6.1	310	14.8	330	350	-
1994-95	360	2.9	340	9.7	360	380	-
1995-96	380	5.6	360	5.9	375	395	-
1996-97	475	25.0	380	5.6	395	415	-
1997-98*	510	7.4	415	9.2	-	-	455
1998-99	550	7.8	440	6.0	-	-	470
1999-00	580	5.5	490	11.4	-	-	520
2000-01	610	5.2	510	4.1	-	-	540
2001-02	620	1.6	530	3.9	-	-	560
2003-03	-	-	530 $	0.0 $	-	-	560 $

Source : **Ministry of Agriculture, India**

Note: * Effective 1997-98, MSP is fixed for only two varieties of paddy, common and grade-A.

$ One Time Special Drought Relief of Rs.20/- per quintal has been given in case of paddy this year over and above the existing MSP.

Government follows an open ended procurement policy and there is no procurement target. It buys whatever is offered for sale at MSP.Rice and wheat are the two principal commodities where Government's role is most pronounced. Procurement operations for other crops are carried out only when market prices fall below MSP. In the past, till 1996-97, MSP recommended by CACP was by and large adhered to by the Government and there were limited market distortions. Private trade played its role as long as market prices were higher than the MSP. The first major aberration occurred in 1997-98, when CACP recommended price of Rs.405 per quintal for wheat was raised by the Government to Rs.475 per quintal. During the period 1996-97 to 1999-2000, MSP of wheat was raised by Rs.170 per quintal as against the CACP recommended raise of Rs.110 per quintal. The market has not been able to absorb this additional increase of Rs.60 per quintal till today. Consequently market prices of wheat even today are ruling below the MSP (Rs.620) in major producing states.

Substantial increases in MSP of rice and wheat and the system of open ended procurement have resulted in two problems. Firstly, increases in the MSP much above the cost of production in the efficient states such as Punjab and some regions of Haryana and UP have caused farmers to divert more land for production of rice and wheat from coarse grains, cotton and oilseeds. Consequently, there is little scope for crop diversification, as farmers are less willing to go in for crops for which price support even if given is irrelevant given that market prices for most of the other products are higher. Procurement is done only when market prices fall below MSP.

Secondly, increased procurement has resulted in the FCI being saddled with large volume of stocks of foodgrains much above the stipulated buffer stock norms. This has aggravated the problem of rising food subsidies, particularly buffer subsidies, which presently account for over 20 percent of the food subsidy bill. The carrying cost of these stocks is becoming unsustainable. A re- orientation of the foodgrain policy is therefore imperative. There is a need for a re-thinking on the rationale of raising the MSP of rice and wheat every year.

India reports its MSP policies as part of the product-specific aggregate measure of support (AMS) in domestic support notifications for the WTO. In its AMS base period and its 1996-1997 notifications, the product specific support is negative because the MSPs are less than the external reference prices for all commodities except sugarcane (see Table 8).[4]

For horticultural and other agricultural commodities not covered by the MSP, there is a Market Intervention Scheme (MIS) of somewhat *ad hoc* support measures. Under the MIS, if the price of a commodity falls below a specific "economic" level the GOI can intervene, at the request of the state governments, by purchasing the product at intervention prices that do not exceed the cost of production (WTO, 2002). Losses incurred in implementing the MIS are shared equally between the central and state governments. Since 1998, the MIS has been used to support a number of horticultural products, including oranges, coriander seed, apples, oil palm, potatoes, red chilies, areca nut, ginger, and onions (WTO, 2002).

[4] Several authors have pointed out that India's calculation of cotton AMS incorrectly compares the MSP for seed cotton (kapas) with the international price for lint (for example, see Hoda and Gulati, 2005). The AMS notifications for 1995-1997 are the latest available at this time.

Table 8 WTO Domestic Support Notifications, 1995-1997

	1995	1996	1997
	US$ Million		
Green Box Payments			
General Services	397.6	239.3	264.6
Public Stockholding for Food Security	1569.7	1708.7	2018.2
Domestic Food Aid	-	-	-
Decoupled Income Support	-	-	-
Income Insurance and safety-net programs	10.9	-	-
Payments for relief from natural disasters	125.0	444.3	443.8
Structural adjustment through producer retirement programs	-	-	-
Structural adjustment through resource retirement programs	-	-	-
Structural adjustment through investment aids	59.2	36.3	76.1
Environment payments	33.2	73.7	70.2
Payments under regional assistance programs	-	-	-
Other	-	-	-
Total	2195.6	2502.3	2872.9
Special and Differential Treatment			
Investments subsidies generally available to agriculture	104.8	1117.3	1142.5
Input subsidies to low income or resource poor producers	149.5	3737.8	4029.3
Total	254.3	4855.1	5171.8
Product Specific AMS			
Rice	-7,577.0	-1,321.3	-1,479.9
Wheat	-9,625.0	-1,280.8	-1,266.4
Coarse cereals	-4,530.4	-1.5	-2.9
Pulses	-1,705.8	-	-
Groundnut	-1,809.3	-	-
Rapeseed and mustard	-1,688.7	-	-
Cotton	-2,106.4	-	-
Soya bean	-191.7	-	-
Tobacco	-181.4	-	-
Jute	-387.6	-	-
Sugar cane	184.4	-	-
Total	-29,618.9	-2,603.6	-2,749.2
Non-Product Specific AMS			
Fertilizer Subsidy	1,864.1	413.6	515.9
Credit Subsidy	102.0	-	-
Subsidy on electricity	2,436.6	373.6	342.5
Irrigation subsidy	1,345.4	143.1	144.9
Subsidy on average supply of seeds	23.9	0.1	0.1
Total	5,772.1	930.3	1,003.5
As % of Value of Production	7.5%	1.1%	1.2%
Value of agricultural production	76,736.0	85,280.0	84,972.0

