Chapter-II

Review of Literature

Review of literature of the past theory and practice is necessary when conducting any research work. It provides information of the work done in the related area and the theoretical frame work on which the proposed solution of the problem can be based. The relevant literature was reviewed in detail to understand the nature and extent of the work done on the related topic. An attempt is made to analyse the nature of the work done during past in the related field. The brief review of literature has been given as under:

Yadav, (1982) determined the impact of Agricultural subsidies on the incomes of small and marginal farmers in Ajitwal block in Etawah district of Uttar Pradesh in 1980. Data was collected from 30 beneficiary and 30 non-beneficiary small and marginal farmers from five villages. Data was collected through randomly. The author compared the beneficiary and non-beneficiary farmers and found due to subsidies the income of farmers increased. This study showed that income beneficiary farmers were about 70 per cent more than of non-beneficiary farmers. At the end, the author suggested the provision of subsidy for small and marginal farmers only.

Sharma, (1982) examined the impact of agricultural subsidies on national income and agricultural production. For this purpose the author used the time period from 1970-71 to 1981-82 and a general equilibrium model. The study revealed that during this period, agricultural subsidies affected the national income and agriculture production positively. The author estimated that the co-efficient of fertilizer subsidy was not statistically significant, even at low level of probability. The author
suggested that money to different subsidies should be allocated according to the productivity of various subsidies and in developing country, there may be a possibility of misuse of agricultural subsidies and therefore, their continuance finally led to inflationary pressure in the economy.

Raj, (1984) stated that owing to large investment with long gestation period, self-sufficiency in food-grains cannot be achieved in the short-term period through improvement in physical and institutional infrastructure. Under such conditions government always prefers to adopt short-term policies, such as support product prices policy and subsidizing inputs with a view to introducing the farmers to increase food-grains output along with existing production function. In this study the authors made an attempt to illustrate effects of such policies by analysing the programmes of price support and fertilizer subsidy for achieving self-sufficiency in wheat in the country. The authors compared the price support and input subsidy approaches to achieve self-sufficiency in wheat production by using the criterion of (i) total cost of the government (ii) total social benefit and cost of the programmes (iii) distribution of benefits and (iv) foreign exchange savings. This study concluded that input subsidy programme was found to be more appropriate considering total cost of the government, overall social benefit and cost of the programmes and distribution of benefits, on the other hand price support programme was found more feasible than input subsidy taking into consideration the foreign exchange saving criterion.

Gupta, (1984) tried to analyse the agricultural subsidies in India from 1970-71 to 1982-83. The author used linear regression model. The study showed that during this period, the use of agricultural subsidies increased at faster rate but there was a large inter-state disparity. It was found that Punjab, Uttar Pradesh and
Maharashtra used about half of the total agricultural subsidies but accounted for only 30 per cent of the gross cropped area of the nation. Whereas Rajasthan, Madhya Pradesh and Orissa received only nine per cent of agricultural subsidies but claimed 27 per cent of the gross cropped area of the nation. The study also showed that there was inter-state disparity in the use of agricultural subsidies per hectare of gross cropped area. It was found to be the highest in Punjab (Rs. 216.18) and lowest in Rajasthan (Rs. 12.45). The author observed that the benefits of fertilizers subsidies were found to be biased against the small and marginal farmers and the author suggested that more agricultural subsidies should be given to poor states and small and marginal farmers to encourage them to utilize more inputs at lower costs.

Sirohi, (1984) stated that the social justification of the subsidies is only when they promote agricultural development and bring about equitable distribution of income. As regards the effects of various input subsidies on agricultural production and national income, the largest favourable impact was observed in case of subsidy on electricity. The equity effects of the input subsidy seem to have gone mainly to medium and big farmers. While fertilizer subsidy aggravated the income disparity in the rural areas, the benefits of irrigation accrued to all classes except the big farmers whose income declined. It thus brought equity, on the other hand aggravated regional disparity because of the benefits of fertilizer and irrigation accrued to regions with better irrigation facilities.

Sidhu, (1985) tried to examine the relative merits of price support versus fertilizer subsidy policy for food self-sufficiency in India. Rice and wheat crops are selected because of their high productivity and area as compared to other crops. These crops are covered under price support programme and use about 65 per cent of the total fertilizers. This study provided decision criteria for policy makers to select...
between the price-support and fertilizers subsidy under different situations. Fertilizer subsidy policy is found to be better price support policy in terms of net social benefits and benefit-cost ratio. But from the view point of the foreign exchange savings, price-support policy occupies better plashes. Fertilizer subsidy policy again turns out to be better as compared to price support policy due to low price elasticity of output supply, higher price elasticity of fertilizer. A more egalitarian distribution of procedures income is deserved under fertilizer subsidy policy, it also turns out to be anti-inflationary.

Deininger, (1986) examined the slowdown in agricultural growth and the macroeconomic impact if rising fiscal deficits has refocused attention to public expenditures in the agricultural sector. Rising levels of agricultural subsidies has been blamed for crowding out much needed productivity enhancing investments. The study examined the potential welfare impacts of subsidy reforms by tracing the beneficiaries, (the farmers and consumers) of food grain price subsidies and by assessing the distribution and level of these subsidies across households at the state level. Using benefit incidence analysis, author found that agricultural subsidies benefited only a few states and larger farmers within these states. The author suggested that agricultural subsidies should be given to poor states and to small and marginal farmers.

Gulati, (1989) made an attempt to estimate the quantum and distribution of input or agricultural subsidies across states in India during 1980’s. The dispersion pattern of input subsidies has implications for incentive structures prevailing in the agricultural sectors of different states as well as efficiency in production of agricultural commodities across regions and states. This study covered three major inputs of modern agriculture: fertilizers, irrigation and electricity. The concept of
subsidy on these inputs was defined in a more economically meaningful sense, which differs significantly from one generally delineated in government budgets. The author examined and gave his findings which can be significant in evolving a rational describable cropping pattern in different agro climate zones based on the principle of comparative advantage. The study revealed that total input subsidy, averaged over seven years, 1980-81 to 1986-87, turns out to be about Rs.9,000/- crores at all India level. It is approximately 17 per cent of net value added in Indian agriculture. More than 70 per cent of total input subsidy is on irrigation through major and medium scheme. The author analysed that there is unequal distribution of agricultural subsidies as well as in GCA. The author found that at state level, the percentage share of Uttar Pradesh, Andhra Pradesh and Punjab in total subsidy comes to about one-third while they account for only one-fourth of all India gross cropped area. Input subsidies as a percentage of State domestic product in agriculture averaged over 1980-81 to 1986-87, are highest for Tamil Naidu (31.7 per cent), followed by Punjab (24.5 per cent), Haryana (23 per cent), Andhra Pradesh (21.3 Per cent) and Uttar Pradesh (18.2 per cent). At the bottom end are the states like Himachal Pradesh (2.0 per cent) Assam (2.4 per cent) and Jammu and Kashmir (5.4 per cent).

Sharma, (1990) revealed in this study that subsidies have become unsustainable. In order to release resources for higher investments in the agricultural sector, large scale price and institutional reforms are needed to relieve the pressure of subsidies on the exchequer. Under the circumstances, it makes much sense to improve terms and trade for agriculture and complement this by stepping up investment in agriculture through reduction in subsidies. The increased investment in agriculture appears to be a better bargain than short-sighted measures such as
subsidies. This is because of the fact that cultivable land in India is in short supply and raising productivity per unit of cultivable area will require heavy investments in irrigation, rural infrastructure research and extension. The author further analysed that investments in basic infrastructure correct for regional imbalances and promote greater equity at farm level, while subsidies tend to accentuate inequality.

Mukherji, (1990) tried to examine Economic of electricity subsidy in West Bengal. He has conducted a study to describe the electricity subsidy in West Bengal. The author used primary data from 40 villages and he has selected 580 respondents from those villages. The author found that electricity subsidies benefit only big farmers than that of the small size category farmers. The author suggested that electricity subsidy should be given to small size category farmers only.

