2.1 REVIEW OF BOOKS RELATED TO THE STUDY

In India, the twin objectives of industrialisation (i.e.) the organization of production and the utilisation of State resources for economic development could only be achieved by engaging and developing the required manpower.

With the growing economic activities the attention of scholars has been diverted towards analysing the aforesaid facts, by in depth examination into all the related factors, the geographical study of industries (its location), resource-base, infrastructure and other developmental activities. The analysis that has been done about the availability and performance of the personnel (i.e.) the availability of labour (quantity), the effect of labour (like in terms of performance, productivity and the like, denoting quality) and die adequacy of the labour in the industries needs to be learnt.

Dewett K.K and Satishwadhavan in their book *Economics of growth and development - A Critical Study*, hold that the productivity of the work force, in general, depends upon the quality of the population. A more literate, healthy, strong, energetic, enthusiastic and spirited population ensures higher productivity.

Singer H.W in Ms "Education and Economic Development in Readings in Economic Policy for Development' emphasizes that heavy expenditure on research and educational development programme is needed to create the requisite size of skilled and trained labour force, to maintain the productivity of new capital accumulation at adequately high levels in the underdeveloped countries.

Debendra K. Das views that, in the context of the growing surplus of unskilled labour force in the rural sector, which the large industries vitiate to absorb due to the increasing automation and labour saving techniques, its becomes essential
for small scale and village industries to judiciously apply science and technology to absorb the surplus labour outside agriculture.

Milkovich and Boudreau hold that recent developments have combined to make the effective management of human resources more complex. The drastic changes in the nature of work performed, changes in workers available to perform the work—their expectations values, ages and skills as well as changing technologies and shortened product life cycles all together dictate changes in the skills necessary to perform these tasks. Consequently employers are seeking more flexible employees capable of learning new skills.

Ambra Vaneswar in his account "Progress and Problems of Industrial India' explains that improved methods in industry can be appreciated only if education and training succeed to overcome the resistance offered by ignorance and inefficiency, technical education / instruction will promote the efficiency of Indian workers and stimulate intelligent application in the work area.

How far do the training programmes initiated by the Central and State Governments achieve their objective of increased efficiency and productivity? The Balwant Rai Mehta Committee in their 'Report of the Team for the study of Community Projects' point out that more than 50 per cent of the persons passing out of the community development training-cum-production centres do not take up the profession to which they have been trained.

Silvera in his text "Human Resource Development the -Indian Experience' pinpoints the sharp contrast in the Japanese "continuous training" from our Indian and the Western practice of training, where an employee keeps on training as a regular part of his job until he retires. The training is more performance-focused in contrast to our 'promotion focussed' training programmes.
Babeiidra K.Das in his book *Dynamics of Rural Development potentials and constraints* states that the main hindrance in the path of improved productivity through innovations and technical advances has been the reluctance of the rural people to continue their traditional occupations or initiate a new one.

Misra R.P in his book *Rural industrialisation in Third World Countries*, identifies that some countries which have not realised a planned shift to skill acquirement and technology changes have had to import skilled men (oil-rich Africa & Middle-East Asia).

Raniaswaniy E.A and Uma Ramaswamy in their text *Industry and labour an introduction* maintain that the employment or utilisation of Manpower depends on the technology adopted. The relationship between the Man and the Machine depends on the technique or method of production (technology). Depending on whether labour intensive or capital intensive technique adopted, the ratio of man to machine will vary.

Efficiency of labour which is very essential for organisational growth, is influenced by workers' ability to work, workers' willingness to work, work environment, proper selection, training and promotion policies.

Adiseshiah W.T.V in his book *social foundations and Industrial psychology* holds that an important factor that was earlier attended with concern was fitting the man to the job- training him to suit and meet the demands of the various jobs. The trend was reversed later with the emphasis on the adaptations of job conditions to suit the man and make it more agreeable.

Apart from the above discussed organisational and extra organisational factors researchers have identified major intrinsic factors that affect the output and productivity of the workforce.
Porter Lawler in his model on motivation and worker performance explains that, the more the jobs involve high variety of skills higher will be the internal work motivation.

Herzberg extended the work of Maslow, conducting a motivational study on about 200 accountants and engineers (at Pennsylvania, U.S.A) using the critical incident method of obtaining data found that in 54% of the studies high morale was related to high productivity. In 11% high morale was associated with low productivity.

Thus it is clear that the effect of the qualitative labour depends a lot on the job by itself and the job context (working, relationship at work, remuneration, motivation). These factors in turn affect the morale and also to a substantial level the productivity of the work force.

