REPORT
ON
INDUSTRIAL POTENTIALITY SURVEY
OF
BURDWAN
(WEST BENGAL)
2015-2016

MICRO, SMALL & MEDIUM ENTERPRISES

MSME-DI, KOLKATA
GOVT. OF INDIA
MINISTRY OF MSME
111 & 112, B. T. ROAD, KOLKATA –108

FOREWORD

The preparation of the Industrial Potentiality Survey Report Of Burdwan district was undertaken by MSME-Development Institute Kolkata, for the year 2015-16 .The report has briefly sketched the industrial profile of the district after giving due weightage to various factors like resources, infrastructure, existing industries and similar other factors. The basic objective of the report is to assess the Industrial potentiality of the district and to indentify the various lacunae existing in the relevant fields, which hinder rapid industrialization. It also highlights the growth of MSEs in the district and tries to identify a few significant pockets of industrial growth.

The district of Burdwan is essentially an agrarian district, though there are few large and medium scale industries present in the district. As agricultural products are abundantly available and are relatively cheap, many agro-based MSE units have sprang up. Agriculture provides ample scope for modernization.

Needless to mention the report will be helpful to the prospective entrepreneurs and also useful for policy makers for setting up of industrial estates in West Bengal.

The report was jointly prepared by Asstt. Director, Subrata Banerjee (EI) and Dipak Choudhury, Investigator (EI).

The survey Team received active co-operation from the District Authorities, Govt. Departments and non-Governmental Organizations during field work. We express our thanks and gratitude to the Staff of DIC, District Magistrate Office, Principal Agricultural Office, Lead Bank and all other staff and officers concerned who had extended their support for the timely completion of this report.

Place - Kolkata.
Date -February,2016

(K.L.RAO)
Director.

CONTENTS

District At A Glance

District:-Burdwan

(A) Area, Population and Literacy

1) Geographical Area : 7024 sq.km.

2) 2011 Census Total Population : 7,717,563

   i) Male Population : 3,966,889

   ii) Female Population : 3,750,674

   iii) Urban Population : 2547048

   iv) Rural Population : 4348466

3) Density of Population per sq. Km (in No.) : 1099

4) Sex Ratio per thousand person : 945

5) Total No. of Literates

   i) Male Literates : 2,918,040

   ii) Female Literates : 2,329,168

   iii) Male Literacy rate : 82.42

   iv) Female Literacy rate : 69.63

   v) Rural Literacy rate : 72.65

   vi) Urban Literacy rate : 81.54

   vii) Literacy rate for the district : 76.21

(B) Administrative Set Up

1) District Headquarters : Burdwan

2) No. of Sub-Divisions : 6

3)	No. of blocks	: 31
4)	No. of Mouzas	: 2529
5)	No. of Police Stations	: 33
6)	No. of Villages	: 2418
7)	No. of Panchayat Samities	: 31
8)	No. of Gram Panchayats	: 277
9)	No. of Municipalities	: 9

(C) Agriculture and Allied Activities

1)	Gross Cropped Area	: 698.76 th.hect.
2)	Net Cropped Area	: 452.88
3)	Area under non-agricultural use	: 213.77
4)	Barren & Uncultivable Land	: 0.57
5)	Cultivable waste land	: 4.45
6)	Current fallow	: 3.70
7)	Fallow land other than current fallow	: 1.25
8)	Net irrigated area	: 330.96
9)	Area irrigated by river lift	: 10.97
10)	Area irrigated by Deep Tube Well	: 43.46
11)	Major Crops	: Paddy, Oilseeds, Jute Potato

(D) Infrastrucutre

1) i) Total State Highway : 275 Km

ii)Total National Highway : 236.4 Km

2) No. of Sub-Stations (Power) : 38

3) No. of Bank Branches : 303

4) Lead Bank : UCO Bank

5) C.D Ratio : 37

(E) Industries

1) Approx. no of Large Scale Industries : 16

2) Approx. no of Medium Industries : 27

3) No .of Registered Enterprises EM-II : 7877

4) Udyog Aadhaar Memorandum(UAM)

Registration 2015-16 (Since October,15)

i) Micro : 236

ii) Small : 72

iii)Medium : 2

Total- : 310

(F) No.of Industrial Parks : 12

(G) Important Tows- : Durgapur, Asansol, Chittaranjan, Raniganj

(H) Important PSUs : DSP, Alloy Steel Plant, Durgapur,

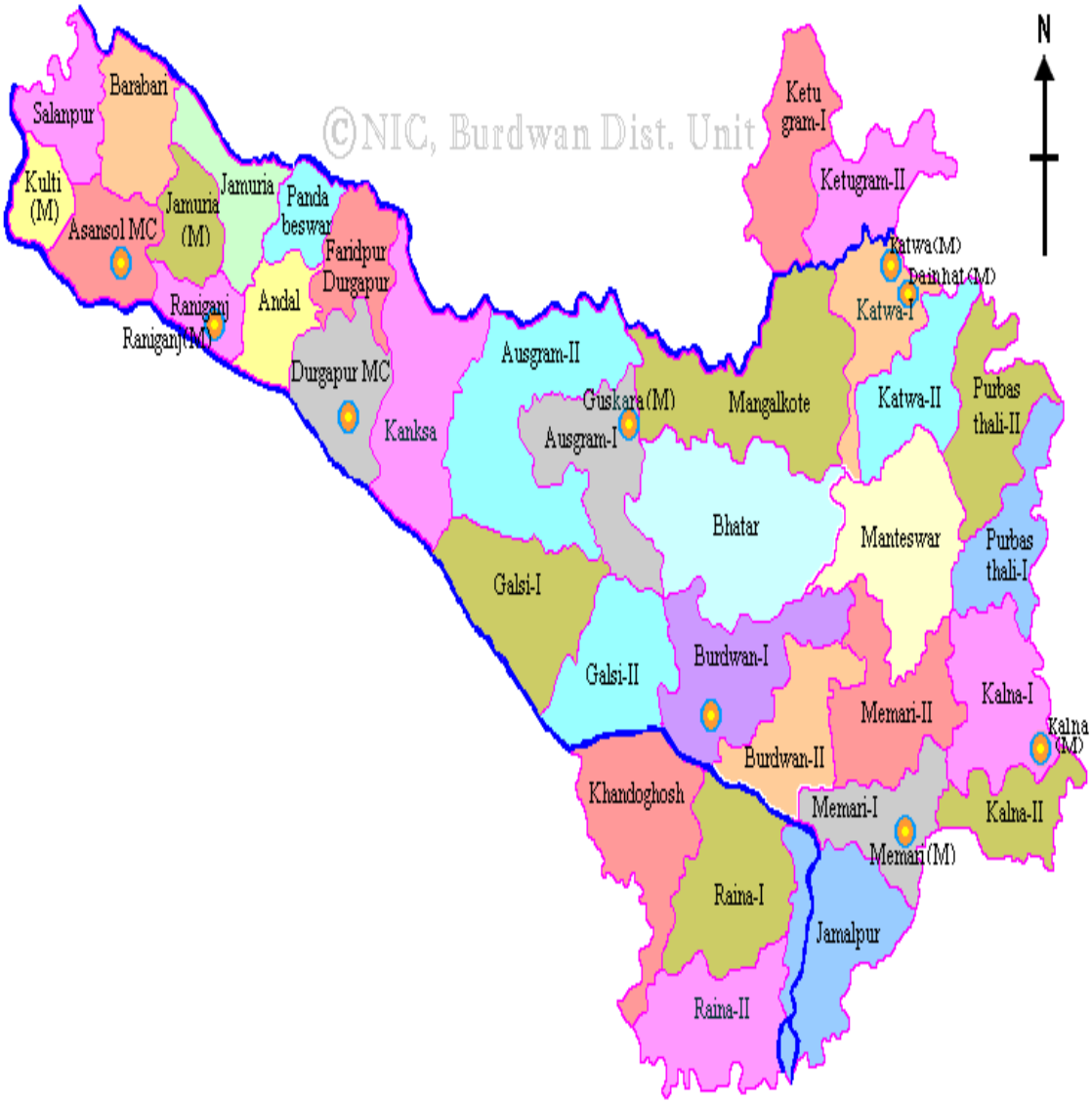
Durgapur Project Ltd., IISCO,Burnpur,

Chittaranjan Locomotive Works,

MAP OF BURDWAN DISTRICT

(BLOCKWISE)

WEST BENGAL



CHAPTER – 1

OBJECTIVE, SCOPE AND METHODOLOGY OF THE SURVEY

The agrarian district of Burdwan which has been rightfully called the "rice bowl of Bengal" spreads across acres and acres of rice fields and undulating plains covering an area of 7024 sq. kms. The sprawling golden plains of Burdwan are bounded by Birbhum in the north, Nadia in the east, Hooghly and Bankura in the south and Purulia in the south-east. The district has its headquarters at Burdwan.

Agriculture is the primary occupation of the millions of people residing in Burdwan. The district is richly endowed with agricultural resources. Pisciculture and fisheries also offer alternative employment opportunities. Industrial development has left its distinctive footprints on the heartland of Burdwan. In recent times the industrial face of Burdwan has undergone a sea change and the district is gradually expanding its industrial periphery.

Objective :

The basic objective of this Report is to analyse the scope of industrial development in the district and assess the industrial potentiality of the district. The Report throws light on the resources of the district, both physical and human resources as well as infrastructural facilities, existing industries in the district and the possibilities of industrial expansion.

Scope :

The scope of this Report includes small scale industries along with tiny and ancillary sectors. The large and medium scale industry is kept outside the purview of this Report and only a list of the existing large and medium scale industries in the district has been mentioned. A list of feasible candidate industries in the MSME sector has been prepared to assist the prospective entrepreneurs and planners to select their probable path of action.