Sagar, (1991) argued that the agricultural sector in the developed countries has enjoyed a greater degree of production than the import competing manufacturing sectors. Usually this is attributed to string farm lobbies and hence on political factors. They provided a theoretical model and a possible explanation of this phenomenon based on purely economic arguments. Two importable are accommodated in a three-good three-factor model of trade and production i.e. one is a Labour intensive manufacturing good and other is an agricultural commodity. This captures the trade pattern of a typical industrialized country with an agricultural sector such as Europe and the United State America. They showed that uniform tariffs on subsidies in agriculture and labour intensive manufacturing will definitely hurt the land owners in real terms and may reduce their absolute return. The author suggested that, if there has to be protection, it should be biased in favour of agriculture.

Malik, (1993) stated that the conventional agricultural system in the semiarid administrative district of Ludhiana in Punjab, depended on heavy doses of inorganic
fertilizers and pesticides, repeated deep ploughing and heavy use of ground water. Electricity subsidies promoted excessive water use (15 per cent more than recommended levels). Over-irrigation and large-scale rice production were decreasing the groundwater tables by 0.8 m/year. This case study analysed alternatives to the conventional paddy-wheat production system. The alternatives were 18 combinations of tillage, irrigation and fertilization practices. As for water use, the researchers compared overuse, recommended use, and less than recommended use. They also compared financial and economic values for each farming practice. The five policy options tested were current policy, removing commodity support for consumers, removing input subsidies, removing commodity and input subsidies and free world trade. The conventional practice under the current policy lose 25 per cent of its income to groundwater depletion, soil degradation and off-side environmental costs, while the income from the most resources – conserving practice. (reduce tillage, inorganic fertilizer plus farm yard manure, 80 per cent of recommended use) has a 9 per cent net farm income and has no environmental costs. Further analysis showed that net income falls the most for the predominant practice which relies on government subsidies. The net present value of groundwater depletion estimated at subsidized electricity rates equals around six per cent of gross operating margin. Thus, the author concluded that pricing reform, research on water management and alternative cropping systems, and improved monitoring of groundwater levels were required to achieve sustainable agricultural production in Ludhiana.

Majumdar, (1993) observed the growing burden placed on Indian Public finances by the subsidization of fertilizer has become one of the most concerning aspects of the Indian Economy. In this study, the author utilized a component type
analysis to determine the percentage share of subsidy benefiting both the farm and non-farm sectors. He also looked at the major factors behind the increase in subsidy, the scope for reducing the subsidy through the feed-stock mechanism and considered the extent to which the burden created by subsidies can be switched to the farmer. Under certain assumptions the author found that the subsidy component of farm and non-farm sectors is in the ratio of 2:1. The component of subsidy going to the non-farm sector is mainly accounted for by the feed stock sector rather than the industrial sector. He suggested for policy that eliminates the fertilizer subsidy that neither pampers the farm sectors on the feed-stock sector and that this should evolve from discussions involving representative organizations of those affected academics and experts.

Kalra, (1993) conducted a study to analyse the growth of fertilizer subsidy in India has come to plashes on intolerable strain on Central Government finances and has raised questions concerning its sustainability in the long term. The study considered the position and effectiveness of Indian fertilizer subsidies both pertaining to equity and efficiency. Fertilizer subsidies in government accounts were shown to be the actual price received by the industry minus the price level dictated purely by efficiency namely the imports price level. This study showed the farmer has in net terms been toned rather than subsidized under the assumption of the free trade scenario. This study concluded that encouraging the expansion of irrigation facilities was a more cost effective and efficient measure in terms of raising the level of agricultural of production. The author suggested that the subsidy as burden on government can be mitigated by improving the efficiency of the fertilized Industry, as well as efficiency of distribution and consumption of fertilizer.
Murgai, (1995) stated that most of India's agricultural subsidies are both inefficient and regressive while the power subsidy to agriculture has been increasing over time, the other input subsidies on fertilizer and irrigation increased over the eighties but has been reduced in the nineties. The fertilizers subsidy increased from 0.3 per cent of gross domestic product in 1981-82 to 1.1 per cent in 1989-90, corrective measures were taken in response to the balance of payments crisis in the early nineties and there was a crores pending reduction in the early years of the nineties in the fertilizer subsidy bill to about 0.7 per cent of gross domestic product. The irrigation subsidy increased from 0.3 per cent in 1980-81 to 0.4 per cent in 1990-91 and by 1999-2000 has fallen back to 0.3 per cent, likely because of the slowdown in irrigation investments. In this study, the author suggested that agricultural subsidies should be replaced by better services and more investments.

Sant, (1996) described that the power sector reforms regarding tariff of electricity or electricity subsidy. An analysis of irrigation pump sets subsidy users in Maharashtra State was done. During analysis, it was observed that with efficiency improvements, most of the farmers will be able to pay the electricity charges. It was also observed that most of the farmers can pay the costs of electricity much higher that usually believed. Therefore, the opposition by state Electricity Board’s need to be seen as opposition to making the State Electricity Board’s accountable for the electricity lower and theft.

Schwartz, (1997) examined the problems of defining and measuring government subsidies and also examined why and how government subsidies are used as a fiscal policy tool. The author discussed their general economic effects in terms of real welfare costs and distribution implications, appraised international empirical evidence on government subsidies and offered options for their reform.
Recent international trends in government subsidy expenditure are analysed for the 16 years period from 1975 to 1990, using general government subsidy data for 60 countries from the united nation’s system of National Accounts (SNA). They retrieved major policy options for subsidy reform, focusing on ways to improve the cost-effectiveness of subsidy programme.

Kaushik, (1998) pointed out that agricultural subsidies are a worldwide phenomenon, a creation of modern economies, which make stand-alone agriculture the least remunerative occupation. The developed countries subsidies their agriculture on a much larger scale than India does. In 1999, subsidy payments to agriculture were $ 54.0 billion in the U.S., $ 114.5 billion in EU countries and $ 58.9 billion in Japan, against $ 7.2 billion in India. On a per farmer basis, the subsidy was $ 21,000 in US, $ 17,000 in EU, $ 26,000 in Japan and measly $ 66 in India. Expressed as percentage of the value of agricultural production, the subsidy was 24 per cent in US, 49 per cent in EU and 65 per cent in Japan, but just 6.5 per cent in India. The Government controls the minimum retail price of fertilizers at a level affordable to the farmers. The author analysed that bulk of the increase in subsidy is in the nature of an intra-economy transfer and to that extent, it is not even a net burden on the exchequer. In this study, the author analysed that small and marginal farmers need to be given special relief by giving them employment in off-farm activities. The income generated from these activities will provide them the much needed cushion for absorbing the unavoidable escalation in input costs. For several years now, an uncertain policy environment has dogged the fertilizer industry in India. This has affected fresh investment and impaired the ability of existing units to plan for the future and take business decision. The removal of price controls will eliminate this uncertainty and pave the way for a stable policy environment. The
author suggested that Government may have to continue with agricultural subsidies to pursue the broader goals of food security and protecting the income of farmers, these should be given to them directly, the only way to bring peace to this vital industry and enable it to serve Indian agriculture effectively.

Mehta, (1998) tried to examine that irrigation and power being state subjects, the analysis was carried out for three states Gujarat, Punjab and Uttar Pradesh. The choice of the states was based on the fact that, all the three has large agriculture sectors, Moreover, the three states were districts in terms of their sources of irrigation and the power pricing policies. The author found that rapid rural electrification along with subsidized power and irrigation for agriculture has led to high dependence on underground water sources. The overuse of groundwater especially in some districts, was merging as a grave concern. The author found that during 1985, out of 183 total blocks in Gujarat, 6 blocks were over exploited which increased to 45 blocks in 1994. In Punjab, out of 118 total blocks, 64 blocks were over exploited, during 1985 which incurred its 73 blocks in 1994. Similarly in Uttar Pradesh, out of total 895 blocks, 53 blocks were over exploited in 1985 which increased to 65 in 1994. The author showed that moreover highly subsidized or free supply of inputs like power and irrigation has also led to inappropriate cropping patterns. For example in water scarce areas, water intensive sugar cane and rice crops were being promoted. The author suggested that a policy package that is economically and environmentally sound is needed, besides being socially acceptable.