Source: **WTO Notifications**

6.3 Administered Prices

To encourage the adoption of new technology, stable and remunerative prices constitute the foremost factor. The Government of India has set up APC in 1965 to advise the government on a regular basis for evolving a balanced and integrated price structure. While formulating such a policy, the Commission was required to keep in view (a) the need to provide incentive to the producers for adopting the new technology and maximizing production, and (b) likely effect of the price policy on cost of living, level of wages and industrial cost structure. This policy was very effective in encouraging adoption of new technology in the areas well endowed with irrigation, and helped in raising the production of wheat and rice. This made the situation on food grain front comfortable, as a sort of balance between demand and supply which was in sight by 1980 (Acharya, 2001).
With the easing of pressure on food grain production, it was appropriate to follow the policy that leads to balanced allocation of resources towards various enterprises. Thus, terms of reference of the APC were changed in 1980 to shift emphasis from maximizing the production to developing a production pattern consistent with overall need of the economy. The Commission was also renamed as the Commission for Agricultural Costs and Prices (CACP), mainly to satisfy the demand from farmer groups that the Commission should fully account for the cost of production while making recommendations on support/procurement prices.

Looking at the achievement of the policy of administered prices in relation to the target set for it, following conclusion seems evident. The price policy has been very successful in providing incentive for adoption of new technology of rice and wheat as set out initially, but it failed to induce changes in production pattern consistent with overall needs of the economy. This happened as both the price policy and technological change remained biased towards rice and wheat. A simple indicator of this is that while the country is now having buffer stock exceeding one-third of total output of rice and wheat, it is deficit in edible oil to the extent of more than 40 per cent and in pulses to the extent of 6-10 per cent.

6.4 Policy instrument and commodity coverage

The most significant instrument of agricultural price policy has been assurance of minimum support price (MSP) which serves as a surety to farmers. If the market price falls below the MSP or the guaranteed level, the government is under obligation to procure the produce offered for sale at the guaranteed price. Commodities covered under the MSP system are: paddy (rice), wheat, sorghum, pearl millet, finger millet, maize, ragi, barley, chick pea, pigeon pea, moong, urad, rapeseed and mustard, toria, groundnut, sunflower, soybean, sesamum, nigerseed, cotton, jute, copra and tobacco, while sugarcane is covered under the statutory minimum price (SMP) system. It is illegal for anybody to purchase the commodity at a price less than the MSP when the commodity is covered under the system of (SMP). Apart from major commodities, support price has been extended to some other commodities like onion, ginger, potato, castor seed, and some fruits in a few states under the market intervention scheme.

It is pertinent here to mention that mere announcement of MSP or SMP does not automatically guarantee that market price would not fall below MSP or SMP. According to various Reports of

The Commission for Agricultural Costs and Prices, there are instances of market prices ruling below MSP in some markets for certain crops where government procurement agencies were absent to procure the produce. The experience shows that institutional intervention in ensuring the guaranteed price is effective only in those regions and crops where government or public sector agencies procure the produce in a big way. For instance, official agencies procure wheat and paddy in Punjab and Haryana on a large scale, and if the price of maize or sunflower in these states falls below the MSP, there is hardly any procurement by the official agencies. Similarly, if Wheat price in the market say in West Bengal or Bihar, falls below the MSP, there is no intervention by the official agencies. The purpose of these illustrations is to bring home the point that MSP without an effective procurement mechanism does not guarantee that prices would not fall below the floor set by the government.

Implementation of MSP shows that rice and wheat are the main beneficiaries of the policy while cotton, at large and edible oilseeds and pulses, in some pockets, have also benefited from the policy. In recent years, there have been frequent reports from the states of Orissa, Madhya Pradesh and Bihar about distress sale of rice and maize below the MSP. These states, besides being late adopter of new technology and food deficit at aggregate state level, have several growth pockets with surplus food grains. These pockets are in the first stage of green revolution and agricultural development, when the private trade and market institutions are not in place to provide incentive to encourage adoption of new technology and hence, accelerate output growth. Agriculture growth would get a serious setback in such areas if institutional support in the form of guaranteed price is not provided.

One of the serious criticisms of the price support policy has been that it has mainly benefited rice and wheat and, even in these crops, it has favored the regions which were early adopter of the new technology. There is a need to discuss how MSP can be made effective in various commodities and in major producing regions. As it is not feasible to ensure that prices would not fall below MSP in any commodity, can we devise some criteria as to what crops should be covered under MSP? It is suggested that the crops which can be considered as price leader or the crops for which technological breakthrough is imminent ought to be covered under the MSP, and other candidates for support price could be the crops grown in high risk environment (Vyas, 2000). Vyas further adds that in all these cases, MSP should be treated as a transient measure, *i.e.* until we are able to have a viable crop insurance scheme and/or forward trading arrangements. One of the serious criticisms of the price support policy has been that it has mainly benefited rice and wheat and, even in these crops, it has favored the regions which were early adopter of the new technology. There is a need to discuss how MSP can be made effective in various commodities and in major producing regions. As it is not feasible to ensure that prices would not fall below MSP in any commodity, can we devise some criteria as to what crops should be covered under MSP? It is suggested that the crops which can be considered as price leader or the crops for which technological breakthrough is imminent ought to be covered under the MSP, and other candidates for support price could be the crops grown in high risk environment (Vyas, 2000). Vyas further adds that in all these cases, MSP should be treated as a transient measure, *i.e.* until we are able to have a viable crop insurance scheme and/or forward trading arrangements.