Methodology :

Specific guidelines are issued by the office of the Development Commissioner, MSME, New Delhi for preparation of Industrial Potentiality Survey Reports. The methodology of this survey adheres to these guidelines. Specific questionnaires were prepared and dispatched to the various Govt. and semi Govt Organisations. The district authorities extended their fullest co-operation in the preparation of this Survey Report. Detailed discussions were also held with various NGOs, Associations and agencies who are engaged in the promotion of small scale industries. Based on all such information that could be assembled, an attempt has been made to prepare a comprehensive Industrial Potentiality Survey Report of this district.

========XXX=======

CHAPTER – 2

GENERAL CHARACTERISTICS OF THE DISTRICT

Burdwan is one of the most important districts of the State of West Bengal in terms of size and span.

Boundary

Lying within Burdwan Division, the district is bounded on the north by Dumka (of Jharkhand), Birbhum and Murshidabad, on the east by Nadia, on the south by Hooghly, Bankura and Purulia and on the west by Dhanbad (of Jharkhand) districts

The table below shows the geographical location of Burdwan district.

Location of Burdwan district

Latitude North	Longitude East
$22^{o}56'$ to $23^{o}53'$	$86^{o}48'$ to $88^{o}25'$

Topography

Buedwan district with its varied tectonic elements and riverine features, is a transitional zone between the Jharkhand plateau which constitutes a portion of peninsular shield in the west and Ganga-Brahamaputra alluvial plain in the north and east. In general the Jharkhand plateau consists of the metasedimentary rocks of precambrian age, Gondwana sedimentary rocks, Rajmahal basalts and upper tertiary sediments. Laterite has developed on these older rocks as well as on early Quaternary sediments. Towards south, the alluvial plain merges with Damodar-kasain-Subarnarekha deltaic plains.

The western half of the district resembles a promontory jutting out from the hill ranges of Chotonagpur plateau and consists of barren, rocky and rolling country with a laterite soil rising into rocky hillocks, the highest being 227 m. These diversify the otherwise monotonous landscape and lend a special charm to the skyline arround Asansol subdivision.

Ajoy-barakar divide is a convex plateau, the avarage altitude being 150 m. The gradient is westerly to the west and to the east it is northerly towards Ajay and southerly towards Damodar below the latitude. The Ajoy- Damodar inter-stream tract is made up of several stows consisting of vales and low convex spurs which run in almost all directions except north-east and thus lends a very complicated character to local relief.

Administrative Set up :

The district comprises six Administrative Sub-Divisions viz. Burdwan(S) and Burdwan(N), Durgapur, Asansol, Katwa and Kalna. The Development Blocks coming under the individual Sub-Divisions are as follows :

The table below shows the names of Blocks, Police Stations and the number of associated Pancyayat Samities, Gram Panchayats and Inhabited Villages.

Name of the Sub-Divisions	Name of the Blocks	Name of Police Stations	No. of Inhabited Villages(Block-wise)	No. of Gram Panchayats	
				Gram Samity	Gram Panchayat
Burdwan (S)	Memari-I	Memari	111	1	10
	Memari-II		88	1	9
	Memari(M)		-	-	-
	Jamalpur	Jamalpur	121	1	13
	Raina-I	Raina	110	1	8
	Raina-II	Madhabdihi	87	1	8
	Khandoghosh	Khandoghosh	107	1	10
Burdwan (N)	Burdwan-I	Burdwan	75	1	9
	Burdwan-II		83	1	9
	Burdwan(M)		-	-	-
		Kanksa	-	-	-
	Ausgram-I	Ausgram	58	1	7
	Guskara(M)		-	-	-
	Ausgram-II	Ausgram(P)	102	1	7
		Budbud	-	-	-
	Bhatar	Bhatar	104	1	14
	Galsi-II	Galsi-II	73	1	9
Durgapur	Galsi-I	Budbud-P	85	1	9
		Galsi-P	-	-	-
	Andal	Andal	-	-	8
		Pandabeswar-P	12	1	-
		Durgapur	-	-	-
	Faridpur-Durgapur	Faridpur	-	-	6
		NewTownship (P)	48	1	-
	Pandabeswar	Pandabeswar	14	1	6
		Andal(P)	-	-	-
	Kanksa	Kanksa	77	1	7
	Durgapur (MC)	Durgapur Coke Oven	-	-	-
		NewTownship			
Asansol	Salanpur	Chittaranjan	69	1	11
		Salanpur	-	-	-
	Barabani	Barabani	46	1	8
	Raniganj	Asansol(M)(P)	12	1	6

	Raniganj(M)	Raniganj	-	-	-
	Jamuria	Jamuria	38	1	10
	Jamuria(M)		-	-	-
	Asansol(MC)	Asansol(Woman	-	-	-
		Asansol(N)	-	-	-
		Asansol(S)	-	-	-
		Hirapur	-	-	-
	Kulti(M)	Kulti	-	-	-
Katwa	Mongolkote	Mongolkote	130	1	15
	Ketugram-I	Ketugram	62	1	8
	Ketugram-II		55	1	7
	Katwa-I	Katwa	63	1	9
	Katwa-II		63	1	7
	Katwa-M		-	-	-
	Dainhat(M)		-	-	-
Kalna	Purbasthali-I	Purbasthali	91	1	7
	Purbasthali-II		88	1	10
	Kalna-I	Kalna	98	1	9
	Kalna-II		112	1	8
	Kalna(M)		-	-	-
	Monteswar	Monteswar	136	1	13
District Total	**31**	**33**	**2418**	**31**	**277**

In all, there are 31 Blocks spred over 6 Sub-Divisions. The district has 33 Police Stations, 31 Panchayat Samities, 277 Gram Panchayats.

Source (1) Census of India, 2011

2) Burdwan Zilla Parishad.

There are 9 Municipalities(M) and 2 Municipal Corporation(MC) in Burdwan District.The names of the Municipalies, Municipal Corporation and the Sub-Divisions to which they fall under are given in the table below:

Name of the Sub-Divisions	**Name of the Municipality**	**Name of the Municipal Corporation**
Burdwan (S)	Memari	-
Burdwan (N)	Burdwan, Guskara	-
Durgapur	-	Durgapur
Asansol	Raniganj, Jamuria, Kulti	Asansol
Katwa	Katwa, Dainhat	-
Kalna	Kalna	-

Climate & Rainfall:

The climate of the district is generally hot and the western part, mainly covered by Asansol and Durgapur Sub-Divisions is drier than the eastern part which is more fertile. The district enjoys ample monsoon showers and is agriculturally very well developed. At times it suffers from floods mainly owing to the Damodar and the Ajay rivers.

On the average, Burdwan district experiences maximum rainfall from July to September. The mean annual rainfall for the district is around 1193 mm.

The temperature of the district varies between 8ºC and 44ºC, April and May being the hottest months and December and January being the coldest.

Distribution of Population :

Burdwan is one of the most populous districts of West Bengal. According to 2011 Census, it has an aggregate population of 7717563, which male and female were 3,966,889 and 3,750,674 respectively. In 2001 census, Burdwan had a population of 6,895,514 of which males were 3.588.376 and remaining 3,307,138 were females. Burdwan district population constituted 8.46 percent of total West Bengal population. In 2001 census, this figure for Burdwan District was at 8.60 percent of West Bengal population.There was change of 11.92 percent in the population compared to population as per 2001. The table below shows in detail the population densities of various regions of Burdwan district.

Description	2011	2001
Actual Population	7,717,563	6,895,514
Male	3,966,889	3,588,376
Female	3,750,674	3,307,138
Population Growth	11.92%	13.96%
Area Sq. Km	7,024	7,024
Density/km2	1,099	982
Proportion to West Bengal Population	8.46%	8.60%
Sex Ratio (Per 1000)	945	922
Child Sex Ratio (0-6 Age)	951	956
Average Literacy	76.21	70.18
Male Literacy	82.42	78.63
Female Literacy	69.63	60.95
Total Child Population (0-6 Age)	832,033	903,438

Male Population (0-6 Age)	426,385	461,843
Female Population (0-6 Age)	405,648	441,595
Literates	5,247,208	4,205,146
Male Literates	2,918,040	2,458,485
Female Literates	2,329,168	1,746,661
Child Proportion (0-6 Age)	10.78%	13.10%
Boys Proportion (0-6 Age)	10.75%	12.87%
Girls Proportion (0-6 Age)	10.82%	13.35%

Blockwise Area, Population and Density of Population

in the district of Burdwan, 2011.