2.2 REVIEW OF ARTICLES AND RESEARCH REPORTS

Apart from these above discussed accounts / books published by social science researchers and economists to handle the utilisation of man power resources both at the unit level and at the macro level, and an array of books related to the topic of study that has been included in the bibliography, the researcher, could gain a lot of inputs in this regard from various social science & economics related journals which throw light on the issues related to the study. Some of the articles that were based on studies done at primary sources have been reviewed in brief below.

Based on the information published by the Khadi & Village Industries Commission Moulik .T.K and Purushotham .P. have examined the trends in the operation and employment generation of the Khadi & Village Industries potentiality to generate employment opportunities at a low capital outlay by harnessing the existing skills of the village artisans in a profitable manner.
Rural industries have failed to satisfy the employment aspirations of the people holds Sigurdsom, based on his case study of rural industrialisation in China. Zunhua country, according to him has 8 per cent of its total work-force depending on agricultural operations, which even for a developing agricultural economy is too high.

But can unemployment be always linked with poverty. Amartya sen holds that there is a good case for keeping the concepts of poverty and unemployment distinct, without of course assuming them to be independent of each other.

This first question that stares on the face when we think or discuss on utilisation of the available manpower resources or in other words employment is, what technology if adopted would employ the maximum and at the same time make the process productive and efficient?

Bliatt.V.V confirms in his article “employment & capital intensity” that techniques which do not require high capital intensity are competitively efficient in condition of relatively abundant labour and scarce capital need to be invested. Labour pay according to him, is low in Asia, Africa & Latin America due to low amount of capital used per worker.

An important document which deals with an employment oriented strategy of industrialisation is the village and small Scale Industries committee Report of 1955, popularly known as the Karve Committee Report. Though the committee accented the necessity of introducing better techniques in the village industries to keep in pace with the progressively expanding economy and growing needs, it holds that the improvement in technique can be permitted only so long as it has no deleterious effects on employment.

Dfaar and Lydall conclude based on the figures and studies prepared by the Perspective Planning Division of the Planning Commission that the issue of choice
between large and small industries for the purpose of an employment oriented industrialisation strategy is largely irrelevant and it should aim at making the best use of scarce resources instead of aiming at creating employment for the sake of employment.

The Bhagavati committee recommends introduction of sophisticated technology only in certain areas, opposing the fast introduction of mechanisation designed to replace human labour. The committee virtually favours creation of employment at any cost without going into the economics of the scheme.

Kameshwar Choudhary explains Gandhiji's view of technology & development as one which rejects western industrialism due to the vacuity. His attitude was a mix of idealism & pragmatism. Gandhiji had not objected the use of modern machines & tools. But he insisted on one condition that they should be simple. Simple in this context is that they be simple, so that villagers can make and can afford such machines & tools.

But Dandekar & Rath (based on their study on charcas) argue that the basic conflict between improved technology and employment potential still remains. The loss of employment potential as a consequence of new technology may be tolerated if the gains in terms of productivity are substantial. According to Dandekar the selling price of cloth produced by New Model Charkha is only 5% below the price of traditional Khadi, but the reduction in employment potential because of it is between 80-90% of that in traditional charkha.

Rahul Ramagundam in pure support for traditional labour intensive techniques observes that ambar charkas harnessed with one HP motor used by a family had reduced the per day income from Rs.30/- 35/- per day to Rs.25/- per day. He also holds that the hand charkas gave the niral artisans, involvement, contentment and commitment.
A study conducted in India & South Asian countries by M.M.Mehta suggests that the broad framework of an employment oriented industrial strategy should incorporate heavy measure for (i) fuller and more efficient utilisation of idle capacity in manufacturing industries (ii) Reducing the capital intensity of industrialisation through; (a) promotion of labour-intensive manufacturers (b) application of economically sound labour-intensive and promotion of technically sound and economically viable small-scale and cottage industries that could secure simultaneous increase in output, employment, savings and investment.

Andrew Robertson explains that as early as 1955 the United States Congress had debated on the possibility of a mass unemployment arising from the so-called 'automatic factory'. Seven years later the Kennedy Administration was told that, of the 6.5 millions unemployed in the United States, 2 million were the victims of 'automation'.

The study done by Khanvinde suggests that rural industrialisation can be helped by selection of the appropriate technology. Labour-intensive technology can be selected based on a careful of the market demand for products.

Rakesh Basant in his edition of reviews based on experiences in various Asian countries holds that most of the studies show that the majority of the rural industries are characterised by very low productivity levels and those industries were also using very low (measured in terms of capital intensity) technology. He explains that there was predominance of part-time involvement of rural house-holds in these activities and there was also the existence of backward and forward linkages with agriculture.

Sharma. C.P in his study explains the problems faced by the artisans in Mewat, Haryana due to the large scale urban-based having an edge over the rural production.
But how can a progress in technology (though the need to which is unanimously felt and partly only agreed) be achieved when the huge mass of illiterates and unskilled are the new technology adopters? Is this switch over possible?