Nayak, (1999) made an attempt to describe the amount of total input subsidies was consistently increasing, both in the case of Punjab and at the national level. From an estimate amount of subsidy of Rs. 504 crores in 1985-86 it has
increased to Rs. 1,812 crores in 1995-96 in Punjab. The percentage share of subsidy in agricultural gross domestic product was consistently higher in the case of Punjab than the national average although the gap has narrowed down in the recent years. Still the burden of input subsidies was quite substantial amounting to as much as 11 per cent of agricultural gross domestic product in Punjab. The mounting burden of subsidies in the form of free electricity and free irrigation was taking a severe fall on the state government exchequer. The author concluded that the state expenditures and infrastructure has to take a back seat due to the rise of law and order problems in the region as well as the arbitrary pricing and subsidy policy of the state government.

Gupta, (2000) stated that any reduction in the use of steel cement, automobiles etc. for a couple of years can be taken in the stride, but the substantial decline in the consumption of the fertilizers will has the effect on the food grain production. This was quite clear from the experience of the two consecutive drought years in the 1960s – exploitation in the International market, humiliation suffered at the hands of other countries and handling the large imports. In the year 1996-97, food grain production in India was 200 mn tonnes and the fertilizer use was 10.7 mn tonnes for the same production of 200 mn tons of food without the use of fertilizers, 892 mn tones of organic feed has been required, which was virtually impossible. In the absence of fertilizer use food grain production will be lower and import of the food grain from the other countries would be required, this in turn has the devastating effect on balance of payment of country. Now country has achieved self-sufficiency in food grain production supported by increasing consumption of fertilizers. The author suggested that it cannot afford to be complacent and treat fertilizers like any other commodity. Thus there is an urgent need to promote
increasing fertilizer use at an accelerated rate in order to maintain self-sufficiency and simultaneous increase in food grain production.

Pal, (2001) tried to analyse the present state of World Trade Organization negotiations and how effective the current World Trade Organization provisions will reduce domestic subsidies in developed countries. He analysed that the broad frame work of subsidy reduction, as outlined in the July package, can be considered as a step towards the right direction but it does not guarantee significant reduction in subsidies. A simulation using the subsidy reduction formulas mentioned in the draft ministerial tent for the Hong Kong meet also indicates that due to the existence of significant overhang between actual and committed levels of subsidies in developed countries, the effective rate of reduction of subsidies will be much less than it appears at the first glance. Unless deep reduction commitments are imposed on developed countries, it will not lead to a substantial cut in their trade distorting domestic supports.

Jogi, (2001) stated that the provision of electricity and irrigation at concessions has encouraged inefficient use of a scarce resources such as water, distorted the inter-temporal resource allocation and promoted spatial, inter-personal and inter-temporal inequities. In Punjab 52.17 per cent of the total blocks in the state were over-exploited and 7.97 per cent of all blocks are dark areas as on 31.3.98. The over-exploitation of underground water has caused a fall in the water table in large parts of the state and this has entailed increased expenditure on deepening of tube wells. In case of canal irrigation it is found that 44 per cent of the water entering the canal has got lost in the canal itself, 27 per cent of the water is wasted by the farmers through excessive use and only 29 per cent is actually used by the crops. The author suggested that if government imposed charges on power and canal irrigation, then
the farmers would use natural resources more efficiently. At the same time with the reduction subsidies the government should be able to increase investment in the power sector to improve quality and quantity supplied as well as to increase their efficiency reducing transmission and distribution losses and improving the quality of the service.

Dubash, et al., (2001) examined that water related subsidies in agriculture are virtually a universal phenomenon. In this study, the author calculated the per hectare irrigation subsidies in five states of India: Rajasthan, Maharashtra, Andhra Pradesh, Karnataka and Uttar Pradesh. For collecting data, State budget data and Indian National Sample Survey were used. The author analysed that in practice, water tariffs has been set at very low rates. The capital expenditure on irrigation at national level has increased from Rs. 7.65 billion in 1985 to Rs. 110 billion in 2000. In 1997-98, in Maharashtra, irrigation subsidies were Rs. 3108 million, in Uttar Pradesh Rs. 2777 million, in Andhra Pradesh Rs. 2021 million, in Karnataka Rs. 259 million, in Rajasthan these were Rs. 182 million. The author also found that the magnitude of canal irrigation subsidies per hectare was Rs. 10149 in Maharashtra, Rs. 1117 in Uttar Pradesh, Rs. 1387 in Andhra Pradesh, Rs. 337 in Rajasthan and Rs. 242 in Karnataka. The author further analysed that benefits of the subsidies were not distributed equitably, large size category farmers were receiving more subsidy than small and marginal farmers. The author suggested that broad policy and institutional reforms are needed to address the consequences of water related subsidies and a better understanding of the nature of water related subsidies, their magnitude, environmental impact and associated issues of equity is needed.

Kumar, (2002) described that India’s food security policy, which has the objective of ensuring food grain availability at an affordable price, has been another
compelling reason to provide subsidies for the agricultural inputs, namely, water for irrigation supplied from public systems, electricity used for groundwater pumping and fertilizers. This is because the farmers are denied the option of fetching high prices for their grain through free trading due to the government restrictions on inter-state grain trading and that the only way to make food production remunerative was through cutting down on the input costs. The provision of input subsidies as such is not a bad idea in the agricultural sector. Several countries around the world still report to subsidies to enable farmers to grow food at low cost. To the extent that large subsidies can alter the potential efficiency patterns of water use, water subsidies can cause long term irreversible effects – environmental, physical, geographical and economical. The author suggested that the policies and programmes need to be designed and operationalized to encourage sustainable farming practices with increased use of bio-fertilizers. Subsidies can be introduced for small and marginal farmers to adopt bio-gas plants and scientific compost making community based programmes for increased production of bio-mass from common property wastelands can also be introduced. Extension activities on organic farming practices, bio-gas and low-cost water saving technologies need to be taken up. Agricultural research should shift from a supply driven system to one that takes into account the demand side variables such as the local physical and socio-economic conditions, in order to increase the scope of the search.

Howes, (2002) tried to examine the distribution pattern of electricity subsidy. He has conducted a study to show the distribution pattern of electricity subsidy in farmers of Karnataka State. In this study the author found that per unit of the electricity, subsidy benefited poor farmers the rest went to large size category farmers. Similarly, only two per cent of the subsidy benefited scheduled caste or
tribal families. The study found that on average, large size category farmers who own irrigation pump sets received Rs. 29,000 subsidy per year and pump set over as with marginal land-holding received subsidy of approximately Rs. 3,000 per year. The author concluded that electricity subsidies are regressive because large size category farmers are much more likely to have pump sets than small size category farmers and because large size category farmers with pumps use more electricity than small size category farmers with pumps. The author suggested that electricity subsidy should be given to only small size category farmers.

Gupta, (2003) argued that there has been a substantial increase in fertilizer consumption in Punjab in the last three decades Total NPK consumption has increased more than seven fold between 1970-71 and 2005-06 per hectare fertilizer consumption increased from about 37 Kg to 221.7 Kg. in the same period. The fertilizer consumption in Punjab is the highest in India. In addition overuse of nitrogen fertilizer due to higher amounts of subsidy has led to imbalanced use of fertilizes in the state. The N:P₂O₅ : K₂O ratio in Punjab is one of the most distorted at 27.8:7.3:1 as against the generally recommended 4:2:1 ratio. The author concluded that intensive use of inputs mainly pesticides and chemical fertilizers which was central to green revolution has created an ecological crisis in the state. If urgent remedial action is not taken, Punjab's agrarian crisis is bound to deepen.