Sub-Division/ C.D. Block/M.C./M	Area (Sq. Km)	Population (Number)	Density of Population (persq.km.)	P.C. of population to district population
Asansol Sub-Division	**831.89**	**1672659**	**2011**	**21.67**
Salanpur	135.05	163057	1207	2.11
Barabani	156.35	127542	816	1.65
Raniganj	58.28	106441	1826	1.38
Jamuria	158.10	123176	779	1.60
Kulti(M)	99.57	313809	3152	4.06
Asansol (MC)	127.89	563917	4410	7.31
Raniganj (M)	2344	129441	5522	1.68
Jamuria (M)	73.23	145276	1984	1.88
Durgapur Sub-Division	**1028.65**	**1396960**	**1358**	**18.10**
Galsi-I	257.37	187588	729	2.43
Andal	84.87	186915	2202	2.42
Faridpur-Durgapur	155.97	115924	743	1.50
Pandabeswar	97.80	161891	1655	2.10
Kanksa	279.44	178125	637	2.31
Durgapur (MC)	154.20	566517	3674	7.34
Burdwan(N) Sub-Division	**1701.06**	**1399035**	**822**	**18.13**
Burdwan-I	250.41	215943	862	2.80
Burdwan-II	189.57	152939	807	1.98
Ausgram - I	222.34	119363	537	1.55
Ausgram- II	360.45	150896	419	1.95
Bhatar	415.01	263064	634	3.41
Galsi - II	219.09	147177	672	1.91
Burdwan (M)	23.04	314265	13640	4.07
Guskara(M)	21.15	35388	1673	0.46
Burdwan(S) Sub-Division	**1410.03**	**1198155**	**850**	**15.53**
Memari -I	186.91	218425	1169	2.83
Memari - II	186.84	150252	804	1.95
Jamalpur	263.02	266338	1013	3.45
Raina - I	266.07	180952	680	2.35
Raina - II	227.28	151401	666	1.96
Khandagosh	265.23	189336	714	2.45
Memari (M)	14.68	41451	2824	0.54
Katwa Sub-Division	**1070.48**	**963022**	**900**	**12.48**

Mongalkote	365.44	263240	720	3.41
Ketugram - I	193.98	165408	853	2.14
Ketugram - II	160.03	118567	741	1.54
Katwa - I	168.94	173087	1025	2.24
Katwa - II	163.20	136708	838	1.77
Katwa(M)	8.53	81615	9568	1.06
Dainhat(M)	10.36	24397	2355	0.32
Kalna Sub-Division	**993.75**	**1087732**	**1095**	**14.09**
Purbasthali - I	148.44	206977	1394	2.68
Purbasthali - II	192.47	212355	1103	2.75
Kalna - I	169.08	206945	1224	2.68
Kalna - II	172.17	167335	972	2.17
Monteswar	305.19	237398	778	3.08
Kalna(M)	6.40	56722	8863	0.73
District Total 2011	**7024.00**	**7717563**	**1099**	**100.00**

Source : Census of India, 2011

Soil :

The soil of the eastern part of Burdwan district is of rich alluvial variety and is perfectly suitable for intensive cultivation of paddy, wheat, potatoes and other crops and vegetables. The soil of the western part of the district is reddish and is not that fertile.

Rivers :

The river Barakar forms the State boundary to the west; the Ajay separetes Birbhum and Dumka to the north with exception of a portion of Katwa subdivision; the Damodar forms a southern boundary with Purulia and Bankura, while Bhagirathi forms the main eastern boundary with a few exceptions. The maximum length from east to west is 208 Km while the maximum breadth from north to south is 112 KM. In shape the district resembles a hammer.

Forest :

The aggregate forest area of the district is 29321.44 hectares and the forests are mainly spread over the western part of the district. The forests mainly comprise Sal and Kendu trees. The main forest products are timber and fuel.

The table below give a clear picture of the areas of the different categories of forests, the main forest products and the revenue they earn.

Different categories of forests in Burdwan district

Item	Unit	2010-11	2011-12	2012-13
1.Area by class of Forest				
Reserved Forest	hectre	2762.58	2762.58	3367.46
Protected Forest	,,	19361.71	19361.71	20567.33
Unclassed State Forest	,,	5544.94	5544.94	5385.65
Khas forest	,,	-	-	-
Vested Waste Land	,,	-	-	-
Forest owned by corporate bodies	,,	-	-	-
Forest owned by private individuals	,,	-	-	-
Forest owned by civil authories	,,	-	-	-
Total		**27669.23**	**27669.23**	**29321.44**

Production, revenue and expenditure of major forest produce in Burdwan District.

Item	Unit	2010-11	2011-12	2012-13
2. Forest Product				
Timber	'000 Cu. Metre	0.71	0.62	1.72
Fuel	"	1.85	2.14	8.51
Pulpwood	"	4.09	0.49	0.55
Pole	Number	6864	12265	85406
Post	"	1246	42295	32909
Revenue & Expenditure				
Revenue	Rs. In thousand	18,254.19	16815.74	34623.85
Expenditure	"	124689.85	133,219.33	110065.53

Source : Divisional Forest Officers, Burdwan & Durgapur

========XXX========

CHAPTER - 3

RESOURCES

In analyzing the industrial potentiality of such an important district as Burdwan, a careful estimation of its resource endowment is of prime importance. Information and data regarding resource availability and the volume of supply and of course, the quality of the resources of the district, give a clear indication as to the kinds of industrial activities which can be pursued with profit, which may flourish in the district and provide employment to the jobless millions so that Burdwan moves further along the road to economic development.

The estimation of the available resources and its nature and quality provides a view of the supply-side of the economy of the district. A rich endowment of high quality resources makes a strong case for the development of resource-based industries, which will enjoy the advantage of low transport costs incurred for bringing raw materials to production units. Resources available in an area are of various types and can be classified under several categories. The two broad classes are the following :

1) Human Resources **2) Physical Resources**

For an in-depth analysis of human resources and for the correct estimation of their quality and quantum, some important factors must be taken into consideration, viz. literacy rate and level of education, the class distribution of population and the occupational pattern, the rural-urban divide, etc.

Apart from human resources, one has to take into account all forms of material resources available in the district which can help in the process of developing industry in general and the small scale sector in particular. These resources may be of various sorts, e.g. agricultural resources, forests, livestock, fisheries, minerals. These apart, there are certain other resources like irrigation potential (which is dependent on water resources, i.e. rivers and canals) which are of prime importance as far as our analysis is concerned.

1) Human Resources

Burdwan district, comprising 6 Sub-Divisions and 31 Blocks and covering a geographical area of. 7024 sq. kms. boasts of a total population o7,717,563 as per the 2011

Census. It is the second most populous district of West Bengal, next only to Midnapore. The density of population per sq. km. for the district is 1099 which is somewhat higher than the West Bengal average of 1028.

Literacy :

Burdwan district has experienced a very encouraging increase in the percentage of literates in the decade between 2001 and 2011 According to the 2011 Census, the male literates are 2,918,040 and female literates are 2,329,168.And the percentage of male literacy is 82.42 and female literacy is 69.63 respectively.

Occupational pattern of population :

Though a lot of large and medium scale industries, not to speak of the MSE units, have come up in the district, especially in the western Sub-Divisions of Asansol and Durgapur, Burdwan stil remains a predominantly agricultural district. This is early brought out by the fact that cultivators and agricultural labourers still out-number the workers engaged in manufacturing and service sectors. The break down of the labour force of Burdwan according to occupation and sex gives a fair idea of the structure of the economy of the district and helps analysts to estimate its industrial potential and to identify the direction of economic growth best suited to it.

The unfortunate aspect of the figures available is that the percentage of non-workers 62.28 far outstrips the percentage of all sorts of workers taken together 37.72. This hints at the fact that there is a huge reserve of labour force yet to be tapped and this unutilized resource, if harnessed by an emerging small scale sector, can lead to a speedy economic growth of the district.

The detailed structural composition of workers and non-workers in the district is shown in the table below:

Distribution of population according to different categories of workers and non-workers by sex in the district of Burdwan 2011.

	Number			P.C.of Col.(4) to respective total population
	Male	Female	Total	
A. Total Workers				
(a) Main workers				
Rural	1122767	213885	1336652	28.81
Urban	715914	114176	830090	26.97
Total	**1838681**	**328061**	**2166742**	**28.07**
(b) Marginal Workers				
Rural	314751	217792	532543	11.48
Urban	139651	72315	211966	6.89
Total	**454402**	**290107**	**744509**	**9.65**
(B) Non-Workers				
Rural	936269	1833800	2770069	59.71
Urban	737537	1298706	2036243	66.14
Total	**1673806**	**3132506**	**4806312**	**62.28**
Total population (A+B)				
Rural	2373787	2265477	4639264	100.00
Urban	1593102	1485197	3078299	100.00
Total	**3966889**	**3750674**	**7717563**	**100.00**
A. Total Workers:	**Number**			**PC of Col.(9) to respective total workrs**
	Male	**Female**	**Total**	
1.Cultivators				
Rural	304520	19667	324187	17.34
Urban	14593	3386	17979	1.73
Total	**319113**	**23053**	**342166**	**11.75**
2.Agricultural Labourers				
Rural	667654	260378	928032	49.65
Urban	32854	12296	45150	4.33
Total	**700508**	**272674**	**973182**	**33.43**
3.Household Industry Workers				
Rural	38434	42760	81194	4.35
Urban	26365	16999	43364	4.16
Total	**64799**	**59759**	**124558**	**4.28**
4.Other workers				
Rural	426910	108872	535782	28.66
Urban	781753	153810	935563	89.78
Total	**1208663**	**262682**	**1471345**	**50.54**
Total workers : (1+2+3+4)=(a+b)				
Rural	1437518	431677	1869195	100.00
Urban	855565	186491	1042056	100.00
Total	**2293083**	**618168**	**2911251**	**100.00**

Source : Census of India, 2011

A comprehensive idea regarding the potential of the district population of becoming a useful input for sustained productive industrial activities in the area can be obtained from the register of the Employment Exchange of the district.

A figures available from the Live Register of Burdwan district regarding the major occupational groups are illustrated in the table below:

Applications on the live register of employment exchange in the district of Burdwan by main occupation group.

Sl. No.	Occupational group	Year 2013
01.	Industrial Supervisory	14789
02.	Skilled & Semi-skilled	24067
03.	Clerical	64539
04.	Educational	20155
05.	Domestic	12572
06.	Unskilled	121959
07.	Others	507067
	All groups	**765148**

Source : Employment exchange of Burdwan district.

Registration and placement effect by employment exchange in the district of Burdwan

Sl. No.	Occupational group	Year 2013
01.	Fresh registration during the year	43654
02.	Placement effected during the year	57
03.	Vacancies notified during the year	182
04.	On live-register at the end of the year	765148

Source : Employment exchange of Burdwan district

2) Physical Resources :

Agriculture :

It has already been mentioned that in spite of the presence of a number of large and medium scale industries, Burdwan remains a predominantly agricultural district. As regards agriculture, it has emerged as one of the most important districts of West Bengal. Expectedly, the agricultural sector plays a very significant role in shaping the economy of the district.

For estimating the total quantum of agricultural resources and the potential of the agricultural products to propel industrial development, the survey has attempted to look into all the relevant details pertaining to the primary sector in the district, like total output of different crops, cropping pattern, productivity, land utilization, size of operational holdings in the agricultural sector etc.