Ozay Mehmet\textsuperscript{25} holds that employment creation in developing countries could be given a major boost if any alternative techniques of production are evaluated ex ante using social benefit-cost techniques.

Dudley Jackson and Turner .H.A \textsuperscript{26} in their article based on their research for the United Kingdom overseas development administration at Morocco hold that 'Direct budgetary employment creation' used for labour-intensive investment are generally appropriate for increasing output and for bringing benefits to the community.

The scope of investment in net social-benefit functions can be maximised by a favourable combination of machine and labour-intensive investments.

A similar model advocating a balanced choice of technology has been developed by Professor Gautam Matur.

Roy .L.B \textsuperscript{27} brings to light the Human Resource Utilisation model, prepared by professor Gautam Matur at the Institute of Applied Manpower Research, during the last days of Prime Minister Nehru. He explains how this model prepared as a project dealing with strategy of Manpower planning if advocated containing the proper modes of production and choice of technology would make full employment and utilisation of the exhaustive manpower possible by the turn of the century and also would work out a 5% growth rate of the economy as against the present rate of 3.8%.

The model submitted to the estimates committee 1964-65, Ministry of Home Affairs, explains that the country will be ushered into an era of modernisation with
full employment by 2001, provided the changes in sectoral allocation, increased H-plough back and proper technology consequent upon the adoption of H-strategy.

Bepin Befaani with regards to the technological transformation in Rural India, suggests selection of technology and rural utilisation of newer technologies as suitable strategies of rural industrialisation.

In the case of Khadi, it has been reported that the new Model Charkha has increased the level of productivity by six to seven times as compared to traditional old type charkhas. (Konta Prasad, 1985). The other new models were the power driven Ghani, power driven pottery wheel, improved kiln for line burning, shaving and buffing machines for leather industry etc.

Specific case studies conducted in different countries by the World Bank, lead to the conclusion that small manufacturing firms generate more direct and probably more indirect jobs per unit of invested capital on the average. The case study indicated that in many activities, where the optimal size of production unit is small, it proves to be most efficient and as the size of the firm increases; (a) capital investment per worker rises, (b) value added per worker rises, (c) the wage rate rises, and (d) value added per unit of capital falls consequently.29

A study done by Rajendra Prasad and Jagdish Prasad in the Fatwah block of Patna district conclude that in Rural Industries, increase in the capital does not necessarily mean an increase in output and there is a positive and significant relationship between output and value added per worker i.e. labour inputs. Moreover since in most of the industries neither more labour nor more capital could increase the income. The income of workers and value added per worker were inversely related indicating that the number of workers already engaged in industries should be utilised more intensively, which in turn will raise the level of income per worker
As Bandyo Padhyay .M and TMagarajan .R ³¹ suggest, what is now required is an effective linkage between science and technology, planners and government agencies and the implementing agencies so as to create avenues for productive employment and wealth generation.

Ford .R.J.C " outlines the success of a village polytechnic' in Kenya, which is geared to develop a training system that really identifies the local work opportunities & avoids the usual mistakes of institutionalised learning. Trades would be taught to develop an appropriate village technology.

Louis Emmery ³³ while presenting his findings and thoughts about education and employment argues in favour of more emphasis on the lower levels of education, he warns against the type of primary education that exists at present, under which the schools' function to educate becomes superseded by the demand that it should qualify.

Thus from the above extractions of articles and reports it is clear the problem of abundant unutilised labour can be relatively put, of better use thereby raising their standards of living, by adoption of technologies selected with caution such that short term benefits alone are not targeted. A balanced employment-productivity approach is implied which would increase the employment levels and at the same time help to improve the output of these rural industries and enable them to be competitive.

Research studies undertaken with regard to the quantum of rural work force utilised in the identified rural industries, namely the coir, sericulture, handloom, Handicrafts, Khadi and Village industries and the small scale industries sectors, the quality of the workforce and the factors affecting the utilisation of this work force have been briefed below.

Bibhuti Yadav ³⁴ holds that technological progress need not always be linked with loss in employment when analysing the connections between technological
progress on the one hand and productivity and employment on the other. He holds that technological progress hence should not always be identified with elimination of jobs, especially since output can expand with the application of new technology.

2.3 REVIEW OF RESEARCH STUDIES ON THE SUBSECTORS OF THE RURAL INDUSTRIES.

2.5.1 HANDLOOM INDUSTRY

The Handloom Industry in Tamil Nadu can be classified into organised and unorganised sectors, the organised sector constituted by the weaver's cooperative societies and the unorganised sector consisting of the independent weavers, master weavers, powerloom factories with partnership firms, maintaining separate brand names.

The work force in the handloom industry constitutes both skilled and unskilled labour. The skilled labour constitute those in the weaving section, while the unskilled are involved in dyeing, bleaching, warping and winding activities of the industry.