Bhargava, (2003) revealed that just three items of public spending on agriculture – central fertilizer subsidy, electricity subsidy and irrigation subsidy account for nearly one –fourth of the increase in India's public sector deficit in recent years. The contribution of the agricultural sector to recent increase in India's public sector deficit, if other such items like crop insurance, losses, credit etc. are taken into account, will turn out to be for more daunting. According do this study, a vicious
circle seems to have already set in. The policy matters has justified agricultural subsidies on the ground of the country's poor's inability to pay market prices for food. But subsidies, by promoting inefficiencies in the use of inputs, has the effect of raising input intensity of farm output and thereby of raising the costs of food production. This in turn, has led to demands for more fiscal favour. What is more, the regime of subsidies has also encouraged rent-seekers to get what they can from the system, with politicians seeking high profile new projects, not proper maintenance of existing systems and farmers employing political pressure to get what give always they can rather than organizing for improved agricultural extension services. In this has contributed to rapidly rising fiscal outgoes. The author suggested that the vicious circle urgently needs to be broken, otherwise it will keep pushing India inexorably towards a situation of rising public sector deficits a situation which may pace the following major risks or a combination of them, for the Indian economy during the 1990s, substantially highest real interest rates, crowding out of some investment, lower growth rates, debt trap substantially higher inflation rates and excessive external debt service burden.

Orden, (2003) stated that since the early 1990s, India has undergone substantial economic policy reforms and economic growth. In this study, author evaluated the protection and support versus dis-protection of agriculture in India. His methodology involved examining market price support for eleven crops, the expenditure on input subsidies benefiting farmers (for fertilizer, electricity and irrigation) and product specific and total producer support estimates over the period 1985-2002. The author drew extensive price-comparison and subsidy measurement data sets. Overall, results indicate that support for agriculture in India has been counter cyclical. Support for agriculture has been rising when world prices are low
(as in the mid-1980s and 1998-2002) and falling when world prices are high (as in the early and mid-1990s) Results demonstrate the increased importance of budgetary payments for input subsidies in agriculture in recent years. Yet, in the aggregate for both price support and budgetary expenditures over the period 1985-2002 in the counter-cyclical dimension of agricultural policy dominates a clear trend of movement from dis-protection towards protection. The magnitudes of estimated support for agriculture obtained in this study are important for several reasons. The estimates confirm that high levels of subsidies were required for India to export wheat or rice in recent years.

Sengupta, (2004) stated that India is the third largest producer and consumer of fertilizer in the world. The world fertilizer consumption is approximately 142 million tones and growing at 2 per cent per annum. International trade in fertilizer accounts for approximately 62 million tonnes out of current world consumption of 142 million tonnes i.e. approximately 43 per cent of the total consumption. In order to provide fertilizers at an affordable price to farmers, the major thrust of Indian Fertilizer Policy is based on subsidy. The author found that the developed states has got a higher proportion of fertilizer subsidy, which constituted about 60 per cent of total fertilizer subsidy and the similar trend in case of irrigation and electricity subsidy. This study showed that on an average the total input subsidies constituted about 16 per cent of gross domestic product. The author suggested that to sustain the present pace of growth of agricultural production, there is a need of continue the input subsidies by controlling leakages.

Bala, et al. (2004) in their study made an attempt to investigate the trends in production and consumption of fertilizers in India and examined the effects of various factors such as price, area under high yielding varieties, gross cropped area,
cross irrigated area and subsidy on its consumption. The time series data from 1975-76 to 1999-2000 was taken into account for this study. Results indicated that consumption of fertilizers increased at the rate of 11 per cent over the study period. Whereas the growth rate for fertilizer production was 10.6 per cent. Among the factors affecting fertilizer consumption, subsidy emerged to be the most important factor followed by area under high yielding varieties and gross irrigated area. The author suggested that farmers should be encouraged for balanced use of fertilizers, increasing area under high yielding varieties and enhancing available irrigation potential.

Landes, (2004) has analysed that India's high agricultural tariffs and growing farm subsidies has received much attention, on the other hand implications of domestic policies that has discouraged agricultural investment and created inefficient domestic markets has received less attention. In this study, the author used an approach for analysing the effects of improvements in marketing efficiency that might be associated with reforms that strengthening the climate and incentives for private investments in agriculture. The author compared these results with the impacts of more traditional reform scenarios involving the elimination of agricultural subsidies and tariffs. Due to the equity implications of reforms are a key consideration for Indian policy makers, the author used a framework that disaggregated the household sector between rural and urban and by income class. The author suggested that in contrast to subsidy and tariff reforms measures leading to improved agricultural marketing efficiency could yield substantial economy wide gains in income and employment as well as positive price impacts for both producers and consumers and distributional gains favouring low income households.
Acharya, (2004) explained that the genesis of input subsidies in Indian agriculture can be traced to the philosophy and objectives of agricultural development strategy launched during the mid-1960s. Input subsidies help in balancing the conflicting interests of farmers and consumers and in achieving macro food security. Subsidies on fertilizers, electricity and canal water, which account for bulk of subsidies has been analysed. In 1999-2000, the electricity subsidy accounted for 53 per cent, fertilizers subsidy was 28 per cent and 19 per cent was canal irrigation subsidy. During the last twenty years, 81 per cent of the incremental subsidy has been contributed by increase in the rate of per unit subsidy, Contrary to general perception, Punjab has accounted for only 7.4 per cent of the total subsidies in Indian agriculture Across farm size groups distribution of subsidies has been to follow the pattern of percentage share of operated areas. Crop wise analysis has revealed that the input subsidies are mainly going to the food crops. The author suggested that should be handled cautiously the issue of subsidies in Indian agriculture because the economic conditions of farmers have not improved to a desirable level. Subsidies on farm inputs cannot be seen in isolation of the subsidies in other sectors of the economy, which were many times more, and consequences of their withdrawal were less painful.

Rao, (2005) conducted a study to estimate the extent of subsidy to fertilizes, power and canal irrigation in Andhra Pradesh. The author used data from the year 1980-81 to 2002-03. The author found that total subsidies in Andhra Pradesh have increased from Rs. 167.8 crores in 1980-81 to Rs. 4100.4 Crores in 2002-03. The author used Cobb-Douglas production function method to find out the percentage share of agricultural subsidies during 2002-03 in three different regions of Andhra Pradesh i.e. coastal Andhra, Rayalaseama and Telengana regions. The author found
that coastal Andhra received high percentage share of fertilizer and irrigation subsidy than other two regions and Telengana received high percentage share of power subsidy during 2002-03. The author also found that during 2002-03, total agricultural subsidies per hectare of irrigated land was Rs.13,826 and Rs.397 per hectare of rain fed land. The author suggested that simultaneous reform of all the three subsidies is needed and equity between irrigated and rain fed farmers to be addressed and many fold investments needed when subsidies be reduced.

Morris, (2005) stated that subsidy on irrigation has caused considerable distortion on the cropping pattern in Punjab. Majority of the cultivable land has become mono-crop culture and has favoured water– intensive crops like paddy, subsidy on canal water and electricity has led to excessive irrigation causing salinity adapter logging in some areas. Subsidies on fertilizers have led to excessive application with adverse environmental effects. The subsidies on the production of fertilizer have not been even on all fertilizers. The main prominent feature was the excessive consumption of Nitrogen based fertilizers in both the seasons. This is so because of the lower cost of nitrogen based fertilizers as they were more subsidized than the other fertilizers based on potash and phosphorus. There are also wide regional variations in the consumption of fertilizers. In 1999-2000, the preparation of NPK consumption in Mansa district of Punjab was 378:122:1 as compared to that of Jalandhar district which recorded 9:35:1. Intensive cultivation of paddy and wheat is causing nitrate pollution and excessive chemicalization of soils and rising deficiency of micronutrients. Application of chemicals to the soils can cause irreversible damage to the content of the soil, killing its microorganisms that are essential or maintaining the soil structure and basic fertility. The water pricing policy was only aggravating the problem. The policy of providing free electricity for agricultural
purpose was causing indiscriminate use of electric motors and excessive water use. This is one of the reasons for depletion of the ground water table. The author suggested that government stared the farmers for balance use of subsidies.

Singh, (2005) examined the issue of equity in fertilizer subsidy distribution in India, in terms of percentage share of different farm classes, crops and states in total fertilizer use as well as per hectare fertilizer use on different size categories of farms. Date has been mainly taken from the Agricultural Input Survey carried out along with the Agricultural Census of 1991-92. The study showed that paddy and wheat cultivators were the major beneficiaries of fertilizer subsidy. Inter-state disparity in fertilizer consumption still remains high, though it has been falling over the years. The study suggested that a uniform approach to reduction of all types of subsidies is not justified. Instead, a well thought out, properly regionally differentiated approach to subsidy reduction needs to be adopted.