Information regarding the size of operational holdings can throw light on the agrarian structure and the skewness of distribution of land. There is a long standing debate regarding the effect of the size of operational holdings on productivity and hence this data base is of no mean importance. The table below showing the distribution of operational holdings according to size-class in the district of Burdwan reveals significant inequality in the distribution of land.

Distribution of operational holding according to size-class in the district of Burdwan

Size-Class	No. of holdings	Area of holdings
Marginal	350500	190768
Small	98197	163510
Semi-medium	33781	91553
Medium	5039	23859
Large	66	1142
Total	487583	470832
Average size of holdings (hect)	-	0.97

Source : Agricultural Census, Govt. of West Bengal.

The information gleaned from the table presented above clearly indicates that the largest number of holdings come under the head “Marginal Holdings”. It is followed by small, semi-medium, medium and large holdings. Thus, average size of holding is only 0.97 hectare.

The finding is clearly indicative of the fact that fragmentation of agricultural holdings is proceeding at a disturbing pace. This has some important implications regarding agricultural productivity. A decreasing size of holdings will make the mechanization of agriculture, which is bound to take place in the future to improve productivity, very difficult.

Classification of land utilization statistics in the district of Burdwan for 2012-13

(in '000 hectares)

	2012-13
Reporting Area	698.76
Forest Area	21.16
Area under non-agriculture use	213.77
Barren and unculturable land	0.57
Permanent pastures and other grazing land	0.15
Land under misc. tree groves not included in net area sown	0.83
Culturable waste land	4.45
Follow land other current fallow	1.25
Current fallow	3.70
Net area sown	452.88

Source : Directorate of Agriculture (evaluation), Govt. of West Bengal

As in other districts of West Bengal, land which was found to be above the ceiling was vested and this vested land has been subsequently distributed among the landless. A table showing the year wise area of land distributed and the number of beneficiaries (along with figures for Scheduled Caste and Scheduled Tribe beneficiaries) is given below:

Area of vested agricultural land distributed and Number of beneficiaries in the district of Burdwan.

Upto 2013	**Area of land distributed (hectare)**	**No. of beneficiaries**			
		SC	**ST**	**Others**	**Total**
30.11.2009	25176	91378	43880	81592	216850
30.11.2010	25297	93342	43945	83052	220339
30.11.2011	25361	94657	44189	84038	222884
30.11.2012	25574	96064	44594	84122	224780
31.10.2013(P)	22645	98964	46124	86978	232066

Source : Land and Land Reforms Deptt. Govt.of West Bengal

Paddy is the main crop grown in Burdwan district and the district is known as the "Rice Bowl of Bengal". The district produces different varieties of rice with production of Aman and also area under its production being the greatest. As regards productivity, a

Burdwan district stand first among al districts of West Bengal as far as paddy cultivation is concerned. As for the volume of paddy produced, Burdwan district is second only to Midnapore. During the Aus and Boro season, good quality rice is grown. Apart from paddy; potatoes, wheat, pulses, various kinds of oil seeds, jute, sugarcane, etc. are also grown. In respect of potatoes, the total production of Burdwan is third among all districts of West Bengal, less than that of only Hooghly and Midnapore. Among the oil seeds, mostly rape seeds and mustard are grown in this district. The area under the production of rape seeds and mustard is also the largest among the areas under the cultivation of the different oil seeds.

Jute and Mesta are also grown in the district of Burdwan, especially in the region on and near the right bank of the Hooghly. The table presented below shows the production figures, area coverage and the yield rate of various crops grown in the district.

Production of Principal Crops in the district of Burdwan

(Thousand tonnes)

Crops	2011-12	2012-13
FOOD GRAINS		
1.Rice	**1749.3**	**1922.5**
Aus	30.6	28.8
Aman	1242.4	1301.2
Boro	476.3	592.5
2. Wheat	6.6	5.7
3. Barley	(b)	(b)
4. Maize	1.0	1.2
5. Other Cereals	-	-
Total Cereals	**1756.9**	**1929.4**
6. Gram	0.1	0.3
7. Tur	(b)	(b)
8. Other Pulses	3.0	2.2
Total Pulses	**3.1**	**2.5**
Total Foodgrains	**1760.0**	**1931.9**
Oil Seeds		
1. Repeseed & Mustard	17.6	25.5
2. Linseed	(b)	(b)
3. Other Oil seeds	17.1	16.5
Total Oil seeds	**34.7**	**42.0**
Fibres :		
1. Jute	234.0	139.1
2. Mesta	(b)	(b)
3. Other Fibres	0.2	0.2
Total Fibres	**234.2**	**139.3**
Miscellaneous Crops:		
1. Sugarcane	66.4	69.5
2. Potato	1356.1	1854.2
3. Tobaco	-	-
4. Tea	-	-

5. Chilies (dry)	3.7	3.5
6. Ginger	0.3	0.3
Total Misc. Crops	**1427.1**	**1927.5**

Yield rates of Principal Crops in the district of Burdwan

(Kilogram per hectare)

Crops	2011-12	2012-13
FOOD GRAINS		
1.Rice	**2951**	**3240**
Aus	3013	3095
Aman	3006	3092
Boro	2813	3628
2. Wheat	2413	2864
3. Barley	980	997
4. Maize	2091	2097
5. Other Cereals	-	-
Total Cereals	**2948**	**3237**
6. Gram	996	1585
7. Tur	329	1325
8. Other Pulses	1117	957
Total Pulses	**1094**	**1027**
Total Foodgrains	**2939**	**3228**
Oil Seeds		
1. Repeseed & Mustard	866	1168
2. Linseed	149	263
3. Other Oil seeds	1069	1154
Total Oil seeds	**955**	**1163**
Fibres :		
1. Jute	18.3	15.5
2. Mesta	0.9	12.5
3. Other Fibres	5.0	5.1
Total Fibres	**18.3**	**15.48**
Miscellaneous Crops:		
1. Sugarcane	45180	45524
2. Potato	27675	32578
3. Tobaco	-	-
4. Tea	-	
5. Chilies (dry)	1542	1461
6. Ginger	1901	1994
Total Misc. Crops	**26876**	**21547**

a) # less than 50 hectares, (b) = less than 50 tonnes.

Source : 1) Directorate of Agriculture, Govt. of West Bengal

2) B.A.E&S, Govt. of West Bengal

Apart from agricultural production, another aspect which deserves to be looked into is the marketing infrastructure available in the district because existence or the want of selling outlets determines to a great extent the prices of marketable surplus. In this connection, it should be noted that Burdwan district can boast of 15 regulated market yards which offer market outlets for various agricultural products like paddy, wheat, gram, potato and other cereals and vegetables, and also livestock. The district also enjoys the facilities of 4 Principal Market Yards and 41 Sub-market Yards. The progress of agricultural marketing operations in Burdwan district is shown in the table given below:

No. of agricultural markets in the district of Burdwan

Regulated Markets	-	15
Wholesale Markets	-	15
Primary Hat	-	32
Retail Markets	-	181

Apart from marketing, storage of agricultural products is another important aspect in the field of agriculture. The district has 85 Cold storages with a capacity of 5000 MT and 20 warehouses with a capacity of 50000 MT approximately.

There are 20 Govt. agricultural farms covering a total area of 881.87 acres which grow HYV seeds, saplings of fruit trees etc. and sell them at Govt. controlled prices. There is also a model district agricultural farm, an Agricultural Research Centre and a soil testing laboratory in the district

.

No. of Agricultural Farms (Govt.)

State Seed Farm	-	2
State Farm	-	1
Block Seed Farm	-	14
Sub-Divisional Adaptive	-	3
Research Farm	-	Nil

Irrigation :

As has been seen in the preceding section, there are still vast tracts of land which are lying idle as fallow land and unculturable waste land. These can be brought under cultivation with the help of irrigation. Moreover, those plots of land which grow only one crop a year can be brought under a multiple cropping system if sufficient water is available. These measures can significantly increase the agricultural production through an expansion of net cropped area and through an improvement in the productivity of land already under cultivation.

Burdwan district is girdled by these major rivers – the Hooghly in the West, the Ajay in the north and the Damodar in the south. These apart, there are tributaries of the above mentioned river, rivulet and canals, tanks, wells built the Govt. agencies and local bodies and other sources of water exists and these are availed of by the farmers and other consumer. Deep tube-wells, shallow tube-wells and river lift irrigation facilities are in vogue. The shallow tube-wells are operated with the help of electricity and diesel and also by manual methods.

The table below shows the distribution of areas so far as irrigation from different sources is concerned.

Area irrigated by different sources in the district of Burdwan.

Year	Area irrigated by									
	Govt. canal	Tank	High Capacity Deep Tubewell	Middle Capacity Deep Tubewll	Low capacity Deep Tubewell	Shallow Tubewell	River Lift Irrigation	Open Dug well	Others	Total
2011-12	283.08	-	7.22	1.28	11.02	-	15.15	-	-	317.75
2012-13	276.53	-	14.41	1.87	27.18	-	10.97	-	-	330.96

Source:1. Supdt. Engr. Damodar Irrigation Circle, Burdwan
2. Exe. Engr, (Agri.Mech.) &(Agri.irri.), Burdwan
3. WBSMIC, (M&C), Burdwan
4. Water Irrigation and Dev. Department. Govt. of West Bengal

Livestock :

The district of Burdwan is faily wel endowed with various sorts of livestock like cows, buffaloes, sheep, goats, horses and pony, pigs, fowls, ducks etc.