According to studies conducted in Tamil Nadu even though the number of looms are large, the productivity is as low as 4.7 metres per day. In the state, Tiruchirappalli district ranks third in the production of handlooms, next only to Coimbatore and Periyar districts which specialise in production of cotton fabrics.

In the case of Gujarat, a study conducted by Labour Bureau\textsuperscript{35} (during April, May 1994) the Kliadi & Handloom industries were predominately on household basis, there being only 61 non-household units as compared to 21,353 weaver house holds. In contrast to other parts of the country, the share of female workers engaged in weaving operations was quite significant being about 23 per cent.
According to Gupta R.K (1986) observation based on his study of the growth & problems of the handloom industry in Uttar Pradesh the increase in production in the handloom sector that has been achieved, has not led to a substantial improvement in the economic conditions of the weavers. As per the general survey weavers work 20-25 days in a month & their daily earnings range between Rs. 10 and Rs. 20, as per yarn and count used, design adopted and fabric woven (R.K. Gupta, 1986).

According to The Handloom Export promotion council, the number of looms of different types that were used throughout our country showed a very disturbing indication. There were 3.8 lakhs throw shuttle looms, 8.86 lakhs throw fly shuttle looms, 2.05 lakhs fly shuttle looms with dobbay jacquard, 1.12 lakhs improved pit looms, 10.48 lakhs frame looms (ordinary) 0.72 lakhs frame looms with dobbay jacquard, 0.81 lakhs semi-automatic looms, 5.82 lakhs other looms and 5.24 lakhs loin looms, summing up to 38.90 lakhs looms in total. It was evident that the technological level of handlooms were far from satisfactory.

Rajula Devi A.K holds that the productivity of the handloom sector is as low as 2 metres per loom per day. Large unutilised & underutilised capacities in the handloom sector has been estimated. Utilisation of these unutilised potential can go a long way in improving the productivity of this sector.

Renganathan K observes that the labour productivity in weaving alone is very low, handlooms requiring more than 100 operative hours to produce 100 metres of fabrics which is about 12 to 15 times the operative hours employed in the other sectors.

Ratnam P.V holds that the outmoded looms and methods of production are the major reasons for the low productivity of the handloom workers. Unlike the
powerloom or mill workers the dexterity of a handloom worker diminishes after working continuously for three to four hours.

Working with low quality yarn decreases the work efficiency & in turn the labour productivity of the weavers in Tamil Nadu, says Dr.Arputharaj. Working with low quality yarn decreases the work efficiency & in turn the labour productivity of the weavers in Tamil Nadu, says Dr.Arputharaj. Better facilities if provided to weavers will improve their efficiency. Improved pedal might, according to him, improve efficiency.

Selvaraj V. based on his study holds that the wages to the weavers in die silk societies are better because of bonus, accident benefit and housing loan. He also observes that the wages paid by private manufacturers though low, provides a continuous, regular employment to the weavers. About 20% of the total cost of silk sarees consists of the labour charges, according to his study.

According to a study conducted by the Labour Bureau during 1994 at Gujarat the household workers in the Handloom industry (i.e.) weaving individually at home were better off dian their wage employed counter parts.

Balasubramaniain R. in his Doctoral thesis titled "Economics of textile in Tiruchiirappalli District" (with special reference to the handloom industry in Karur Taluk) holds that the wages in powerloom were lower dian that in mills and wages of handloom workers were the lowest. The co-operative weavers were most productive and were also provided with bonus, advances etc. Low productivity and excess labour were among the causes of sickness of the handloom industry in Karur taluk. The wage rates were the highest in mills followed by the wages in powerlooms, the handloom weavers being paid the least of the three.

The low socio-economic condition of the weavers are confirmed by the studies on The Socio economic conditions of the weavers in Uraiyr, Tiruchirappalli, by Geetha. Her study contains that die weavers working in their own looms are significandy better than weavers working under master weavers.
In her study on the productivity and wages of the silk weavers in Kuinbakonam, Bliavani M\textsuperscript{44} observes that average monthly wage income of the men weavers do not differ significantly from that of the women weavers.

Prasad Rao D.CV\textsuperscript{45} in his paper titled 'Handloom Measures of Devanga Community' also maintains that the cooperative weavers are paid more wages in comparison to the weavers under the master weavers.

Spinning:

The major processes involved in processing of yam are ginning, carding, drawing, rowing, spinning and hank. Manivasagam .P\textsuperscript{46} in his study on Sarvodhaya Spinning Units states a turnover of 4.5 lakh hanks of yarn offers full-time employment for about 100 to 110 women of age 18-48 years. The standard average output of a spinner is 20 hanks per day and a good spinner can produce up to 25 hanks. Sivakuinar .R\textsuperscript{47} confirms the employment potential of a Sarvodhaya Unit to be almost the same as the earlier study-100 to 110 workers for a turnover of 4.5 lakh hanks per year. In another study, TMyagarajan .S\textsuperscript{48} confirms that the spinners are generally unemployed agricultural labourers.