Modi, (2006) observed that there is no denying the fact that the expenditure incurred on irrigation soil conservation and agricultural research will be more productive than expenditure of the same amount being doled out as subsidies. The author found that public investment is agriculture and allied sectors in 1985-86 at constant prices were of the order of Rs. 6213 crores. In 1993-94, it amounted to Rs. 4918 crores on the other hand, total agriculture subsidies were Rs. 14069 crores. There was some increase in the public investment during 1994-95. Since then, it has again fallen from Rs. 5369 crores to Rs. 4658 crores in 2001-02 amounted to Rs. 36224 crores. These figures clearly indicated that a part of the enormous increase in the subsidies paid to the agricultural sector were at the cost of public investment in agriculture. The author argued that if the government did not withdraw the subsidies, it will obviously try to reduce the fiscal deficit by cutting down its expenditure on
some other count, a cut which may be more harmful for the economy than the withdrawal of subsidies.

Chandrashekhar, (2006) explained that subsidies given by Organization for Economic Co-operation and Development (OECD) countries, especially the United State and the European Union are huge. Every ton of commodity produced is subsidized to the extent of between 25 per cent and 50 per cent of the market price. These subsidies encourage more production, augment global supplies, depress would prices and di-start the discovery of free market prices. Therefore, a strong move to pressure the developed economies to phase out farm support. The foregoing simple analysis shows that in none of the four major commodities would India stand to benefit substantially if the subsidies were eliminated. It may be politically correct and perhaps expedient for India to make appropriate noises against farm subsidies at global forms such as the World Trade Organization. While reduction or elimination of subsidies would impact world commodity prices, consuming and importing nations would be the worst hit. Unlike several countries, there are dependent on farm goods export, India is a large consuming country, so subsidy induced low prices would be in Indian Consumer’s interest. The author explained the agriculture situation in India that , a lot of attention is now being showered on the farm sector but given the neglect of this sector for decades, entrenched problems and serious changes in raising production and productivity, self-sufficiency itself would be a distant dream, leave alone generating export surplus of major commodities. Developed economies can afford huge payment as subsidy. India cannot concert efforts are required to strengthen agriculture, improve agro-produce marketing and enhance quality. The author suggested that huge investments are necessary for this national effort. Government will have to find adequate financial resources for
strengthening input delivery system, expanding irrigation, building rural infrastructure and delivering price/market information to farmers.

John, (2006) argued that on the one hand there is a need to get rid of the subsidies, on the other if they were all withdrawn at once thousands of farmers would go out of business and food prices would really go through the roof. Farm subsidies came in with Roosevelt’s New Delhi Policies the same thing that gave us welfare payments to the poor. Today, both systems have grown completely out of control. Agricultural subsidies are geared to help farmers keep their production cost low and Governments cannot cut all welfare because hundreds of thousands of people would starve. Both systems are going to have to be drawn down gradually until hopefully they can be done away with altogether without harm to people and our country. The author suggested that there should be a shift in the way subsidies are handed out, that would help small size category farmers using sustainable farming practices to make a decent living off of the land. This would tend to encourage more diversity of crops, “better” (in the sense of more sustainable) use of farm land and higher quality of production available to the consumer.

Pachauri, (2006) pointed out that past election, Punjab has announced to implement the provision of free electricity for farmers and for some other sections like scheduled caste and below poverty line consumers. This policy of free electricity is imposing additional financial burden on the Punjab Government. However, free power to farmers, leads to installation of in-efficient pump sets, which use excessive energy, wastage of energy, for given output. Therefore, if India has to attain a level of economic success globally, then a strong policy to install power stations is an essential pre-requisite and urged the Prime Minister of India putting an end to
politicians promising free electricity to the farmers which has not remained a demand of farmers.

Jain, (2006) made an attempt to analyse the provision of agricultural subsidies, which have burdened Punjab’s exchequer heavily. This study highlighted the existence of disparities in the flow of electricity subsidy between the progressive and backward areas. The author conducted a primary survey in two districts viz. Mansa and Ludhiana to make a comparative study of the flow of electricity subsidy to different classes of the farmers. The sample size was of 300 farm household and multistage sampling technique was adopted. The author found an association between the area and the availability of electricity connections through a chi-square test. The results showed that the proportion of farmers having electricity connections in the progressive area was 51 per cent higher than the backward areas. The positions in both areas were almost similar regarding electricity connection ownership by medium and large size category farmers, but there exist differences between the two regions in case of small size category farmers. In the backward area, a very small proportion (3.7 per cent) of the farmers own electricity connections. In the progressive area, it has been very high (79.4 per cent). The author observed the farmers in progressive area were getting electricity for a minimum of eight hours and uninterrupted electricity supply, bid farmers in backward area were getting electricity between six top eight hours and interrupted electricity supply. The author also observed that the provision of electricity subsidy has a negative impact on the sustainability of agriculture as it has implications for depletion of underground water. The availability of this cheap mode of irrigation also persuaded farmers in the backward area to shift to cultivation of water intensive crops like rice, from their old practices of growing cotton. The author also observed that the state’s policy of
providing electricity subsidy to the agricultural sector has weekend the financial soundness of the Punjab State Electricity Board. This study pointed out that a majority of the farmers, who were unsatisfied with inadequate, unreliable electricity supply under the subsidy regime were willing to pay reasonable user charges. Though some farmers were favouring flat rates, a majority agreed to accept metered rate in both areas, provided the availability of quality electricity is ensured. The study also observed that economic incentive for the farmers to make a choice between diesel-based irrigation and electricity-based irrigation. On the basis of this evidence, the author put forward the case for user charges-based open access to electricity to speed up the pace of economic development of an agro-based economy as this policy, apart from bringing hope for the sustainability of the electricity utility, will ensure enough economic returns to the farmers depended on non-electrical means of irrigation.

Anderson, (2007) estimated the impacts of all merchandise trade distortions (including agricultural subsidies) globally by using the linkage model of the global economy (Projected to 2015). Results suggested that developing countries’ economies bear a disproportionate burden of current distortions, reducing their average income by 0.8 per cent compared with 0.6 per cent for high-income countries. A huge 63 per cent of those costs are due to agricultural market distortions, even though agriculture accounts for just 4 per cent of global Gross Domestic Product. As much as 93 per cent of the cost of these agricultural distortions is due to import barriers and only 2 per cent to agricultural export subsidies and 5 per cent to direct domestic support programmes. Half of the overall cost of developing countries is due to the region’s own policies, partly because they trade with each other fairly intensively and partly because their own trade barriers are higher those of
high-income countries. The author concluded that if all those trade distorting measures were to be removed, the developing countries’ percentage share of global output as of 2015 would rise from 70 to 75 per cent for primary agricultural goods and of textiles and clothing from 62 to 65 per cent. Developing country’s percentage share of global exports would rise even more dramatically, especially in agriculture from 47 to 62 per cent in primary farm products and from 34 to 40 per cent in processed farm products that represents a rise in developing country exports of around $200 billion per year (in 2001 US dollars) - an increase of two-thirds compared with baseline scenario for 2015 and in exports of non-agricultural goods of $400 billion per year. The author suggested that multilateral cuts in tariff bindings are especially helpful because they can lock in previous unilateral trade liberalizations and they can be used as an opportunity to multilaterals previously agreed preferential trade agreements and thereby reduce the risk of trade diversion from those bilateral of regional agreements.