Due to changes taking place in consumption basket of food, there is a lot of emphasis to develop technologies that promote diversification of agriculture sector. Can we think of price interventions that encourage agricultural diversification? There is also a need to discuss criteria

On which MSP should be based in the changing context. The popular perception is that MSP is determined based on cost of production. When the emphasis of production is shifting from food security to market-led production, is it justified to base MSP on the cost of production? Further, there are concerns relating to definition of the cost of production on which MSP should be based. Some of the cost concepts like "Cost C3" are such that the price based on those is said to represent "guaranteed profitable price" rather than "minimum support price".

6.5 Direct Price and Market Interventions

According to Acharya (2001), direct market intervention refers to direct entry of public agencies in market with a view to influence market structure, conduct and performance. Some of the forms of direct market intervention currently in vogue in India are:

- Maintenance of stock of rice and wheat.
- Distribution of cereals and sugar at prices lower than market prices.
- Open market operations (procurement and sale) by the public agencies.

To ensure implementation of the guaranteed price or MSP, stabilize prices and feed the public distribution system (PDS), government procures large quantities of food grains through FCI and other official agencies from market at the procurement price, which is invariably same as the MSP. This blurring of MSP and procurement price has come under severe criticism. It is argued that in order to procure the required quantities for PDS and buffer stock, such market conditions are created wherein prices are artificially forced down to the level of procurement prices by the measures like putting stock limit, denial of credit, not making available railway wagons to private sector for transport of food grains and restrictions on movement of commodities (Johl, 1995). The second consequence of this is that government is forced to buy whatever produce comes in the market, irrespective of its requirements. Thus, the government has to carry excessive stock which is again sold back after some time through free sale in the market. In this process, the government has to bear the losses due to quantity and quality deterioration and inefficient handling and transportation of the produce by the public agencies. It is thus argued that the procurement price and MSP should be different. Under this kind of dispensation, the government should announce MSP which covers only the variable cost plus a small margin and protect farmer against seasonal price slumps due to gluts. The procurement of food grains required by government should be done at open market price determined by supply and demand in a distortion free environment. This would have the advantage of buying only the needed quantity, whereas, currently the government has been buying whatever is offered for sale (Mahendra Dev, 1997).

Food grains procured by the public agencies are sold either through the PDS or in open market. This system has attracted lot of criticism in the recent years, mainly on the ground of efficiency and heavy losses being incurred by the public agencies (Gulati *et al.* 2000; and World Bank 1999). The procurement, distribution, and buffer stocking programs of the government are reported to have had negative impact on private food grain marketing, undercutting its potential

contribution to food security in the long run. This has also discouraged modernization of marketing, resulting into losses and inefficiencies. It is proposed that the government should use regulatory mechanism only when price movements are outside the desired price band representing width between the ceiling and floor price, which permits reasonable marketing margin for profitable public sector operations (World Bank 1999). The Expenditure Reforms Commission (ERC) set up by the government, also recommended that the state governments and Private trade should be encouraged to enter into procurement, trade and export of food grains through an assurance of continuity of policy over the next 15 years (GOI 2001). There are indications that the government is in agreement with the suggestions of the World Bank study and ERC and necessary changes in the policy to encourage private sector participation in food grains trade are on the anvil.

According to the World Bank study (1999), there is a considerable scope to reduce the price spread by modernization of storage, handling, processing and other processes involved in food grains marketing. Two major items of price spread are: statutory charges and transport cost. It has been observed that the proportion of produce sold through the regulated markets is on decline and there is a growing tendency to sell produce through informal markets to avoid different charges and taxes of the regulated markets (Maheshwari, 1998). This is also happening because of the declining credibility of the regulated markets to provide a competitive price to producer sellers.

Market charges and taxes vary from state to state. There is a need to rationalize these charges wherever these are excessive. It should be ensured that collections through such charges are spent for the development and conduct of markets rather than spending on facilities and high salaries for market staff and office bearers of the State Marketing Boards. There are formal as well as informal restrictions on inter-state movement, stocking and trading of agricultural produce. Even when all the requirements are fulfilled, there are instances of harassment and rent seeking. The consequences of this are: slow movement of produce from surplus to deficit markets, low market integration, depressed price in producing areas and high prices in consuming areas.

6.6 Levy System

Under the provision of levy, millers are required to sell a part of rice and sugar milled by them to the government at a price derived from the procurement price. The levy on rice is as high as 75 per cent in the agriculturally progressive northern states. Millers often complain that after contributing as high as three fourths of rice at a price which is often below the open market price, they are left with small produce to run their business. In reality, the levy component of rice is an important source of economic cost, food subsidy and inefficiency of FCI in rice marketing. What the millers actually do is that they retain best grade rice with them and supply inferior, broken and adulterated rice to FCI, which would sell at a very low price in open market. Except at a subsidized price under PDS, such stock would not be lifted by states for their consumers. Same is the case of custom milling of paddy. In the case of sugar, level of levy has already been reduced to 15 per cent and the government has indicated that it would go for a complete decontrol of sugar industry. This should improve efficiency and competitiveness of the Indian sugar industry.[5]

[5] NCAP 2003. "Institutional Change in Indian Agriculture" (Suresh Pal, Mruthyunjaya, P. K. Joshi and Raka Saxena)

6.7 Buffer Stock

India has been following a policy of maintaining buffer stock to meet the PDS requirement and to stabilize the prices in the wake of year-to-year fluctuations in production. Maintenance of Buffer stock involves heavy cost on the public exchequer and suggestions have been made to explore other alternatives for price stabilization and food security. Some scholars find that the option of variable levy is far superior than the buffer stock in stabilizing prices under liberalized trade (Jha and Srinivasan, 1999). Whereas some studies find that imports turn out to be much costlier than what appears from international price when a country of India's size go for import of food commodity to meet its deficit (Chand, 2000).