To sum-up, the various studies conducted with regard to the Handloom Industry and its labour confirms that the high wage cost is one of the major reasons for the Handloom products to be less competitive in the market. As a consequence, the growth of the industry and hence its employment potential receives a heavy setback. Lack of training and skills in the labour to enter, into new products with more market-based adaptations like colours, designs and textures were also solid constrains in the growth trend of the industry. In spite of the wage cost being a heavy component in the total cost, the weavers receive a very low wage, most of them below the poverty line. Family labour seems to be more predominant in the industry. Labour productivity analysis if undertaken, can be a basis for confirming the role
played by labour in the growth of the industry. Scope for improving the labour potentials / skills need to be analysed. Since the industry is dominated by family labour, die indications are towards underemployment. This has to be confirmed for further policy implications.

2.3.2. SERICULTURE

The present employment status and the future employment potential of an industry in general depends upon its growth trend measured in terms of yardsticks like production turnover, exports in value / quantity, growth in fixed assets etc. According to the studies done by Dileep Kumar and Ramesli Chandra Das there is a steady and healthy growth in the Indian silk industry (in spite of a slow recession in the global silk production scenario). There is a healthy increase of 50% compared to 1988 (from 9300 tonnes of raw silk production in 1988 to 14,000 tonnes in 1998). Almost 100% of the production is emanating from the rural sector.

They proceed to confirm the growth of this sector and hence its employment potentialities. Their contention is based on the steady increase in silk consumption in India, which is always more than what it produces.

Dr. Vingeshwara also confirms that die global production in the last two decades has stagnated except in China and India. According to FAO reports the shortfall in global silk supply against demand is around 11,000 tonnes; thus, there is a vast scope for India to increase production in the coming years and increase its share in die world market.

According to Sonwalkar .T.N, Indian silk reeling industry is mainly cottage based and generally considered as a losing enterprise. About 50 to 55 per cent of Indian raw silk is produced on charkha, 40 % on cottage basin and about five per cent on multi-end reeling machines.
Murugavel „P 52 in his analysis of sericulture centre states that an acre of mulberry, provides gainful employment for five people, all throughout the year, in the operations connected with cultivation and maintenance. Further this generates employment in the decentralised sector of reeling, twisting, weaving etc.

According to a study conducted by Shah .A.M 53 in Jammu & Kashmir in 20 villages, extensive cocoon rearing activities were established. Human labour constituted the major input in the total cost involved in silk worm rearing per acre of land. The labour input being 44% and 50% respectively in progressive and non-progressive rearers. The share of family labour to the total labour employment was as high as 76.21 and 90.60 per cent respectively for progressive and non-progressive farmers.

His study also re-establishes the fact that sericulture is a low investment occupation where output, income and employment are high. It generates around 227 and 117 mandays respectively in case of progressive and non-progressive rearers per crop per acre.

According to Narayana .D.L 54 (1979) family labour constituted 68% of the total labour input in sericulture farms (mulberry cultivations). This is also confirmed by the studies done by Vijayalakskmi .G et. al. 33 (1990). They further observe that the small farms in comparison to large farms utilise more family labour and this might be attributed to the excessive availability of family labour with no alternative employment.

Raja Purohit .A.R and Govindaraj 56 (1981) observe that the absorption of hired labour is higher in irrigated mulberry farms than the rainfed farms.

A study conducted by Srinivasan .P.G 37 (1981) confirms that the scale of Operation and mulberry farm size determine the employment of labour in rearing Activities.
Hanuniappa .H.G & Errappa .S (1985) based on their study observed that the hired labour employment and hence their demands were increasing as a result of mulberry fanning.

Giricliiran .K et.al. (1986) and Nagaraj .N et.al. (1986) based on their studies have confirmed that woman formed 60 per cent of the labour involved in sericulture activities of mulberry and cocoon production.

Benachamin .K.V, et.al. (1987) have estimated that 3-5 persons gained employment out of one acre of mulberry. One-third of this amounts to indirect employment from other off farm activities.

Datta .R.K & Ravikumar .C (1988) have also observed that 60 per cent of the total labour in sericultural activities were from women. Women, especially in rural areas were required for leaves picking, feeding, cleaning and cotton harvesting.

However male labour were found to be marginally higher in reeling activities. Srinivasan .P.G (1981) based on his study confirms that 52.25 per cent of the total labour in a reeling unit were contributed by men while women constituted 41.95 per cent and children 6.80 per cent of the total labour requirement in a reeling unit. One kilogram of raw silk produced on an average generated 4 mandays of employment.