Gulati, (2007) reviewed the trends in government subsidies and investments in and for Indian agriculture. He developed a conceptual framework and model to assess the impact of various subsidies and investments on agricultural growth and poverty reduction and also presented several reform options with regard to re-prioritizing government spending and improving institutions and governance. There are three major findings: (i) Initial subsidies in fertilizer and irrigation have been crucial for small size category farmers to adopt new technologies. Small size category farmers are often losers in the initial adoption stage of a new technology since prices of the agricultural products are typically being pushed down by greater supply of products from large farms, which adopted the new technology. But as more and more farmers have adopted High Yield Varieties, continued subsidies have led to
inefficiency of the overall economy. (ii) Agricultural research, education and rural roads are the three most effective public spending items in promoting agricultural growth and poverty reduction during all periods. (iii) The trade-off between agricultural growth and poverty reduction is generally small among different types of investments. As for agricultural research, education and infrastructure development, they have growth impact and a large poverty reduction impact. In this study several policy lessons are drawn by the author. Agricultural input and output subsidies have proved to be unproductive, financially unsustainable, and environmentally unfriendly in recent years and contributed to increased inequality among rural Indian States. The author suggested that to sustain long-term growth in agricultural production and therefore provide a long-term solution to poverty reduction, the government should cut subsidies of fertilizer, irrigation, Power and credit and increase investments in agricultural research and development, rural, infrastructure and education. Promoting non-farm opportunities are also important.

Jha, (2007) explained that one of the principle elements of the economic reforms program initiated in 1991 was to reduce the fiscal deficit of the Central Government which, at that time, faced a solvency crisis. This reduction was at least partially achieved by reducing transfers to state governments. As a result, state government budgets faced crisis and agriculture being largely a state subject, was denied adequate investment. This study reviewed the performance of Indian agriculture, particularly in the post – reform period. Thus, while current operations are being subsidized to some extent resource for augmentation of productive capacity in agriculture are dwindling. The author further analysed that the current stance of policy towards Indian agriculture is neither efficient nor equitable. The stagnation of agricultural investment has meant that enough productive capacity to sustain
agricultural growth has not been forthcoming. At the same time political economy considerations have led to a burgeoning of the agricultural subsidies bill. The subsidy mix has not been well thought out and more importantly, the subsidies are available for current production and not addition for productive capacity. Furthermore, there is widespread evidence that the more efficient farmers are able to gain a disproportionately large part of the subsidies, the subsidy incidence is inequitable. At the same time, the stagnation of agriculture has led to a spillover of problems into other areas particularly, but not exclusively, in the area of unemployment. Indian agricultural subsidies, though at historic high levels, are low when compared to European on US levels. The author suggested that there is an urgent need to put into effect on expenditure switch from subsidies to investment to lift Indian agriculture from its current stagnation.

Birner, et al. (2007) analysed the political economy of agricultural subsidy reform in India, taking the case of electricity subsidies for groundwater irrigation as an example. The study is motivated by the recent debate on the question of whether agricultural subsidies can be a useful strategy to promote food production and agricultural development. India is an interesting case, subsidies were used effectively to promote the Green Revolution, but reforming agricultural subsidy policies proved to be politically difficult once the subsidies has fulfilled their original purpose and started to cause fiscal, distributional and environmental problems. The study is based on an explorative analysis of a data set that captures the variation between electricity subsidies for groundwater irrigation across states and over time. An illustrative case study of the state of Andhra Pradesh complements this analysis. The author analysed that an interest group approach that focuses only on the role of better-off farmers in preventing subsidy reform is too limited to capture the complex nature of the politics
of subsidy reform. The author suggested that a wider range of factors, including path dependency, party ideology and electoral politics, need to be considered to understand the challenges of subsidy reform and identify promising reform strategies.

Sharma, (2007) stated that with paddy and wheat, heavily water dependent crops, farmers have every reason to over-exploit ground water. The inevitability of ground water extraction has been politically exploited too. Successive governments in the recent past have even given free electricity to the farmers in the state. The water tables have fallen at alarming rates in many places in the state during the last few decades. The government's policy of providing free electricity for agriculture and very low water charges for canal water has encouraged inefficient use of irrigation water. Intensive use of tube well irrigation has led to depletion of water resources in the state. The author found that about 98 per cent of ground water resources in the state have already been exploited. Nearly 59 per cent of blocks in the state have overexploited ground water resources, the highest rate in the country and another 12 per cent rate in dark / critical zone. On the other hand, injudicious use of canal irrigation water without regard to soil conditions and inadequate attention to drainage, has led to the emergence of conditions of water logging and salinity in many areas resulting in valuable agriculture land going out of use in the state. The author suggested that free electricity should be withdrawn for efficient use of water.

Jakhar, (2008) tried to analyse that who so ever has been in politics would know that subsidies don’t benefit anyone in the long run. A populist promise is a one shot affair, which can be enchased just once. It only raises the expectations of the common man who wants more in the next elections. Instead of realizing this truth, it is a shame that parties in the state are engaged in populist one-up-man ship. The
author observed that free power to farmers is pushing big financial burden on the Punjab State Electricity Board. The author observed that the farmer is not afraid of paying up, provided he gets the service he is being charged for. The author suggested that the subsidies should be replaced with constructive schemes that empower people and give them that one push they need to get out of poverty.

Dhillon, (2008) argued that it is unfortunate that politicians and bureaucrats without a vision are driving the state (Punjab) to its ruin all because they cannot plan a new paradigm for development. Politicians seem to think subsidies are the only way out to gain votes, thus limiting their horizon to five years. Subsidies in the form of seeds, fertilizers etc. are provided even in the most developed countries and Punjab cannot be an exception. But power subsidy needs to be a streamlined. Free power should be restricted to small and medium landholders. This should be further distributed according to the crop and there should be no free electricity for paddy. The author suggested that the government needs to give a push to education, which is going from bad to worse. The State Government can always mop up money for this initiative by extending the house tax to rural areas. If people in villages can pay for petrol or diesel, why not for house tax. The rural areas must be provided with basic amenities like drinking water, sewerage, good roads and schools to stop migration to cities. The author analysed that when the government itself is wasting money, how it can teach people to save it. Instead of these schemes, the government should focus on just three things - electricity generation, infrastructural development and water supply. The accompanying development will take care of the rest.

Virk, (2008) described the issue of un-remunerative minimum support price (MSP) and the agricultural subsidies, in Punjab State. The issue of un-remunerative MSP has been as contentious one for the past many decades and a majority of the
farmers agitations revolved around it from time to time. Given the fact that 59 per cent of the farmers in our country plough less than 2.5 acres of land and another 32 per cent between 2.5 and 10 acres, it becomes evident that being small and marginal farmers they do not enjoy the economies if the scale and hence have more input cost. Thus, the pricing should be done keeping in view their cost of production and not by taking other theoretical factors. Another anti-farmers stance if the government is the issue of subsidies, which are not directly given to the farmers but circumvented a very little of which reaches him and benefits the others more. The proposal of giving fertilizer subsidy direct to farmer, which has gone to Rs. 90,000 crores this year, six times up from Rs. 15,799/- crores in 2004-05, by the union FM was shot down by none other than the chemical and Fertilizers Ministry, obviously, to benefit the fertilizer lobby at the cost of the farmers. In the year 2007-08, the Government procured, 22.44 million tons of wheat and 44.6 million tons of paddy, for which the total payment made to the farmers of the country based on the declared MSP works out to be Rs. 54,106 crores. If the huge amount of fertilizer subsidy is diverted to farmers, they hugely benefit even if the rates of fertilizers are hiked two to three times. The author suggested that considering these facts, it is time that government should seriously think to formulate a farmer’s friendly agro-policy by rationalizing subsidies and making the CACP (Commission for agricultural Costs and Prices) an independent, broad-based and transparent body instead of keeping it infested with textbook economists and bureaucrats. Such a policy should ensure remunerative prices to farmers, which in turn, will add to the growth rate of the country and ensure the much needed national food security.

Singh, (2008) stated that the truth is that though everything is done in the name of the farmers, the benefits do not reach them. Since 1997, the farmers of
Punjab are being provided free electricity and water on paper, but the reality is that the farmers hardly use electricity for 65 days in a year, and that too very erratically. The Punjab State Electricity Board (PSEB) that is always griping about being overburdened admits that 24 pc of electricity is lost during transmission while 10 pc is stolen, both of which can be plugged. In the period between 1997 and 2007, Punjab has incurred losses to the tune of Rs. 30,000 crores due to Punjab State Electricity Board. This led to paucity of funds for other departments and development work suffered heavily. It is a known fact that directly appointed officers has a better vision than the promoters. The development of Punjab cannot be done by a few honest civil servants. It is of utmost importance that the Agriculture Minister should be highly educated and well versed with farming practices. The author suggested that the Punjab Government should stop giving all these subsidies and instead provide financial aid for education of the children of the farmers and farm workers directly into their bank account. They should also be given free health insurance cover.