As per the recommendations of ERC, a national food security buffer stock of 10 million tonnes, comprising 4 million tonnes of wheat and 6 million tonnes of rice, should be maintained at all times. The Commission further recommends that objective of the procurement policy should be to maintain food security buffer of 10 million tonnes and availability of 21 million tonnes per annum for distribution through the PDS. This way total buffer stock should not be more than 21 million tonnes.

Such restrictions on buffer stock and proposal to reduce the role of FCI in procurement for the PDS might affect enforcement of MSP. In such situations, where should FCI concentrate its operations? Should it continue to procure needed quantity from the traditional regions from where it has been buying earlier, or should it shift focus to newly emerging growth pockets. This is a debatable issue but in relation to technology impact, one can suggest that FCI should focus in such regions where private trade and marketing infrastructure are weak and underdeveloped.

6.8 Public Distribution System

The Public Distribution System (PDS) is an integral part of food management policy of the government of India. It involves distribution of food grains through a countrywide network of fair price shops. Price stability for consumers in urban and food deficit areas was the focus of PDS in the early years. Of late, PDS has become a permanent feature of the strategy to control prices, reduce price fluctuations and achieve the objective of equity through supply of subsidized food grains to vulnerable and weaker sections of the society.
The PDS is run by the state governments, and the central government supplies food grains procured by FCI to various states for this purpose. In the recent years, level of procurement has far exceeded the off take for PDS, resulting into accumulation of vast stocks with the government.

The PDS has attracted much criticism. It was alleged to have urban, regional and class bias. It was also found that the rich and the middle classes benefited more from the PDS. Also, the PDS is not a cost-effective way of income transfer to the poor as compared to other nutrition programs or wage employment programs (Guhan 1996; and Radhakrishna and Rao, 1997). Available data suggest that many of the poor states (e.g. Bihar, Uttar Pradesh and Madhya Pradesh) choose to draw a much lower share of PDS than what they are entitled to (World Bank 1997). To overcome the problems relating to targeting and leakage, several changes have been initiated to make PDS serve the target population better.

6.9 Factors Dictating Failure or Success of MSP

Minimum Support Prices as in instrument of the price policy has recorded an initial success but in the changed economic scenario, it is necessary to reconsider this instrument. As a policy tool, MSP has served the purpose during the seventies and eighties to procure, build buffer stocks, Provide base price for the farmers and induce adoption of the new technology. In the early years of the Green Revolution phase, MSP and Procurement or Levy Prices had this connotation and policy agenda. During those years creation of incentives for adoption of new technology and providing food security were the most important aspects of the price policy. Similarly, procurement for sustaining the Public Distribution System was essential and this was to be achieved through market interventions. The role of MSP as incentive to adopt technology during those years comes out very clearly in the writing of Prof. Dantwala, who was one of the chief architects of our price policy. He stated that, *"Though no rigid formula has been accepted to determine the levels of floor prices, the criterion followed is that progressive farmers should find these levels adequate to encourage enterprise and investment to augment production through the adoption of improved technology with all its risk and uncertainty (emphasis added)"* (Dantwala 1996: 213, originally published in 1967).

In the present context the factors influencing the effectiveness of MSP assume more importance. Among the factors that dictate the effectiveness of MSP the most important are:

- Process of implementation of the policy.
- Dependence on the State for intervention so that the markets function effectively and freely in long run.
- Weeding out the information asymmetry prevailing in the agricultural markets and providing farmers with the required information at proper time.
- Monitoring the prices without intervention and assess the situation in the place of sue motto intervention.
- Long term policy steps to replace the present ad hoc arrangements.

Over the last three decades significant changes have taken place in the context of price policy. The field of price policy has changed from incentive prices to remunerative prices and now the issues need to be posed in a totally different perspective. The process of liberalization adopted during nineties therefore gives a new connotation to the price policy. Apart from being an instrument for creating incentive, it is also expected to play a much wider role of fully interacting with the market forces. Farmers are already expressing concern about the `remunerative aspect of MSP', but the concern rather points an accusing finger towards failure of the market mechanism to provide economically viable prices to them. In the wake of larger stocks, now the price policy has to be handled carefully. After an experience of a quarter of century, in the implementation of the market intervention scheme Prof Dantwala wrote again during early nineties recognising the changing role of MSP and interventions. He wrote that:
"Likewise, intervention has to be selective. Its need must be clearly established and its effectiveness should be constantly under review (emphasis added). The real problem is not simply to establish the legitimacy of intervention, but that of ensuring its effective and judicious implementation." (Dantwala 1996:292, originally published in 1993). Aptly he suggested to take note of changing circumstances and have a constant review of the interventions. He also emphasizes the implementation process which requires a close scrutiny in the changing circumstances. We can only appreciate his vision even in the wee years of liberalisation.

7 RESULTS AND DISCUSSIONS

Very well organized contract farming is an effective way to coordinate and promote production and marketing in agriculture. Nevertheless, it is essentially an agreement between unequal parties: companies, government bodies or individual entrepreneurs on the one hand and economically weaker farmers on the other. It is, however, a positive approach that can help to both increased Income for farmers and higher profitability for sponsors.[6]When we talk about efficiently organized and well managed, contract farming reduces risk and uncertainty for both parties as compared to buying and selling crops on the open market. (Eaton and Shepherd, 2001)

The advantages, disadvantages and problems that arise from contract farming will vary according to the physical, social and market environments. More specifically, the distribution of risks will depend on such factors as the nature of the markets for the raw material and the processed product, the availability of alternative earning opportunities for farmers, and the extent to which related technology provided to them. (Poulton, C., Dorward, A. and Kydd, J., 1997)

7.1 Advantages and problems of contract farming

Contract farming has significant benefits for both the farmers and sponsors (investors).However, with these advantages also bring problems. Findings of the studies consider both advantages and problems from the standpoint of farmer and sponsor.