Thangamuthu .C and Venkataravi .R (1989) who assessed the potentialities of sericulture in Tamil Nadu observed that, since about 50 per cent of the cocoons were being migrated to Kamataka, there is scope for establishing about 4,000 reeling units to process the cocoon within Tamil Nadu itself. These units "would directly employ 8,000 persons and the quantum of indirect employment would be almost double this.

Hanumappa .H.G & Erappa (1985) have observed from their study that the charkha units were less productive when compared to the cottage basins which had used improved reeling techniques. They proceed to explain that the labour
productivity was much higher in the cottage basins than the charkha reeling, indicating higher renditta and rate of recovery in these cottage basins.

A comparison of the performance of private silk filatures with the government run filatures in Karnataka show that the losses were very heavy in the Government units. (Sri Kantatherya\textsuperscript{63} (1985)). He contributes the losses incurred in Government filatures to low productive efficiency, dearth of unskilled labourers and inadequate supply of quality cocoons.

The quality of cocoons, die technology of reeling and the skill of the operating labour of the reeling units were die factors that had influenced die production and productivity of cocoon reeling according to Ilaran .T.S.P\textsuperscript{64} (1988).

According to Kat Suo Ot suka\textsuperscript{65} (1982), the rate of return on capital was higher in die case of improved reeling technology in comparison to the traditional reeling. But even in Japan & Thailand modern technology could not be adopted since it was capital-intensive.

The efficiency and the production potential of the reeling units is influenced by the sex and age group of the workers. A study done by Vijayendra .M, Ramakrishna Naika and Reddy .D.N.R\textsuperscript{66} with the private reelers of Kolar district of Karnataka state has confirmed that the women reelers performed better, reeling highest quantity of cocoons per day (6.65-8.04 kg.) with renditta of 8.06 to 9.66. The men had reeled 6.65 to 7.50 kg per day with a renditta of 8.16 to 11.52 indicating women performed better in reeling operations.

According to Sonwalker, the total direct labour should be around two per basin in the unit (i.e. 2:1 ratio). This ratio is reduced with automatic reeling techniques.
Lack of skilled / technical manpower and equipment has resulted in under-utilisation of production capacity in private seed production in Karnataka according to Manjula A. (1991).

According to studies conducted by Hanumappa & Erappa employment of child labourers in family labour-operated reeling units also has been responsible for poor quality of output.

According to Sonwalkar automatic silk reeling techniques will not be productive in existing Indian conditions. He attributes the non-availability of superior quality bivoltine cocoons commercially as the main reason.

A study done by Manoharan M. confirms the reeling units of Tamil Nadu have apart from other problems been affected by inadequate supply of skilled labour.

Another study done by Bhatikar A.P. (1985) in Karnataka and Andhra pradesh, also confirms that the reeling activities have been affected due to the non-availability of trained reelers and skilled labour. Further he states that the attempts made by Government machinery to train the reelers were not enough in these areas.

The problem of inefficient labour or in other words lack of skilled manpower in reeling units have been confirmed also by Rainana D.V. (1987) and Shoban babu (1987) in their studies in the Government and private reeling units in Andhra Pradesh.

To sum-up, lack of skilled labour and continued adherence to traditional charkhas have affected the efficiency of the reeling units. Vast scope for reeling activities is present in the state, implying high employment generation. Need for improved qualities of cocoon have been realised.
2.3.4 com

Studies done on this labour-intensive industry by Thomas. Issac T.M and by Pylee .M.V reveal that introduction of improved machinery would raise the productivity at labour. A major problem confronting the coir workers is the lack of full employment in the sector. This underemployment in the coir industry (in Kerala) combined with the low capital investment needed tend to keep the industry over crowd. The report on survey of coir workers 1981 confirms the above findings.

Low productivity and excessive physical strain in manual operations are serous setbacks in the traditional production techniques adopted in diese units.

The Annual Reports published by the coir Board deals with the performance and working conditions of the coir industry units in India.

The researches done in this industry thus leads to conclusion that the coir units are highly labour-intensive. When the different mechanical devices (semi-automatic and fully automatic looms and better equipments for bleaching, dyeing and finishing) are adopted the drudgery in die manual operations can be reduced and productivity achieved. The death of skill to adopt improvised techniques at the various stages of production of the fibre and the finished products had been realised, implying the need for heavy efforts to impart awareness and training in these skills among the rural manpower.

2.3.4 HANDICRAFTS:

The mid-term Review of Handicrafts Development,\textsuperscript{71} Five year plan, All India Handicrafts Board, 1983, Part-II and die Report of the Art Metal Marketing inquiry,\textsuperscript{72} Bombay: Khadi and Village Industries committee, 1985 have analysed the Extent to which die potentials have been utilised by the handcraft organisations in the domestic and the foreign market; employment- and production details.
The Report of the village and small scale industries committee (1985)\textsuperscript{73} has presented the employment potential of the Handicraft and small scale Industries and provided suggestions for increasing the same.