Chand, et al., (2008) showed the distribution of fertilizers subsidies in different states of India. In this study, the author showed that out of total subsidy on fertilizer in the country, largest percentage share (18.1 per cent) goes to Uttar Pradesh followed by Andhra Pradesh (11.41 per cent). Around 9 per cent of total subsidies go to Maharashtra and Punjab each. Percentage share of Assam, Himachal Pradesh, Jammu and Kashmir and Uttaranchal was below 1 per cent. But this distribution does not indicate that which state benefits more from subsidies because of variation in the size of State. The author calculated the per hectare subsidy and found that fertilizer subsidy on per hectare basis varies in the range of Rs.393 in Rajasthan to Rs.3167 in Punjab. After Punjab, the second most benefited State is
Haryana with subsidy of Rs.2516 per hectare of net sown area. Farmers in West Bengal, Uttar Pradesh and Andhra Pradesh are estimated to get per hectare subsidy between Rs.1626 and Rs.1730. Among other States, per hectare subsidy was above Rs.1000 in Uttaranchal, Bihar and Tamil Nadu. States which less than Rs.600 subsidy are Assam, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa and Rajasthan. The author suggested that more fertilizer subsidy should be given to poor states to remove the imbalance use of fertilizer.

Pandey, (2008) tried to examine the impact of fertilizer subsidy on food grain production in India. For this purpose, the author showed relationship between fertilizer price and food grains productions and two equations were estimated simultaneously using SURE technique of regression analysis by using statistical package EVIEWS. The estimates were based on data for the period 1980-81 to 2004-05. The author showed that if subsidy on fertilizer is removed completely then price of fertilizer increased by 69 per cent and this would cause close to 9 per cent reduction in food grain production in the country. Then author concluded that if subsidy on fertilizer is taken away in one go it is going to cause very serious adverse effect on food grain production and consequently on food security. The author suggested that there is a need to keep a check on growth of fertilizer subsidy without causing adverse effect on food grain production is to increase prices of fertilizer by suitable fraction of increase in food grain prices.

Maurice, et al., (2008) analysed that India’s high agricultural tariffs and growing farm subsidies have received much attention, whereas the implications of domestic policies that have discouraged agribusiness investment and created inefficient domestic markets have received less attention. The authors devise an approach for analysing the effects of improvements in marketing efficiency that
might be associated with reforms that strengthen the climate and incentives for private investment in agriculture and agribusiness. These results are compared with the impacts of more traditional reform scenarios involving the elimination of agriculture subsidies and tariffs. The equity implications of reforms are a key consideration for Indian policymakers, a framework used that disaggregates the household sector between rural and urban and by income class. The results suggest that in contrast to subsidy and tariff reforms, measures leading to improved agricultural marketing efficiency could yield substantial economy-wide gains in income and employment as well as positive price impacts for both producers and consumers and distributional gains favouring low income households.

World Development Report, (2008) stated that faster agricultural growth and increased response to better price incentives depend on investments in crores, public goods such as market infrastructure, research institutions and support services. In most of the countries, public investments were low and public to budget allocations to subsidies were high i.e. 37 per cent in Argentina, 43 per cent in Indonesia, 75 per cent in India and 75 per cent in Ukraine, 26 per cent in Kenya during 2002-03. This report showed that big portion of these subsidies went to larger farmers. In India, subsidies have crowded out investments in crores for public goods or investment, which has fallen. This study concluded that more and better quality expenditures require improved budgetary process aligned to well-articulated agricultural strategies. Greater public disclosure and transparency of budget allocation and impacts are needed to mobilize political support for budgetary reforms.

Halmandage, (2009) stated that during the last decade subsidies provided by government of India have grown at a very rapid rate. The subsidies rose from 1.7 per cent of total budget expenditure in 1970-71 to more than 10 per cent in 1980-81.
Agricultural subsidies and food subsidies constituted about 17 per cent of the total subsidies in country. Substantial additional growth in agricultural production is needed to meet the basic necessities of large and growing population. It is also needed to generate agricultural surplus required for economic development with emphasis and employment equity. The bulk of growth agricultural production will have to come from continuous increase in the productivity of land. Yield based growth cannot sustain without removing soil fertility constraints and promote technological changes. For both these process substantial growth in fertilizer use is necessary. After the cut of the fertilizer subsidy, production cost of agricultural will increase. The decrease in agricultural production will affect the various sectors. This will increase the problems on unemployment, poverty, inequitable distribution of income and unbalanced growth and trade in various regions. The government subsidy policy protects the weaker sections of consumers and marginal farmers. The change in the policy of fertilizer subsidy, will affect the weaker sections of consumers and marginal farmers.

Bhalla, (2009) tried to analyse the performance of agriculture at the state level in India during the post-reform period (1990-93 to 2003-06) and the immediate pre-reform period (1980-83 to 1990-93) shows that the post-reform period has been characterised by deceleration in the growth rate of crop yields as well as total agricultural output in most states. By ending discrimination against tradable agriculture, economic reforms were expected to improve the terms of trade in favour of agriculture and promote its growth. The study also discusses the cropping pattern changes that have taken plashes in area allocation as well as in terms of value of output. The slowdown in the process of cropping pattern change means that, most of the government’s effort to diversify agriculture, have failed to take off. It is beyond
the scope of this study to undertake a comprehensive analysis of the main reasons for
the failure of economic liberalisation to improve the state of agriculture in India. But,
it is hoped that the state and region wise analysis of agricultural growth during the
pre- and post-liberalisation period undertaken above would provide a backdrop to
scholars and policymakers to undertake an in-depth analysis of the reasons for
slowdown in agriculture in the post-reform period.

Sud, (2009) proposed the policy of direct transfer of fertiliser subsidy to
farmers is misconceived and inappropriate. The author analysed that per-hectares
subsidy on marginal farms is more than double that on large farms. The average
subsidy was the highest (Rs 916.2 per hectare) on marginal farms and the lowest (Rs
405.8 per hectare) on large size category farmers. The percentage share of marginal
farmers in the total fertiliser subsidy was the highest (28.3 per cent), followed by
small farms (23 per cent). It was the lowest (6.3 per cent) on large farms. However,
state-wise distribution of fertiliser is skewed. More than half of the total fertiliser
subsidy is cornered by five top fertiliser consuming states-Uttar Pradesh, Andhra
Pradesh, Maharashtra, Madhya Pradesh and Punjab. These states grow fertiliser-
intensive crops, such as rice, wheat, cotton and sugarcane. But, over a period of
time, the percentage share of these states in the total fertiliser use is declining. It fell
from about 60 per cent in 1992-93 to 55.8 per cent in 1999-2000 and to 54.5 per cent
in 2007-08. The other major beneficiary states are Gujarat, Karnataka, West Bengal,
Bihar, Haryana and Tamil Nadu. Their percentage share in total fertiliser subsidy
increased from 31.7 per cent in 1992-93 to 36 per cent in 2007-08. Among the crops,
rice and wheat are major consumers of fertilisers and account for over half the total
subsidy. Rice is the biggest beneficiary of fertiliser subsidy, receiving 32.2 per cent
of the total in 2001-02. Wheat was next with a 20.3 percentage share of fertiliser
subsidy, followed by sugarcane (6.3 per cent), cotton (5.9 per cent). Justifying the continuing of the fertiliser subsidy and the mode of its transfer to farmers, the author has concluded that a reduction in the subsidy is likely to have an adverse effect on farm production and income of small and marginal farmers, as they do not benefit from higher output prices but do benefit from lower input costs.