7.2 Farmer's standpoint

Advantages for farmers

- Inputs and production services are often supplied by the sponsor
- This is usually done on credit through advances from the sponsor
- Contract farming often introduces new technology and also enables farmers to learn new skills
- Farmers' price risk is often reduced as many contracts specify prices in advance
- Contract farming can open up new markets which would otherwise be unavailable to small farmers

Problems faced by farmers

- Particularly when growing new crops, farmers face the risks of both market failure and production problems
- Inefficient management or marketing problems can mean that quotas are manipulated so that not all contracted production is purchased

[6] In this publication the terms "sponsor" and "manager" are used more or less synonymously, unless clearly indicated otherwise. "Sponsor" is used in preference to "company" as many contract farming ventures are still operated by government controlled organisations.

- Sponsoring companies may be unreliable or exploit a monopoly position
- The staff of sponsoring organizations may be corrupt, particularly in the allocation of quotas
- Farmers may become indebted because of production problems and excessive advances

7.2.1 Sponsor's standpoint

Advantages for sponsors

- Contract farming with small farmers is more politically acceptable than, for example, production on estates
- Working with small farmers overcomes land constraints
- Production is more reliable than open-market purchases and the sponsoring company faces less risk by not being responsible for production
- More consistent quality can be obtained than if purchases were made on the open market

Problems faced by sponsors

- Contracted farmers may face land constraints due to a lack of security of tenure, thus jeopardizing sustainable long-term operations
- Social and cultural constraints may affect farmers' ability to produce to managers' specifications
- Poor management and lack of consultation with farmers may lead to farmer discontent
- Farmers may sell outside the contract (extra-contractual marketing) thereby reducing processing factory throughput
- Farmers may divert inputs supplied on credit to other purposes, thereby reducing yields

7.3 Problems of contract farming based on case studies in Punjab

Given the Indian context it is obvious that there are many reasons why a firm might not want a contract with small and marginal producers. Despite the rhetoric that small and marginal farmers are being subordinated to agribusiness firms, the actual reality is often that such farmer groups are largely on periphery to these lucrative enterprises known as contract farming. It is not so much that they were being exploited, but that they were excluded from the most profitable activities.

In Table 9 details of the land holdings of farmers who are contract farming with three of the bigger players in the state of Punjab are given. The exclusion of the small and marginal farmers is clearly evident from this data. This has happened despite the fact that small and marginal farmers have the labour advantage needed for crops like tomatoes.

There could be several reasons why an agribusiness firm did not involve itself with small and marginal farmers in a contract. These relate to crop requirement and transaction costs. Transaction costs are more or less a fixed cost per farmer. The required inputs a farmer needs as regards screening, personnel time, communication, extension, inspection, etc. are the same, irrespective of his land holding. Hence the agribusiness firms' decision to deal with a limited

number of large farmers. However, from the international experience of contract farming, it is evident that some firms do try to include small and marginal farmers by providing variations of contracts that limit the service provided by the firms to those farmers.

Table 9 Land holding in contract farming in Punjab

Land Holding (Acres)	HLL (Tomato)	Pepsico (Potato)	Pepsico (Chillies)	Nijjar Agro (Tomato)	All
Land Owned	47.25 (5 - 150)	33.79 (5-95)	39.63 (5-195)	16.87 (0-60)	35.72 (0-195)
Land Leased	30.96 (0-165)	18.95 (0-100)	40.45 (0-165)	5.6 (0-25)	23.65 (0-165)
Land under Contract Farming	26.88 (2-130)	4.37 (1-15)	4.00 (1-7)	5.27 (1-13)	12.33 (1-130)

Source: **Singh, 2000**
Note: Figures in parentheses indicate range

One of the factors, which is often debated in contract farming is whether contracting is commodity specific. Technological conditions and crop characteristics combine to give rise to situations in which contract farming is the most viable option. This is specifically so for crops for which important economies of scale are associated with processing, coordination and perennials that need much maintenance and take a long time to mature. Commodities grown under contract are also often grown to specifications linked to grade and quality standards that allow the commodity to be classified and priced. (Sunil Khairnar and Venkat Yeleti, 2005)

7.4 Rural welfare, Socioeconomic and gender differentiation

Most contract farming projects do appear to contribute to the landless, small and marginal farmer welfare and improve farmer incomes, at least in the short term. Contract farming can also lead to a solution in the case of deteriorating debt. Most contract farming schemes offer a good opportunity for the rapid adoption of new crops and production systems, which can aid in farmer welfare even after the agribusiness firm exits from the area.

The risks of contract farming and the welfare of the small and marginal farmers have to be judged from a long-term perspective. The primary question that often emerges in the consideration of the welfare effects of contract farming is the extent to which it displaces food production and its effect on food and nutrition. While some research[7] identifies that the biggest problem in contract farming is the insistence of the agribusiness firm on monocropping others hold that contract crops have primarily displaced land and labour previously used on other cash crops rather than on subsistence food crops. The latter view might hold true in India (where contract farming is limited to a few fertile zones). Hence it is not possible to be conclusive on the question of increased employment created by contract farming in India.

[7] Little and Watts (1994).

Contract farming has led to the increased incidence of reverse tenancy in the region as the returns from farming have increased for those who can invest in it and take the risk of crop failure. These are mostly the large landholders or those who have other non-farm sources of income. This is certainly leading to a higher degree of economic differentiation in the region as those who lease out land are only worse off.