The survey Reports of the Directorate of Industries and Commerce\textsuperscript{74} analyses and presents the preference Handicraft units in Tamil Nadu, their capital-output Ratios and other details.

Research study done by Hariliaran S\textsuperscript{75} (titled \textit{A study of Handicraft Economy is Thanjavur district}) on 788 Handicraft units in the Thanjavur district of Tamil Nadu reveals that more than 40% of the respondents were agricultural workers. The working capital per works small establishments (with more than 10-workers) was not more than Rs.55/- The fixed capital per workers on an average was Rs.545. The fixed capital-gross output ratio was 1.8.

The Report of "The Socio-Economic Conditions of Handcraft workers" (Marthandam Handicraft workers society, 1985) confirms that the Handicraft units have low capital output ratio and requires very less investments. According to the report, the productivity per worker in handicraft was 198.8 per cent of wages paid to him and the productive capital used per worker was Rs.97.93 (in the year 1985).

2.3.5. KHADI AND VILLAGE INDUSTRIES

The All India Saranjam Sanmeler Rajkot Report (1968) and The Report of science and Technology Panel for KVI (1975) throws light on the possibilities of improvements in the technology of Khadi and village industries.

performance of the Khadi and Village Industries and recommended measures for further growth of these activities. The Action Committee on Khadi and Village Industries sector (1994) proposed schemes for 2 million jobs during the Eighth plan on an outlay of Rs.5600 crores.

The Annual Reports of the Khadi and Village Industries Commission provide with the performance and growth of the KVIC, their production, employment and the related details.

Radliakrishnan .S 76 in his study on selected Sarvodhaya sanghs infers that a mere increase in the value of production need not necessarily bring about a significant increase in employment. The expansion of the production cycle in Khadi coinciding with the growth of village industries and adoption of a relatively labour saving improved technology and value addition by marketing according to him inhibits the growth of employment.

His study confirms that the capital output ratio has not exceeded 2:1. The KVICs being capital - saving and labour - intensive, the capital cost of production in these activities were found to be very small.

A study done by Sudhakar Rao .B, Puroshotham .P and Roy .S.B 77 in the Dharwar district of Karnataka where traditional Rural crafts are widespread concludes that the artisan classes (2556 artisans) in the district work with primitive technologies. In the face of competition, some of the lacking the stability, tend to wither away. In the identified six training units in the study area the skill development were rudimentary and not updated to suit the emerging demands and the training staff were not equipped with modern methods of technical training. The machineries used were obsolete and generally the in-take was very low due to the above factors and also unattractive stipends consequently the training cost per capita, was very high, meaning social loss, since the costs were not borne by the trainees.
2.3.6. SMALL SCALE INDUSTRIES:

Since the researches already undertaken have confirmed the labour-intensive nature of the Small Scale Industries at the macro-level, exercises seeking to analyse at the micro-level the extent of utilisation of the potentials of the labour in these industries, and the extent to which they are suitable for these activities, various influences on the effective utilisation of the labour force would be appreciated for meaningful manpower planning.

The research work available are more pertaining to the sickness of the industry and the financial performance and their growth after independence.

Based on a study done on District Industries Centre programme in small scale Industries (using published literature as the basis). Patnaik C holds that there was a particular decline in both the Exports and employment generation by the SSI's after the launch of the DIC programme when compared to that of the previous ten years.

The Report of the Karve Committee (1955) deals with the employment potentials of the SSI and have suggestions for functioning on the co-operative lines.

The Approach Paper of the Eighth Five-year Plan (1990-95) suggests review of government policy suggests review of government policy towards small-scale industry, such that the concessions and other assistance for promotion of SSI should reach the traditional labour-intensive industries (instead of getting cornered by the relatively modem, more capital-intensive SSI units). Workers in the unorganised section it suggested, would benefit when brought under the purview of the large number of boards and corporations already functioning.

Sen K.K states that "small technology is not always beautiful, often it is dull and monotonous, financial returns may not be always high. So traditional technology should be opted when there is no alternative. Whenever necessary, and
when possible improved intermediate technology should be adopted. In silk industry for example, indigenous reeling machine will improve the quality of silk. In India for the small-scale and cottage industries, the labour-intensive technology is most appropriate, as these industries later to the local markets.