Sharma, et al., (2009) tried to examine the trends in fertilizer subsidy and the issue of distribution of fertilizer subsidies between farmers and fertilizer industry, across regions/states, crops and different farm sizes. There is a general view in academic, policy and political circles that agricultural subsidies are concentrated geographically, they are concentrated on relatively few crops and few producers and in many cases do not reach the targeted group(s). The author analysed that fertilizer subsidy has increased significantly in the post-reforms period from Rs. 4,389 crores in 1990-91 to Rs. 75,849 crores in 2008-09. As percentage of GDP, this represents an increase from 0.85 per cent in 1990-91 to 1.52 per cent in 2008-09. The fertilizer subsidy is more concentrated in few states, namely, Uttar Pradesh, Andhra Pradesh, Maharashtra, Madhya Pradesh, and Punjab. Inter-state disparity in fertilizer subsidy distribution is still high though it has declined over the years. Rice is the most heavily subsidized crop followed by wheat, sugarcane and cotton. These four crops account for about two-third of total fertilizer subsidy. The study highlighted the existence of fair degree of equity in distribution of fertilizer subsidy among farm sizes. The small and marginal farmers have a larger percentage share in fertilizer subsidy in comparison to their percentage share in cultivated area. A reduction in fertilizer subsidy is, therefore, likely to have adverse impact on farm production and income of small and marginal farmers as they do not benefit from higher output prices but do benefit from lower input prices.

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Badiani, et al., (2010) stated that states in India received the authority to set electricity prices, electricity pricing emerged as a powerful political tool and politicians promised subsidized electricity prices for agriculture in return for the agricultural sector's vote. While these subsidies reduced rural poverty and increased agricultural productivity, they may have also encouraged the overexploitation of groundwater resources and encouraged the exit and downsizing of the industrial and commercial sectors. In this study it is evaluated whether subsidized electricity prices increased groundwater extraction and over-exploitation, using panel data from 265 districts (the U.S. equivalent of a county) in India from 1997 to 2004. To isolate the effect of electricity prices on groundwater extraction, the author have taken two strategies - an instrumental variables model where the authors used pre-scheduled state electoral cycles as an instrument for electricity prices and an model where the authors estimated the differential effect of electricity subsidies on districts characterized by different groundwater prices. This study found that a 25 per cent increase in the agricultural price of electricity will reduce groundwater extraction by roughly 0.7 to 2.1 per cent. However, if agricultural electricity prices were set equal to industrial electricity rates demand would drop by 23 to 67 per cent.

Halmandage, et al., (2010) stated that subsidies are among the most powerful instrument for manipulating or balancing the growth rate of production and trade in various sectors for an equitable distribution of income for protection of the weaker sections of the society. The support and procurement prices of major agricultural production are some of the important measure which is done to protect the interest of farmer and weaker section of consumers. Substantial additional growth in agricultural production is needed to meet basic necessities for a larger growing population. It is also needed to generate agricultural surplus required for economic
development with emphasis on employment equity. The agricultural production increased in initial period gradually after that the fertilizer subsidies were reduced, the overall economy affected. The government policy of subsidy is mainly for protection of weaker sections and marginal farmers. If the Government of India reduces the subsidy of fertilizer, it will affect the overall economy, agricultural production, equity of give me to regional imbalance, problems like employment and poverty.

Grossman, et al., (2011) stated that in India, agricultural trade policy is a part of a larger food and agriculture policy regime that seeks to maintain food self-sufficiency while providing income support to the agricultural sector and poor consumers. The Government of India (GOI) uses a variety of policy instruments to achieve these goals, including domestic subsidies to inputs, outputs, transportation, storage and consumption to reduce producer costs and consumer prices and broader measures such as subsidies, tariffs, quotas, and non-tariff measures to protect domestic producers from import competition, manage domestic price levels, and guarantee domestic supply. Input subsidies are the most expensive aspect of India’s food and agriculture policy regime, requiring steadily larger budget percentage share. India subsidizes agricultural inputs in an attempt to keep farm costs low and production high. GOI’s intended result is for farmers to benefit from lower costs, but also for them to pass some of the savings on to the consumers in the form of lower food prices. These policies result in effective subsidies to the farmer of 40 to 75 per cent for fertilizer and 70 to 90 per cent for irrigation and electricity. Input subsidies can also produce unintended effects. According to GOI reports, input subsidies have resulted in overutilization of inputs. This overutilization has in turn led to soil degradation, soil nutrient imbalance environmental harm, and groundwater depletion,
all of which have caused declined effectiveness of inputs. Additionally, input subsidies distort trade by increasing net exports of input intensive commodities while decreasing net exports of commodities which require relatively fewer inputs.

From the above studies, it may conclude that agriculture subsidies are a worldwide phenomenon. Some studies showed the distribution pattern of agriculture subsidies in different countries and in different states of India. Whereas some studies showed the impact of agriculture subsidies on income of farmers of different states of India, on agriculture production, on gross cropped area, on cropping pattern etc.

**NEED OF THE PRESENT STUDY:**

Subsidies are often criticized for their financial burden. Some researchers assert to the extent that these should be withdrawn in a phased manner, such a step will reduce the fiscal deficit, improve the efficiency of resources use, funds for public investment in agriculture. On the other hand, there is a fear that agriculture production and income of farmers would decline if subsidies are curtailed. These are very important issues, which need serious investigation.

**OBJECTIVES OF THE PRESENT STUDY:**

1. To study the growth and distribution of agricultural subsidies in India.
2. To study the growth and distribution of agricultural subsidies in Punjab State.
3. To study the impact of agricultural subsidies in Punjab.
4. To suggest ways and means for giving agricultural subsidies to farmers of Punjab.
METHODOLOGY:

The present study is related to agricultural subsidies in India as well as in Punjab from 1980-81 to 2008-09. In this study agriculture subsidies of fertilizers, electricity, irrigation (canal water), seeds, machinery etc. are discussed during pre-liberalisation period (1980-81 to 1985-86), first phase of liberalisation period (1990-91 to 1996-97) as well as during second phase of liberalisation period (2000-01 to 2008-09). For analysing the growth and distribution pattern of agriculture subsidies, five zones i.e. south zone (includes Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, Pondicherry, Andaman and Nicobar Islands and Lakshadweep), west zone (includes Gujarat, Madhya Pradesh, Chhattisgarh, Maharashtra, Rajasthan, Goa, Daman and Diu and Dadra Nagar Haveli), east zone (Bihar, Jharkhand, Orissa and West Bengal), north zone (Haryana, Punjab, Uttar Pradesh, Uttarakhand, Himachal Pradesh, Jammu and Kashmir, Delhi and Chandigarh) and north-east zone (Assam, Tripura, Manipur, Meghalaya, Nagaland, Arunachal Pradesh, Mizoram and Sikkim) as well as twenty districts of Punjab state have been taken.

The present study is based on primary as well as secondary data. The districts of Punjab have been divided into three regions on the basis of levels of agricultural productivity. Average productivity is estimated by aggregation of the output of ten major crops of the state for the year 2006-07. Keeping in view the differences in agro-climate conditions and to avoid the geographical contiguity of sampled districts, it is deemed fit to select Ludhiana from high productivity zone, Bathinda from medium productivity zone and Rupnagar from low productivity zone. There are six tehsils of Ludhiana, three tehsils of Bathinda and Rupnagar each. Following random sampling, three villages from each tehsil are selected, thus thirty six villages are
selected from three districts. Sampled farmers have been divided into three categories on the basis of their farm size, small size category farmers are those who own land up to five acres, medium size category farmers own land between five to ten acres and large size category farmers own land above ten acres. A detailed questionnaire is prepared for collecting information about the agriculture subsidies. Standard statistical tools like mean values, percentages have been used while carrying out tabular analysis.

**CHAPTER SCHEME:**

The present study has been divided into seven chapters. The first chapter provides an introduction to the concept of agriculture subsidies. The second chapter is related to the different views of the analysts. The third chapter deals with the gross cropped area, fertilizers subsidies, electricity subsidies and irrigation subsidies in India. The fourth chapter shows district-wise gross cropped area, subsidies of fertilizers, electricity and subsidies provided under various schemes to the farmers in Punjab state. The fifth chapter deals the issues relating to the productivity of crops and total subsidies in India as well as in Punjab. The sixth chapter shows the impact of agriculture subsidies in Punjab state. The last chapter presents the summary, conclusions and policy implications.