Livestock and poultry in the district of Burdwan (2007 as per last census)

Category	**2007**
1.Cattle	
Cows	684336
Bulls & Bullocks	259297
Young Stock	786985
Total Cattle	**1730618**
2. **Buffaloes :**	
Cows	44510
Bulls & Bullocks	75849
Young Stock	-
Total Buffaloes	**120359**
3. Sheet	175669
4. Goats	1408200
5. Horse & Ponies	701
6. Pigs	99931
7. Other Livestock	166227
Total Livestock	**3701705**
8. **Poultry**	
Fowls	4624236
Ducks	1778834
Others	26359
Total Poultry	**6429429**

Source: Livestock Census Report, Govt. of West Bengal.

Minerals :

Among all the districts of West Bengal, Burdwan is the richest as far as mineral resources are concerned. Coal is the most important mineral found in the district. The western part of the district, especially Asansol Sub-Division and parts of Durgapur Sub-Division are famous for coal depotits, and this area is a part of the coal belt which extends to Bihar. There are a number of coal mines in Burdwan district, the most famous being Raniganj. The other mines are in Andal, Jamuria, Barabani, Faridpur and Salanpur. Coal production in Burdwan during the last 5 years is given in the table below:

Burdwan is one of the premier districts in India in terms of value of mineral. The Raniganj coalfield was the birth place of the Indian coal industry. Besides coal ,important minerals found in the district are ,iron ores, calcium carbonate, abrasives, silica bricks and moulding sands, glass sands, building materials, Manganese, Bauxite, laterite etc. Barddhaman is one of the premier districts in India in terms of value of mineral. The Raniganj coalfield was the birth place of the Indian coal industry. Besides coal ,important minerals found in the district are ,iron ores, calcium carbonate,

abrasives, silica bricks and moulding sands, glass sands, building materials, Manganese, Bauxite, laterite etc.

Sl.NO.	Name Of Mineral	Production in tones 2010-2011
Major Mineral		
1.	Coal	2,23,81000
Minor		
1.	Building Stone	5,58,636.15
2.	Ordinary Sand	46,79,765.805
3.	Murrum	61,788.155
4.	Brick Earth	1,76,34,218.16

Source : ECL, Sanctoria, Burdwan.

Apart from coal, the district is also endowed with other minerals like iron, shale, fire clay and china clay. Iron shale and fire clay are found mainly in Raniganj.

========XXX========

CHAPTER - 4

INFRASTRUCTURE

A rich endowment of human and physical resources is a necessary condition for industrialization, as has been elaborated in the previous Chapter . However, it is not a sufficient condition. Resources have to be effectively and optimally utilized for productive purposes and to achieve this, these are other requirements also. One of them is the availability of adequate infrastructure, which is needed not only for initiating and maintaining the production process but also for fetching raw materials and transporting the finished products for marketing.

In this survey, with a view to assessing the industrial potential of Burdwan district, the details of the whole gamut of infrastructural facilities available are present have been closely examined. Both physical and infrastructure like land, water, transport, power, communication system, industrial accommodation, etc. and social infrastructure compring entrepreneurship, availability of technical skills, credit facilities, incentives and subsidies, market potential etc. have been studies.

PHYSICAL INFRASTRUCTURE :

Roads :

The first aspect, which has to be taken up for discussion while analyzing the physical infrastructure, is road transport. In this connection, it has to be mentioned that Burdwan is one of the districts of West Bengal which have satisfactory road communication facilities. While taking stock of the total length of roads in the district, one must categorize them into those maintained by the Public Works Department (PWD) and those maintained by the Local Bodies. The table given shows these details year wise.

Roads maintained by PWD, Zilla Parishad & Panchayat

in the district of Burdwan.

Year	PWD			Zilla Parishad			Gram Panchayat & Panchayat Samity			Pradhan Mantri Gram Sadak Yojana		
	Surfaced	Un-urfaced	Total	Surfaced	Un-surfaced	Total	Surfaced	Un-surfaced	otal	Surfaced	Un-surfaced	Total
2008-09	1962.00	6.00	1968.00	979.66	939.16	1918.82	4506.96	2808.72	7315.68	625.53	-	625.53
2009-10	1966.00	8.00	1974.00	988.16	930.66	1918.82	4506.96	2808.72	7315.68	690.45	-	625.53
2010-11	1966.00	8.00	1974.00	1022.71	896.11	1918.82	4506.96	2808.72	7315.68	805.59	-	805.59
2011-12	1789.00	-	1789.00	1022.71	896.11	1918.82	4506.96	2808.72	7315.68	880.63	-	880.63
2012-13	-	-	-	1022.71	896.11	1918.82	4506.96	2808.72	7315.68	902.28	-	902.28

Source: 1) PWD (Roads), Govt. of W.B.,

2) Zilla Parishad, Burdwan,

(3) All Panchayat Samity, Burdwan,

(4) All Gram Panchayat, Burdwan,

Length of different class of roads maintained by PWD

in the district of Burdwan (in kms.)

National Highways	236.4
State Highways	275
District Roads	700
Village Roads	736
Total	**1947.4**

NATIONAL HIGHWAY

No.	Length(Km.)
NH 2	158.4
NH 2B	46
NH 60	32
Total	236.4

STATE HIGHWAY

SH No.	Section & Length(Km.)
SH 5	1. RUPNARAYANPUR - SILARAMPUR - DISHERGARH (0 - 22) 2. LODHASULI - KHARAGPUR VIA NH6 (0 - 0) 3. DISHERGARH - PURULIA (22 - 90) 4. PURULIA - MANBAZAR (90 - 138) 5. MANBAZAR - BANDWAN - KUILAPAL - JHILIMILI (138 - 183) 6. JHILIMILI - BANSPAHARI (183 - 186) 7. BANSPAHAN - BELPAHAN (186 - 211) 8. BELPAHAN - NARAYANPUR - SILDA (211 - 222) 9. SILDA - BINPUR - DOHJURI (222 - 246) 10. DOHIURI - LODHASULI (246 - 267) 11. MAIANCHA POAD (267 - 271) 12. KHARAGPUR - KESHIARY (271 - 298) 13. KHESIARY - BEIDA (298 - 311) 14. BELDA - CONTAI (311 - 333) 15. BELDO - CONTAI (333 - 367) 16. CONTAI - JUNPUT (367 - 376)
SH 6	1. RAJNAGAR - SUN (0 - 26) 2. SUN - AHMEDPUR (26 - 47) 3. AHMEDPUR - KIRNAHAR - RAMJIBANPUR (47 - 76) 4. RAMJIBANPUR - KELUGRAM - KATWA (76 - 99) 5. STKK ROAD BURDWAN PART (99 - 169) 6. STKK ROAD HOOGHLY PARI (169 - 202) 7. SAPTAGRAM - UTTARPARA GT POAD (202 - 242) 8. UTTARPARA - HOWRAH - B. GARDEN GT ROAD (242 - 255) 9. B GARDEN - ALAMPUR (255 - 266)

SH 7	1. RAJGRAM - NALHAFI (0 - 31) 2. NALHATI - MOREGRAM VIA NH60 (0 - 0) 3. MOREGRARN - ALINAGAR (31 - 51) 4. ALMAGAR - KULEE (51 - 71) 5. KULEE - RAMJIBANPUR (71 - 100) 6. RAMJIBANPUR - PALITA - PALITPUR - NATUNHAT (100 - 129) 7. NATUNHAT - MURAIIPUR - KARJONA (129 - 148) 8. KARJONA- BURDWAN (148 - 163) 9. BURDWAN - ARAMBAGH BURDWAN PORTION (163 - 196) 10. BURDWAN - ARAMBAGH HOOGHLV PORTION (196 - 205) 11. ARAMBAGH - GOGHAT - RAMJIBANPUR (205 - 226) 12. RAMIIBANPUR - KHIRPAI (226 - 244) 13. CHANDRAKONA- KESHPUR (244 - 265) 14. KESHPUR - MIDNAPORE (265 - 289)
SH 8	1. SANTALDI - RAGHUNATHPUR0 (0 - 28) 2. MIRZAPUR - KUSUMGRAM SAMUDRAGARH - (0 - 0) 3. CHAKPUROHIL - MIRZAPUR - (VIA SH7) (0 - 0) 4. RAGHUNATHPUR - SALTORA (28 - 58) 5. SALTORA - BANKURA (58 - 104) 6. BANKURA - BELIATORE (104 - 126) 7. BELIATORE - SONARNUKHI - PATRASAYAR - ROSULPUR (126 - 170) 8. RASULPUF - KHANDAKOSH - CHAKPUROHIL (170 - 196) 9. GOURANGO SETU (196 - 256) 10. GOURANGA SETU - KRISHNANAGAR (256 - 264) 11. KRISHNANAGAR - MAIDIO (264 - 292)
SH 9	1. MUCHIPARA NH2 - BARRAGE (0 - 7) 2. SIMLAPAL - KRISHNAPUR - RAIPUR - FUFLCUSUM - (0 - 0) 3. SI IDA- NARAYANPUR (VIA SH5) (0 - 0) 4. DURQAPUR - BANKURA (7 - 49) 5. BANKURA - TALDANGRO - SIMLAPAL (49 - 89) 6. BENAGARIA (89 - 126) 7. BENAGARIA - SILDA (126 - 133) 8. MARAYANPUR - DHARSA - FEKOGHAT (133 - 167) 9. DOHJUN - FEKOGHAL (167 - 197) 10. FEKOGHAL - MAVAGRARN (197 - 251)
SH13	1. MOLLARPUI MAGHIPARA - BOLPUR - VEDLA BR (0 - 66) 2. G.T ROAD - PALSU (VIA NH-2) (0 - 0) 3. VEDIA BR - GUSKARA (66 - 82) 4. GUSKARA - BURDWAN (82 - 111) 5. G.T ROAD BURDWAN TOWN (111 - 121) 6. PALSIT - MOGRA - DANKUNI (121 - 203)
SH14	1. DUBRAJPUR - LLLAMBAZAR - PANAGARH (0 - 70) 2. PANAGARH - MONKAR (VIA NH-2) (0 - 0) 3. DEBAGRARN - PALASI X/IA NH34 (0 - 0) 4. LLLAMBAZAR - BOLPUR - SANTINIKETAN LMI (70 - 98) 5. MANKAR - GUSKARA - BOLGANA (98 - 148) 6. BOLGANA- K ATWA K M (148 - 178) 7. KATWA GHAT - DEBAGRAM (178 - 196)