Female labor is preferred for transplanting and harvesting work as they are perceived as more sincere, more suited for this work, thus more efficient, do not agitate. Sometimes, when there are daily wage rates, they are cheaper to hire (a female worker's wage is only 50–60% of the male worker's wage) and more often available in peak season. This certainly leads to more work for women and an undesirable push for the use of female child labor. A large number of women could be seen picking potatoes and tomatoes and grading them in the fields at harvest time. Even mothers with infants attend to grading work as it is generally in one place and under shade of some tree or under a shed. This is no different from what has been observed in Mexico tomato fields under the agribusiness company ownership (Collins, 1993; Torres, 1997). There is also child labor used in harvesting of crops, especially tomato and chili. Since the wages are based on work performed, working families tend to use child labor to maximize earnings.
In some cases, the women members of the contract grower households could be seen supervising the potato grading labor especially when the produce is graded not in the fields but at the farm house of the grower. This is possible and desirable as most of the potato grading labor is done by female workers and it is easy and more effective for a female member to control their work. Otherwise, these women do not participate in any farm work. But they do give necessary instructions to labor as and when required, from the house itself. (S. Singh, 2002)
On the other way around, contract farming is succeeded in improving the socioeconomic aspects of the farmers; if marginal farmers with less landholding gets the contracts with the companies then it helps them to raise the farm income, living of standard, women's condition, children's education and other health aspects. Therefore, a fair deal of contract farming can be really important in improving the socioeconomic conditions of the farmers. In brief, the problems that beset contract farming are as follows:

- Small size of farmer landholdings.
- Need to contract with a larger number.
- No mechanism to discourage default. No legal recourse when faced with large scale contravention of contracts.
- Lack of a comprehensive crop insurance scheme to protect against natural calamities.

7.5 The Government's Role

There is as yet no national policy on contract farming in India, but there are plans to formalise the arrangements in respect of pricing, legalities, pledge financing, warehousing, and the forward and futures markets. The planned steps include:

- Recording all contractual activities, ideally at the panchayat level
- Putting in place an arbitration mechanism
- Setting up farmer associations to improve the farmer's bargaining power with the agribusiness firms
- Amending the restrictive State Agricultural Produce Marketing Committee Act (APMC) and the Essential Commodities Act
- Tax breaks on procurement

- Planning new insurance schemes like the Income Protection insurance prevalent in the US.

The APMC Act restricts farmers from entering into a direct marketing contract with bulk purchasers as all the produce is to be canalised for sale through the regulated markets only. The Government has circulated a Model Act to replace the APMC and several states are in the process of enacting suitable legislation as convenient. This Model Act includes suggested provisions for a contract farming agreement, as follows:

- All Contract Farming Agreements should be registered with the Market Committee or a Proscribed Officer;
- Disputes are to be referred to a Proscribed Authority and are to be resolved within 30 days;
- An Appellate Authority will entertain appeals and will decide such cases within 30 days;
- The decision of the Proscribed/Appellate Authority shall have the force of a decree of the Civil Court;
- All disputes will be resolved only in the above manner and not by any other court of law;
- No market fee will be levied on direct procurement;
- Quality of the supply has to be clearly stipulated plus its sampling procedure; and
- Contract farming agreements must give a description of the farm land covered, crop delivery arrangements; optional features include cultivation/ input specifications to be followed, insurance, nature of support services to be provided, farmer management forum and monitoring of quality and yields.

7.6 Analysis of PSMS

The very foundation of price policy is to support decision-making in area allocation and provide incentive for adopting new technology but that seem to have not been working in the field. It is very clear that MSP does not provoke any area or input decisions; rather it seems that the time trend alone dictates the decision environment. Our analysis indicates that wheat and paddy got the best out of the price policy (through MSP) but unintentionally this worked as an inflictor of negative externality to discourage coarse cereals and pulses. Therefore, it is not wrong if we consider this as a strong policy bias against a few crops. Incidentally, these are the crops grown in agriculturally backward region of the State and mostly by the resource poor farmers.

One of the important objectives of the price intervention scheme is to enhance adoption of technology by providing a wedge against the fluctuations in expected prices. When farmers are assured about price level before the next harvest, they feel secure to use proper mix of inputs and technology which requires a little more investment. Essentially the farmers are not `investment-shy' in the context of such assurance and they become cautious risk takers. They probably give consideration to the current MSP exercise and therefore, the declaration of MSP should be before the sowing season for the concerned crop. The experience of last three decades tells us that this happens more as an exception than practice. Treating MSP either as an incentive price or analyzing its impact on input use may only serve as a ground for theoretical discussion, it has no relevance on the ground. With this evidence in hand one tends to conclude that MSP hardly has any influence on area allocation or input use at the micro-level.

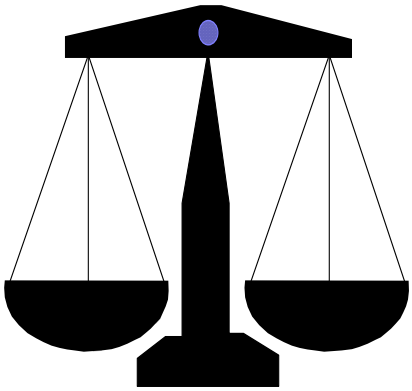
We have looked at the effectiveness of Minimum Support Prices with a focus on its fulfilling of objectives set forth by the price policy declared in 1986. The following paragraphs give a succinct view of the findings of MSP:

- The impact of the MSP on market prices in terms of reducing the seasonal and cyclical fluctuations during nineties has been quite negligible.
- MSP could not act as an incentive price since more often it is declared well after the sowing season. Moreover, the mechanism of implementing MSP does not fully allow it to perform the role of an incentive price.
- It also does not help in adoption of technology as the declarations come well after the sowing of the crop is undertaken. The determinants of the adoption of technology work are located in the market prices and market behaviour.
- In the present context, the MSP has not influenced the structure as well as quantum of inputs since many of the farmers are not even aware of MSP.
- MSP does not influence the regional variations in the prices and these continue to dog the market of agricultural commodities.
- Among the factors that dictate the effectiveness of MSP, the following assume significant importance:
    - Process of implementation of the scheme.
    - Undue dependence on the state machinery every time for the purpose of initiating the procurement.
    - Information asymmetry prevailing in agricultural market thereby causing severe market imperfections.
    - Absences of state level mechanism for monitoring agricultural prices to initiate sue motto intervention.