Muruga Subramani eta in their study refer that the plastic processing sector of today has developed to the present state with indigenous machinery from a very poor state of technology in the early fifties, when the industry had set its entry in India. The industry today provides direct employment to about 6 lakh people in the country. The raw material sector plays an equally important role in die growth of plastic industry by producing die necessary raw materials for the processing industry as well as generating employment. The plastics processing industries have an employment potential estimated at one technically oriented job for every 10 tpa of polymers, the total employment potential, including non-technical personnel, could be four to five times that number.

According to Muthiah in his study a vast majority of the members of the polydiene units were illiterates. He refers the Tamil Nadu Polythene industry to have gained appreciable progress in die recent years. Totally there are 17 polythene industrial co-operative societies. The polythene industry has generated employment for more dian 700 workers, the majority of them women. About 83% of the items in the industry have been reserved exclusively for small scale, sector.

Murugan in his study holds that he pulses and cereals processing units generally employ piece rate workers who are daily paid. The capital fund requirement for one person employed is around 3000/- rupees.

Ragavan holds in his analysis that Apiculture industry employs more illiterates coming from rural or tribal families. Numerous apiaries have sprung at about a thousand hives per year. More than one half of die 0.2 million beekeepers
are illiterates who need to be educated in modern technology of scientific beekeeping. Bee keeping provides partial employment to the farmers and full-time employment to those who have engaged in the processing activities. The average production of honey is estimated to be 8 kilos per year. If a farmer maintains 10 hives he can produce 8 kilos of honey per year and earn around 2500 rupees per year.

According to Vinayagam, the garment industry in India has a low capital base and is highly labour oriented; wages constitutes 20 to 25% of the cost of production of the garment.

Saravanakumar P in his study on rice bran oil extraction refers that has emerged as the largest producer of rice bran oil in the world. India produces 80 million tonnes of paddy every year, out of which, 40 million tonnes are processed in huller mills, producing 12 million tonnes of huller bran as bi-product. It contains 5% oil and 20% silicate. About 4 lakhs tonnes of bran oil has been produced in India (1990-1991). The industry employs both skilled (permanent) workers and casual (temporary) workers.

According to Hemalatha, in her study on Garment making, the basic structure of the Indian textile industry is unique, in being heterogeneous. In no other country in the world is the textile industry dominated by both the organised sector and the decentralised sector.

A garment unit with an average turnover of 10 to 15 lakhs rupees employs about 60 workers. The cutters, sewers and calendars are generally skilled while Assistants who are unskilled are also employed for packing etc.

In the soap producing units generally the entire entrepreneur himself takes care of die production supervision according to Najumudeen. He holds that there
is no strict division of labour and generally there is full utilisation of existing labour in these industries.

Murugan .N ⁸⁸ in his study on oil extracting ghanies refers that there are 2.4 lakhs ghanies existing in our country with a total crushing capacity of 35.4 lakh tonnes of oil seeds annually. It is also estimated that the factory sector consisting of rotaries, expellers, solvent extraction plant alone numbering 181, have a crushing capacity of 42.44 lakhs tonnes. About 15 to 18 lakhs tonnes are available for crushing in the ghanies and the rest are crushed in mills. The employment potentiality is estimated to be only 64,000 in the mill sector, against the existing ghanies which have an employment potential of 2.3 lakh families. Due to this unhealthy competition not only the small oil man but also the small rotaries and expellers are unable to face competition.

The cost of oil in these ghanies also increases due to the reduction in the percentage of oil extraction. The reduction in the percentage of oil extraction is mainly attributed to the defect of ghanies and the defect of the extraction process. The power ghanies which work based on the pressure extraction principles extracts about 75.1 per cent to 85.1 per cent of oil content in the seeds.

Muthiah .V ⁸⁹ in his study on oil producers co-operative, refers that oil seeds occupy the second largest category of crops produced after food grains in India, amounting to 10% of the world's oil seeds.

The present status of oil processing industry is shown below :-

<table>
<thead>
<tr>
<th>PROCESSING UNIT</th>
<th>NUMBER OF UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village ghanies</td>
<td>4,00,000</td>
</tr>
<tr>
<td>Oil mills</td>
<td>15,000</td>
</tr>
<tr>
<td>Solvent extraction units</td>
<td>350</td>
</tr>
<tr>
<td>Refineries</td>
<td>100</td>
</tr>
<tr>
<td>Vanaspathi plants</td>
<td>90</td>
</tr>
</tbody>
</table>
Apart from changes in size or shape the 500 years old bullock ghanies have not undergone any change. Power ghanies which had substituted the usage of bullocks saved time, and also the cost of maintaining the bullock which consumed a considerable portion of die cost.

The portable power ghanies can extract 15 kgs per charge while 115 legs can be extracted by a ghani per day consuming time at die rate of 50 minutes per charge. An increase of 2% yield can be realised using power ghanies. An extraction unit with an average annual turnover of about 4 lakhs rupees, having 2 power ghanies may maximum employ 2 persons.
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