	8. PALASI - BETAI (196 - 226)

SH15	1. DAINHA T - MANIESWAI K M (0 - 30) 2. TARAKESWAR - CHAMPADANGA (VIA SH2) (0 - 0) 3. EKSORA - BATTIKURI (VIA NH6) (0 - 0) 4. MANTESWAR - MEMARI (30 - 62) 5. MEMARI - CHQKDLGHI (62 - 93) 6. CHAKDIGHI - TAROKESWAR (93 - 106) 7. CHAMPADANAA - CHANDILALA (106 - 142) 8. CHANDITALA - EKSARA (142 - 156) 9. BALTIKURI - BARGACHIA - AMTA (156 - 192) 10. AMTA - BAGNAN (192 - 205) 11. BAGNAN - SHVARNPUR - GADIARA (205 - 242)
Total	**275 Km.**

It is worth noting here that among all the districts of West Bengal, the length of surfaced roads maintained by the PWD in Burdwan district is second only to that of North 24-Parganas. Moreover, the district is extremely fortunate in having the Grand Trunk Road, now known as National Highway to passing through it. As this National Highway is the artery connecting northern India and Kolkata, the commercial importance of the road and the advantage derived from it by Burdwan district can easily by gauged. The length of the National Highway passing through Burdwan district is 236.4 kilometres. In addition, there are also State Highway connecting various parts of the district, the total length of State Highways maintained by the PWD in Burdwan district being 275. These apart, there are 700 kms. of district roads and 736 kms. of village roads maintained by the PWD. There are also 2078 kms. of surfaced road and 547.21 kms. of un-surfaced roads maintained b the Municipalities and Municipal Corporation .The Durgapur Expressway has also been opened to the public and is expected to improve the transport facilities of the district substantially.

Road Transport :

With roads being the major means of communication within Burdwan district, it is only expected that a variety of motor vehicles ply on them in large numbers for both commercial purposes and otherwise.

One can observe buses, goods vehicles like trucks and mini trucks, cars, jeeps, trekkers in addition to two wheelers like motor cycles and scooters and these wheelers like auto rickshaw. There is also a substantial presence of taxi and contract carriages. One also comes across mini buses, tractors and trailers, operating in the district. The table given below shows the details of the registered motor vehicles plying in the district.

Number of registered motor vehicles in the district of Burdwan

Year (as on 31st March	Goods vehicles	Motor car and jeep	Motor cycle and scooter	Taxi and contract carriage	Auto rickshaw	Mini-bus	State carriage	Tractors and trailers	others	Total
2012	60261	55840	669285	7030	1127	1891	3365	29903	12749	841451
2013	61670	58040	694779	7087	1177	1899	3506	32125	12855	873138

Source: (1) R.T.A., Burdwan

(2) Home (Transport), Dptt. Govt. of West Bengal.

When one examines the road transport operations at the block level, one finds that Faridpur-Durgapur block has the largest number of bus routes (31) followed by Memari-I (26) and Mongolkote (20). The block with the least number of bus routes are Kalna-II(1), Katwa-I (2), The table given below shows the block wise allotment of bus routes in Burdwan district.

Transport facilities in the blocks of Burdwan for the year 2012-13

Sl. No.	Name of blocks	No. of Bus routs	Sl. No.	Name of blocks	No. of Bus routs
1	Salanpur	6	17	Memari-II	8
2	Barabani	6	18	Jamalpur	11
3	Raniganj	12	19	Raina-I	8
4	Jamuria	5	20	Raina-II	15
5	Galsi-I	17	21	Khandaghosh	8
6	Andal	8	22	Mongalkote	20
7	Faridpur-Durgapur	31	23	Ketugram-I	9
8	Pandabeswar	4	24	Ketugram-II	3
9	Kanksa	7	25	Katwa-I	2
10	Burdwan-I	9	26	Katwa-II	5
11	Burdwan-II	7	27	PUrbasthali-I	7
12	Ausgram-I	4	28	Purbasthali-II	8
13	Ausgram-II	7	29	Kalna-I	13
14	Bhatar	9	30	Kalna-II	1
15	Galsi-II	8	31	Monteswar	9
16	Memari-I	26			

Source: All Block Development Officer, Burdwan

Railway Transport :

Burdwan is one of the most fortunate districts of West Bengal as regards railway lines and routs are concerned. Burdwan and Asansol are two important junctions of Eastern Railway. The broad gauge line from Kolkata to Dhanbad bisects the district length wise. The main line towards Patna, the chord line towards Dhanbad, the loop line towards Suri and the line towards Bolpur al pass through the district. Hence, Burdwan is very well connected by means of railways with northern India and also North Bengal and of course Kolkata and other districts of South Bengal. Most of the blocks of the districts are connected by railways.

Water Transport :

As has been mentioned above, Burdwan district is washed by three major rivers, viz. Hooghly, Ajay and Damodar. Expectedly, the district benefits from ferry services which exist in almost all blocks those having the largest number of ferry services being Katwa-II and Jamalpur. The table below shows the blockwise ferry services in Burdwan district.

Water Transport facilities in the blocks of Burdwan for the year 2012-13

Sl. No.	Name of blocks	No. of Bus routs	Sl. No.	Name of blocks	No. of Bus routs
1	Salanpur	-	17	Memari-II	-
2	Barabani	1	18	Jamalpur	12
3	Raniganj	-	19	Raina-I	8
4	Jamuria	1	20	Raina-II	3
5	Galsi-I	-	21	Khandaghosh	-
6	Andal	-	22	Mongalkote	6
7	Faridpur-Durgapur	-	23	Ketugram-I	-
8	Pandabeswar	-	24	Ketugram-II	5
9	Kanksa	-	25	Katwa-I	-
10	Burdwan-I	-	26	Katwa-II	6
11	Burdwan-II	4	27	PUrbasthali-I	4
12	Ausgram-I	-	28	Purbasthali-II	7
13	Ausgram-II	-	29	Kalna-I	4
14	Bhatar	-	30	Kalna-II	-
15	Galsi-II	-	31	Monteswar	4
16	Memari-I	-			

Source: All Block Development Officer, Burdwan.

Air Transport :

The nearest new airport is Andal, Burdwan.

Industrial Accommodation in the district of Burdwan:

While analyzing the infrastructural facilities, it is necessary to study the industrial accommodation available in the district. The West Bengal Small Industries Corporation, a Govt. of West Bengal Undertaking engaged in the promotion of small scale industries has set up industrial estates in different parts of the State where the small entrepreneurs are provided with sheds having adequate power and water connection. This is of immense help to the entrepreneurs with limited financial resources as most of them do not have the funds required to set up their own industrial sheds.

In Burdwan district, WBSIC has set up an industrial estate at Durgapur, Burdwan, Asansol and Raniganj

Existing Status of Industrial Areas in the Burdwan District

S. No.	Name of Ind. Area	Land acquired (In hectare)	Land developped (In hectare)	No of Plots	No of allotted Plots	No of Vacant Plots	No. of Units in Production
1	Durgapur I.E	795000 Sq.ft	795000Sq.ft	76	76	-	76
2	Durgapur RIP I.E	548640 Sq.ft	548640 Sq.ft	77	77	-	77
3	Shaktigarh I.E	3 acres	-	1	1	-	1
4	Durgapue Ph-II	27 acres	-	-	-	-	-
5	Durgapur EPIP	4.313 acres	-	4	-	-	-
6	Industrial Complex,	-	-	-	-	-	-

	Rajbandh						
7	Industrial Estate Kalyanpur, Asansol	-	-	-	-	-	-
8	Ranigunj Industrial Estate, Ranigunj	-	-	-	-	-	-
9	Panagarh Industrial Park	493.49 acre	493.49 acre	-	-	-	-
10	Alumunium & Non-frrrus Metal Park	1500 acre	1500 acre	-	-	-	-
11	Salanpur Industrial Park	2550 acre	2550 acre	-	-	-	-

Power :

The West Bengal State Electricity Board (WBSEB) exercise an overall supervision on the supply and distribution of electricity in the district . Apart from WBSEB, power is also generated and supplied by the Damodar Valley Corporation (DVC), which supplies hydro-electric power as well as Durgapur Projects Limited(DPL). The district receives power through grid stations and sub-stations. The main generating stations providing power to Burdwan district are DVC. (through Chandrapura Thermal Power Station), Santhaldih, Bandel Thermal Power Station, Farakka and Bakreswhwar.

In Burdwan district, electricity consumed by different sectors for different purposes. It is observed that electricity is mainly consumed for domestic and industrial purposes. A total of 962600 thousand KWH of electricity was consumed during 2012-13. The sector wise consumption of electricity in the district of Burdwan is presented in the table below:

Consumption of electricity in the district of Burdwan

during the year 2012-13

Sl. No.	Category of supply	Consumption in '000 KWH

1	Domestic	546880
2	Commercial	132170
3	Industrial	88030
4	Public Lighting	5520
5	Agricultural irrigation and dewatering	155610
6	Public Water Works & Sewage pum	13500
7	Misc.	20890
	Total :	**962600**

Source : Zonal Manager, Burdwan(D), Zone, WBSEDCL, Burdw.