- MSP, if implemented properly, can effectively play the expected roles: to act as incentive price, crop pattern and input intensity navigator, risk taker and technology promoter. Our simulation exercise suggests that if the process of MSP is overhauled probably its envisaged role can be witnessed.
- MSP reveals only theoretical impact on agricultural growth and distribution parameters. However, the implementation of the scheme is such that it prevents to empirically assess any such impact.
- The process of implementation of MSP requires a thorough overhauling and it needs to be made market as well as farmer friendly.
- The questions regarding the micro-level impact of MSP on adoption of technology, investment in agriculture, inter-crop price parity, impact on cropping pattern and sustainability of cropping pattern have been analyzed and it was found that as the scheme is not perfectly implemented to influence these parameters at micro level. Therefore, it will not have any such impact. Probably, an overhauled scheme and the process of implementation will make up for these lacunae.

7.7 Contract farming versus PSMS

Contract Farming		PSMS
Planning Material Supplies		Usually None
Technology Transfer		None
Assured Price		Minimum Guaranteed
Assured Quantity		No Assured Quantity
Free Equipment		No Free Equipment
Partnership Approach		Usually Adversarial
Builds Commitment		Builds Mistrust
Long Term		Short Term



It's clearly seen from the above mentioned comparison that Contract farming system has more advantages over PSMS system. Although both the system is needed in the present scenario as there are certain fields which contract farming doesn't cover? For example, the contract farming system in India has range with major landholding farmers and usually for the benefits of companies they apply this system only to certain crops, similar in PSMS system Government doesn't cover all the crops, they are mainly focused on wheat and rice paddy.

Though contract farming has existed in Punjab for more than a decade now and was initiated by Pepsi Foods in tomato and chillies in the early 1990s, it is for the first time that the state government has taken up this project with its direct involvement where it will act as intermediary between companies and farmers. It is now part of a larger project on crop adjustment (diversification), which will be implemented over the next five years. It is also important to realise that contracting need not be promoted for all crops, farmers and regions, and the state should play more a regulatory role rather than a promotional role. Farmers' organisations should be promoted by governmental and non-governmental developmental agencies to deal effectively with contracting companies. If the need arises, only small and marginal farmers, who have unfortunately failed to benefit from the existing output structure of wheat and paddy, could be supported by other suitable means for a limited period. Ultimately it is the prevalence of market forces that would help the emergence of an appropriate farm scenario. The government shou1d take steps to encourage such a situation. Also there is an urgent need for properly educating farmers both in undertaking more value-adding farm products as well as in making productive use of their savings.

8 CONCLUSION AND RECOMMENDATION

The Punjab government has also now resigned to a role of a facilitator of contract farming in the state. The governments of Uttar Pradesh and Punjab have recently amended the APMC Act that did not permit farmer level (direct) procurement by companies. This legal reform process is being accelerated by the central government with the enactment of the Model Act for the state Agricultural Produce Marketing (Development and Regulation) Act, 2003 which deals with setting up of private markets, selling of produce by growers outside the APMCs (regulated markets), setting up of direct markets, specialized commodity specific markets, regulation and promotion of contract farming, provision for agencies and measures to promote quality, standards, alternative markets, and public-private partnerships to facilitate more and better linkage between firms and farmers (GoI, 2004).

A recent World Bank report also points to the deficiencies in the contract farming program launched by the state government of Punjab. It states that for the programme of contract farming to be successful, it should take into account the aspects of selection of crops for contracting, development of quick and effective contract enforcement and dispute resolution system, limiting fiscal risks to the state government, limiting the number of parties in a contractual arrangement, and developing farmer organizations' capability of contracting with sponsors, with a view to reducing transaction costs, increasing information flow, and improving farmers' negotiation position (World Bank, 2003).

There is a role for state agencies and NGOs to intervene in contract situations as intermediaries to protect the farmer and broader local community interests. The NGOs can also play a role in information provision, and in monitoring and regulating the working of contracts. Better co-operation and co-ordination between companies and co-operatives for agricultural development also needs to be encouraged. Further, both companies and state should promote group contracts with the intermediation of local NGOs and other organisations and institutions so that contractual relationships are more durable, enforceable, and fair. An insurance component in farming interventions is a must to protect the farmer interest and it is noted that some companies are already doing it. But the most important thing is to ensure a market for the farmer's produce at a better price under these agribusiness projects. Government should also play an enabling role by legal provisions and institutional mechanisms, like helping farmer co-operatives and groups, to facilitate smooth functioning of contract system.
The advantage of contract farming is biased towards the agribusiness firms involved in the contract and the case for contract farming in India as an option for small and marginal farmers does not quite exist. However, this should not rule out the beneficial effects of contract farming schemes, especially in efficient market outcomes, and indirect positive economic welfare such as rural employment generation both on the farms and in the processing plants.