Important sub-stations of DVC from consumer/load point of view:

Sub Stations	Contract Demand
Patherdih S/Stn	158 MVA
Ramgarh S/Stn	154 MVA
Putki S/Stn	133 MVA
Giridih S/Stn	145 MVA
Parulia S/Stn	161 MVA
Burdwan S/Stn	122 MVA
Kalyaneshwari S/Stn	139 MVA
Durgapur S/Stn	168 MVA
Borjora S/Stn	186 MVA

Area covered under Damodar Valley Corporation(DVC)

•Spread over the **DVC command area of 24,235 sq. kms.** With **7260 Circuit KMs.** Of Transmission Lines**.**

•Comprises of **38 Nos. Sub-Stations** and **12 Nos. Receiving Stations.**

•Serves **3007 MVA** to core sectors like The **Railways, SAIL, Collieries, SEBs** and Other Steel Companies

TOTAL CONSUMERS : 274 Nos.

- 220 KV : 3 Nos.
- 132 KV : 13 Nos.
- 33 KV : 246 Nos.
- 25 KV : 12 Nos.

TOTAL CONNECTED LOAD (CD) : 3052 MVA

- Railways : 217 MVA
- COAL (ECL, CCL & BCCL) : 293 MVA
- SAIL , OTHER STEEL & MISC : 1931 MVA

- SEBs & OTHER Distribution Licensees : 611 MVA

NO. OF SUB-STATIONS: 38 Nos.

1) 220 KV : 9 Nos.
2) 132 KV : 28 Nos.
3) 33 KV : 1 No.

SOCIAL INFRASTRUCTURE :

Entrepreneurship :

The physical infrastructure already discussed and analyzed in considerable detail, is only one of the requirements necessary for transforming the economy of a district from a backward to a developed one . For industrialization to be pursued with vim and verse, the mere existence of transport and communication facilities and the availability of power, etc. are not enough. Industry is built by human beings and the entrepreneurial skills of the people of the district, their drive to improve their lot through productive economic activities, their willingness to take risks and their capacity to work hard ultimately turn out to be the decisive factors in determining a region's pace of development along the path of industrialization.

The findings of the survey team regarding entrepreneurship in Burdwan district are that though a number of large and medium scale industries have come up both in the public and in the private sectors leading to the setting up of a large number of ancillary units, the level of entrepreneurship leaves a lot to be desired. There is lack of technical know-how and managerial skill. More ancillary units should have been established given the huge demand emanating from the large and medium scale industries. For example, more small scale units should have been set up specially in sectors like rubber and plastic industries

There are a number of small scale units in the district which are based on traditional skills mainly in the handloom and handicrafts sectors which are run by artisans.

Lending & Credit facilities :

The availability of finance is a sine qua non for the development of all kinds of industries, be they large scale, medium scale or small scale. However, mere availability of finance is not enough; it must be available in adequate amount and at the correct time. Small scale industries often find themselves in hot water owing to shortage of working capital. Diagnostic surveys have found that one major reason behind the sickness of SSI units is shortage of funds, which often the result of under financing and delayed is financing. Hence, a strong and efficient financial infrastructure is necessary for the industrial development of a district.

In the district of Burdwan, there are many bank branches spread over thirty one blocks. UCO Bank is the Lead Bank of Burdwan district and works as a nodal agency for implementing the district's annual credit plans and for co-coordinating developmental efforts of the banking institutions in the district. There are also other commercial banks with a number of branches strewn all over the district. Apart from these, the West Bengal Financial Corporation has a significant presence in Burdwan district and is mainly engage in providing term loan facilities to industries.

All the 31 blocks of the district enjoy banking facilities and the number of bank offices operating in each block is given in the list below

Commercial and Gramin Banks in the blocks of Burdwan

in the year 2012-13

Sl. No.	Name of blocks	Number of banks offices		Pululation served per Bank office (Commercial & Gramin)(No. in th.)
		Commercial Bank	Gramin Bank	
1	Salanpur	7	2	18
2	Barabani	5	2	18
3	Raniganj	12	2	4
4	Jamuria	8	1	14
5	Galsi-I	7	4	17
6	Andal	8	-	23
7	Faridpur-Durgapur	5	2	17
8	Pandabeswar	9	-	18
9	Kanksa	9	3	15
10	Burdwan-I	12	2	15
11	Burdwan-II	9	2	14
12	Ausgram-I	6	2	15
13	Ausgram-II	6	3	15
14	Bhatar	11	5	16
15	Galsi-II	6	3	16
16	Memari-I	12	2	16
17	Memari-II	7	2	17
18	Jamalpur	7	5	22
19	Raina-I	7	1	23
20	Raina-II	6	3	17
21	Khandaghosh	9	3	16
22	Mongalkote	9	4	20
23	Ketugram-I	4	3	24
24	Ketugram-II	5	1	20
25	Katwa-I	7	3	17
26	Katwa-II	4	3	20

27	PUrbasthali-I	6	2	26
28	Purbasthali-II	6	2	27
29	Kalna-I	6	2	26
30	Kalna-II	7	1	21
31	Monteswar	8	3	22
Total-		**230**	**73**	

*As or Census 2011 Population Source: Lead Bank Officer, Burdwan.

CD RATIO OF WEST BENGAL AS ON 31.06.2015

Name of District	Lead Bank	CD Ratio March 2014	CD Ratio Ratio June 2015 (Amount in crore)		
			Deposit	Advance	CD Ratio
Burdwan	UCO	35	40859.78	15282.24	37

Growth Centre :

Identification of growth centres forms an essential part of industrial potentiality study. All places in a district are not equally endowed with resources, infrastructure and growth prospective. Hence, for reaping the maximum economic benefit, investment and development efforts are to be made at places which have the greatest development potential.

In this study the growth centre identification is treated a an institutional technique, potentially useful for planning for industrialization, whether the plans are executed through public or private initiative. So, to provide practical help to economic planners and administrators, the following factors re considered for identification of growth centres.

i. Population size
ii. Availability of economic overheads like land, water, power, transport, etc.
iii. Proximity to existing commercial centres
iv. Intensity of agricultural activity in terms of both cash and commercial crops.
v. Extend of availability of resources required for industrial growths.
vi. The occupational pattern of the working force, particularly the ratio of the number of workers in the secondary sector to the total working force.
vii. Availability of secondary infrastructure like hospitals, post & telegraph, administrative and banking facilities, etc.

The new concept is to obtain the hierarchic level of these growth centres since all types of industrial activities cannot be developed at any particularly place. The industrial activities are of different types and can be invariably introduced at specific hierarchic levels according to the quantum of investment. Considering all these factors, the study team has

identified 6 places as possible growth centers, which can provide suitable location for industrial development and serve a appropriate areas for diffusion of technology in Burdwan district. These places are :

1) Durgapur	2) Burdwan	3) Katwa
4) Asansol,	5) Raniganj	6) Kalna

Market Potential :

Market analysis forms an impotent part of the industrial potentiality survey of a district because it provides some information on indicators such as nature of exchange, the level of economic activities, the possible extent of forward and backward linkages, the overall dynamics of wholesale and retail centres and the extent and quality of sales promotion and marketing efforts of various agencies, etc. which prove to be very useful to planners, financial agencies and individual entrepreneurs in promoting small scale, cottage and village industries in a given region. As such, while planning the development of a district, considerable stress should be given on the creation of market infrastructure.

The district of Burdwan has 6 Sub-divisions and 31 blocks. In order to analyze the markets of the district, the team visited some of its important district level and block level commercial centres, conducted market surveys and held discussions with the people engaged in commercial activities of the district. After cross checking various pieces of information, it was gathered that Burdwan district enjoys a comfortable position as far as marketing is concerned because it is very well connected with the huge market of Kolkata on the one hand and the towns of Bolpur, Bankura and also the north Indian States on the other. Burdwan district serves as a centre from where different types of consumer durables are supplied to the state of Bihar and to the neighboring district. Birbhum, Bankura and the cola belt of Bihar serve as ready markets for the myriad products of Burdwan district.

Moreover, the district itself provides a large market for its own products. The aggregate size of the consumer goods market of the district is significantly large. Field investigation also reveals that the urban centres, viz. Durgapur, Burdwan, Asansol, Raniganj, Chittaranjan, Kalna and Katwa have a large and growing middle class and upper middle class population and provide an attractive market for various consumer durables and non-durables. These urban centres also serve as wholesale markets as far as consumer goods are concerned and another basic function of these markets is to act as intermediate points for procuring consumer products from Kolkata and Burdwan and other parts of the State and for

distributing the same to various markets both in the urban and rural areas in and outside the district.

Besides, the urban centres, the rural areas of Burdwan district which are agriculturally well developed also provide a large market for consumer goods and agricultural implements.

Moreover, the large and medium scale industries provide a large market for numerous MSE units, leading to a large degree of ancillarisation.

========XXX========

CHAPTER – 5

PRESENT INDUSTRIAL STRUCTURE

In order to examine in details the industrial potentiality of a district, a careful studyof the existing industries is essential, since the analysis of the existing industrial structure would through light on the strength and weaknesses of the industrial structure as a whole. Such an examination generally brings forth and extent of present utilization of resources, analysis the availability of the same in the area and also the inter-industry links. In addition, it would also enabler us to ascertain whether the present trend of industrialization can be continued in future of whether there is a need for any change in the director of the economic development. Taking stock of the resource based industries which can grow up, such industries can be established. If there is further scope of the development of resource based industries, the same may be encouraged. The district of Burdwan is one of the most industrialized district of West Bengal. The towns of Durgapur, Asansol, Chittaranjan, Raniganj and to some extent, Burdwan have plenty of large, medium and small scale industries. Huge public sector industries like DSP, Alloy Steel Plant, Durgapur, Durgapur Project Ltd., IISCO, Burnpur, Chittaranjan Locomotive Works, etc. have contributed to the growth of a large number of small scale and ancillary units. However, it may be noted that the rate of growth of small scale industries expected in Burdwan district has not shot up significantly. Factors such as shyness of a section of a local entrepreneurs, the lack of willingness to take risk and to an extent, reluctance on the part of the banks and other financial institutions to provide adequate finance at the appropriate time have impeded development of MSEs in the district.