An analysis of the labor conditions under the contract-farming system shows that the labor issues in contract farming are still not addressed in research on contract farming. Since contract production is primarily carried out with female labor—adult and increasingly child—there is a need to address the whole question of changing the agrarian production structure under contract

farming from a gender perspective with focus on issues of transfer of skills, choice of technology, organization of labor, working conditions, and terms of work. The organization of labor is another important measure to prevent or eliminate some of the ills of contract-farming system for labor. Contract farm labor associations can also be used for monitoring wage and work conditions. In fact, there could be legal provisions to involve labor representatives when companies and growers/ growers' groups decide on labor and wage issues. As a civil society intervention, there could be codes of conduct for farmers for use of labor which can be enforced by contracting agribusiness firms who should also work toward more ethical and human labor standards constantly. (S.Singh, 2002)

The other important factor in this aspect is diversification. Diversification can mean doing something differently or a different thing altogether. But, here, different things are being done in the same way, i.e., new crops are being grown with same or higher input intensity. In fact, what the state should have undertaken in participation with other actors has been left to the private corporate and multinational enterprises. It is important to recognize that what is needed is not less of the state, but a better state for promotion and regulation of economic activities, and new organizations and institutions for sustainability of agricultural development. Therefore they need to apply the contract farming system in other crops and in some other prospective agriculture states in India. Simultaneously PSMS system should include more crops and instead of making these policies for shorter period of time try to apply it in the longer version for the benefits of farmers.

8.1 Specific Steps needed for successful contract farming

No contract farming venture should be initiated unless some basic preconditions are met. These preconditions are-

A PROFITABLE MARKET

The sponsor

- Must have identified a market for the planned production
- Must be sure that such a market can be supplied profitably on a long-term basis

The farmer

- Must find potential returns more attractive than returns from alternative activities and must find the level of risk acceptable
- Must have potential returns demonstrated on the basis of realistic yield estimates

THE PHYSICAL AND SOCIAL ENVIRONMENTS

Main factors

- **The physical environment** must be suitable in general and in particular for the product to be produced
- **Utilities and communications** must be suitable for both farming, e.g. feeder roads, and for agro-processing, e.g. water and electricity
- **Land availability and tenure** – contracted farmers require unrestricted access to the land they farm
- **Input availability** – sources of inputs need to be assured

- **Social considerations** – cultural attitudes and practices should not conflict with farmers' obligations under the contract and managers must develop a full understanding of local practices

GOVERNMENT SUPPORT

The enabling and regulatory role

- Suitable laws of contract and other laws are required as well as an efficient legal system
- Governments need to be aware of the possible unintended consequences of regulations and should avoid the tendency to over regulate
- Governments should provide services such as research and, sometimes, extension

The developmental role

- Governments can take steps to bring together agribusiness and suitable farmers

8.1.1 Specific steps recommended

- Single tier regulatory authority for contract farming at the district level - A quasi judicial system for contract enforcement
- Make purchase interference by a third party in a contract farming program, a cognizable offence
- For a Registered Contract Farming Programme
  - Abolish all fees, taxes, duties, levies on procurement effected
  - Exempt taxes and duties on import of agro-equipments
  - Eliminate red tape In import of varieties / hybrids
- Introduce insurance policies to provide comprehensive coverage of the crops including loss of profit to the farmers
- Make it obligatory for Agricultural Students to work on contract farming programmes as a part of their curriculum
- Focus Agriculture Universities towards developing crop and region specific agendas

8.2 Specific Steps Needed for PSMS

- There should be a thorough review of the methodology of arriving at MSP, discussed with farm leaders and academicians. Such review should be taken periodically and should be transparent in nature.
- Sample checks of the data collected under Cost of Cultivation scheme by independent agencies are extremely necessary. This process should be made mandatory for each of the State.
- MSP, if declared before the sowing season, can become an effective tool of Price Policy. Similarly, the gap between the recommended price by the CACP and the MSP declared by Government of India should be rationally explained.
- Price Policy now needs to keep in view the crops having international trade potential. Two aspects have to be kept in view to encourage agricultural trade. First, to monitor and maneuver the Price Policy between domestic prices and international prices and second to encourage the cropping pattern in favour of the export-oriented crops.
- MSP policy has not reached the farmers except in the regions with predominantly commercial agriculture. This is both due to the present process of implementation and declaration of MSP. To overcome this situation the information of MSP should reach the farmers through the well oiled extension agencies.

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10 ANNEXES

Annex 1 Minimum support prices of various Agricultural comodities (According to crop year)

S. No.	Commodity	Variety	2003-04	2004-05	2005-06	2006-07
1	Paddy	Common	550	560	570	580
		Grade "A"	580	590	600	610
2	Coarse Cereals		505	515	525	540
3	Maize		505	525		540
4	Wheat		630	640	540	750
5	Barley		525	540	650$	565
6	Gram		1400	1425	550	1445
7	Arhar (Tur)		1360	1390	1435	1410
8	Moong		1370	1410	1400	1520
9	Urad		1370	1410	1520	1520
10	Masur (Lentil)		1500	1525	1535	1545
11	Sugarcane @		73	74.50	79.50	80.25
		F-414/H-			1760	
12	Cotton	777/J-34	1725	1760		1770
		H-4	1925	1960	1980	1990
13	Groundnut-in-shell		1400	1500	1520	1520
14	Jute		860	890	910	1000
18	Rapeseed/Mustard		1600	1700	1715	1715
16	Sunflower Seed		1250	1340	1500	1500
17	Soyabean	Black	840	900	900	900
		Yellow	930	1000	1010	1020
18	Safflower		1500	1550	1585	1585
19	Toria		1565	1665	1680	1680
		Black Soil				
20	Tobacco (VFC)	(F2;Gr.)	31.00	32.00	32.00	
		Light Soil				
	(Rs. per kg.)	(L2;Gr.)	33.00	34.00	34.00	
	Copra (Calendar					
21	Year)	Milling	3320	3500	3570	3590
		Ball	3570	3750	3820	3840
22	Sesamum		1485	1500	1550	1560
23	Nigerseed		1155	1180	1200	1220

Source: **Ministry of Agriculture, India**
Note: Figures shown in table is in Rs. Per Quintal

Annex 2 Indian women working in rice field.

Annex 3 Rice field and farmers during field observation, part of training programme.Childeren's participation clearly visible.

Annex 4 Local farmers from Punjab in some government official meeting.