The western part of Burdwan district comprising the sub-divisions of Durgapur and Asansol is dotted with units manufacturing machinery and parts, electrical gadgets and apparatus, metal products, non-metallic mineral products, chemical and chemical products. On the other hand, in the eastern part of the district, mainly in Burdwan Sub-division we find a large number of units manufacturing food products. Burdwan and its adjoining areas are known for their rice mills and rice husking units. The district can also boast of a large number of wood products units, printing units and paper product units. Repairing and servicing units are also found in good number but they are strewn all over the district.

Large Scale Industries :

Durgapur had been projected in the fifties and sixties as the second city of West Bengal as far as industries are concerned. In the second and the third Fifth Year Plans, which were formulated mainly under the guidance of Prof. P.C. Mahalanobis who followed the field man model of Planned Economic Development, emphasis was laid mainly on basis and

capital goods industries and the public sector was encouraged to invest in them as private sector was not expected to sink their funds in these ventures which had long gestation period and did not promise quick returns. During the period convert by these plans and no. of public sector enterprises were set up in the Durgapur. The foremost among them was the Durgapur Steel Plant, mammoth industrial units which not only provide employment to thousands but has also facilitated the setting up of upstream ancillary units and downstream industries manufacturing metal products. Besides, Durgapur Steel Plant, there is also the Aloy Steel Plant which produces a large number of metal alloys and which also feeds the demand of downstream metal product units. In the chemical sector, there is Durgapur Chemicals Ltd., a large plant manufacturing a host of chemicals needed for setting up rubber, plastic and other chemical products units. Keeping in view the fact that the district of Burdwan is agriculturally well developed, the govt. had rightly set up Hindustan Fertilizer Ltd. at Durgapur which produces various nitrogenous phosphatic and potassic fertilizers that have gone a long way in bringing about a significant increase in agricultural production not only in Burdwan district but also in other district of West Bengal.

There is a strong presence of the public sector outside Durgapur too. At Chittaranjan near Bihar-West Bengal border, we have the giant Chittaranjan Locomotive Works, which is the largest manufacturing and supplier of railways engines in India. Then there is the Indian Iron & Steel Co. (IISCO) at Burnpur near Asansol, an old plant which provides a lot of employment to the people of the district. At the same time, Govt. has also planned a massive modernization drive to modernize IISCO. Hindustan Cables at Rupnarayanpur is also a large public sector enterprise which has contributed to the economic and industrial development of the district of Burdwan through strong and varied backward and forward linkages. The Eastern Coalfields Ltd., the public sector mining company has helped the country utilizes its mineral resources for productive industrial purposes.

It is very interesting that the large public sector undertakings are all concentrated in the two western Sub-divisions of the district, viz. Durgapur and Asansol, while the three eastern districts of Burdwan, Kalna and Katwa have got very little share of the cake. This is true also for the private sector.

In the private sector also, there are a number of large scale industrial units which have supplemented the public sectors' efforts to industrialise the region. The J.K. Paper Mil of J.K. Nagar and Raniganj Paper Mill, Raniganj have helped spawn a number of small scale units manufacturing paper products. The Burn Standard Co. and Shanky Wheel are large private concerns based in Durgapur and have provided employment to thousands of people of Burdwan district. The IFB Agro at Durgapur caters to the needs of the agricultural sector of Burdwan district.

Though there are a number of large scale public sector and private sector units in the western part of the district, the fact which is most disturbing is that many of these units are not in particularly god shape owing to a variety of reasons like financial problems, outdated machinery, labour trouble, power shortage, etc

A list of some of the major large scale industrial units of Burdwan district is given below:

1) Durgapur Steel Plant, Durgapur
2) Alloy Steel Plant, Durgapur,
3) Hindustan Fertilizer Ltd., Durgapur
4) Durgapur Chemicals Ltd., Durgapur
5) Durgapur Projects Ltd., Durgapur
6) Chittaranjan Locomotive Works, Chittaranjan,
7) Hindustan Cables, Rupnarayanpur,
8) Indian Iron & Steel Company, Burnpur.
9) Damodar Valley Corporation, Durgapur
10) Eastern Coalfields Ltd., Asansol
11) J.K. Paper Mills, J.K. Nagar,
12) Raniganj Paper Mill, Raniganj,
13) Philips Carpon Black Ltd., Durgapur
14) Burn Standard, Durgapur
15) Shanky Wheel, Durgapur
16) IFB Agro, Durgapur
17) Dishergarh Power Supply Corporation, Dishergarh,
18) Chinakuri Power Station, Chinakuri
19) Aluminum Factory at Asansol.

Apart from these, several new industrial projects were implemented in the district during 2013. The list of projects implemented along with other details is given in the list below:

Sl.No	**Name of the Com**	**Product**	**Location**	**(Rs. In Cr.) Project cost**	**Direct Employment Potential**
1	Shyam Sel Ltd.	Sponge Iron, Steel Products, Captive Power Plant.	Burdwan	28	100
2	Shyam Sel Ltd. (Power Division)	Steel Products and Captive Power Plant.	Ranigunge	32	75
3	Shyam Ferro Alloys Ltd.	Steel Ingots / Billets.	Durgapur	42	150
4	Shri Ramrupai Balaji Sponge Iron,	Rolling Mill, Induction Furnace, Blast Furnace with Capitve Power Plant	Durgapur	175	450
5	Maheswari Ispat Pvt. Ltd.	Sponge Iron, Steel Ingot, Rolled products with	Kanksa Burdwan	62	315

		Captive Power plant.			
6	Shyam Shree Steels Ltd	Sponge Iron, Steel Ingot, Rolled products and Captive Power plant.	Durgapur	110	500
7	Adhunik Ispat Pvt. Ltd.	Sponge Iron, Steel Ingots with Captive Power plant.	Durgapur	88	300
8	Sova Ispat Alloys Ltd.	Ferro Alloys	Durgapur	26	750
9	C P Rerollers Pvt.Ltd.	M S Rolled products	Durgapur	27	200
10	C P Sponge Iron Pvt. Ltd.	Sponge Iron	Durgapur	30	250
11	Adhunik Corporation Ltd.	Sponge Iron, Steel Ingots	Burdwan	90	180
12	Haldia Steels Ltd.	Sponge Iron, Steel Ingots.	Burdwan	42	150
13	Graphite India Ltd	Graphite Electrodes	Durgapur	135	60
14	SAIL Bansal Service Centre Ltd.	HR Steel Products	Burdwan	150	250
15	Neo Metalics Ltd. C/O. Rupa & Co. Ltd.	Pig Iron, Coke, Ductile Iron	Burdwan	470	450
16	Jai Balaji Sponge Ltd.	Integrated Steel Plant, Captive Power Plant	Burdwan	650	750
17	Legancy Corporate Services Pvt. Ltd.	Rolled Steel Products	Asansol	30	150
18	Sri Ramrupai Balaji Steels Ltd.	Integrated Steel Plant, Captive Power Plant	Burdwan	1200	2250
19	Jagadamba Fiscal Services Pvt. Ltd Bidhan Commerce Complex	Pig Iron, Ductile Pipe	Durgapur	120	220
20	Shree Mahalaxmi Viniyog Pvt. Ltd.	Sponge.lron, Pig Iron	Panagarh	34	175
21	Birla Corporation Ltd.	Cement	Durgapur	75	40
22	Jagadamba Fiscal Services Pvt. Ltd.	Clinker and Cement	Durgapur	30	65
23	Mangalpur Jute Mill	Jute products	Durgapur	55	12000
24	Sneha Planners Ltd.	Diversified Jute products	Asansol	30	300
25	Bally Jute company Ltd.	Diversified Jute products	Asansol	30	300
26	Shyam Metalics Pvt. Ltd.	Pig Iron, Steel Billets, GI/ DI Pipes, Rolled products.	Ranigunge	90	4000

Several projects under large and medium scale are under construction in the district. The details are given in the table below:

Small Scale Industries :

In a distict like Burdwan which is both agriculturally and industrially well developed, it is only expected that a large number of small scale and ancillary industrial units will come up and flourish.

The State Govt. is actively promising MSE units as ancillaries to large and medium scale industries. Special efforts have been made by the State Govt. to motivate large public sector units to adopt MSE units as ancillaries.

An analysis of the above table shows that during 2012-13, the largest number of MSE units came up in the food products manufacturing sector . The principal agricultural crop of Burdwan district is rice and so rice mills abound in the district, specially in the eastern part. Wheat is another crop grown in the district and this provides enough justification. For the fact, that a large number of flour mills and bakeries operate and make comfortable profits. A large production of mustard seeds in the district has made obvious the existence of a number of small scale units producing mustard oil. Parts of Burdwan for example Shaktigarh and Burdwan town are well known all over West Bengal for their sweet-meat producing small scale units in the district. However, though there is large rural population in Burdwan district, the no. of small scale units producing Muri is extremely low which is a bit surprising in all, the food product manufacturing small scale units constitute around 47% of the total number of units. Manufacturing of basic metals and non-metallic mineral product is another important industrial activity of the district each of which constitutes about 10% of total MSE units (during 2012-13).

Besides, there are also several repair service units which are spread over all the parts of the district. As there are a number of industrial units – large, medium and small in Burdwan, repairing of machinery has become a profitable enterprise. Farming is a major occupation of the inhabitants of the district and a large number of peasants are well – to – do enough to use agriculture implements. This has given rise to a lot of repair units particularly implements. Then, there is the demand for repair of scooters, motor cycles and also four wheelers. As the district has relatively good road communication facilities and the transport sector is well developed, the small scale units offering repair services of motor vehicles are doing good business. Coming to the rural areas, the main means of transport along un-metalled village paths is the bicycle, and so small scale cycle repairing units have mushroomed all over the district. The district has also a sizeable middle class and upper middle class population both in the urban and rural areas, who use a variety of electrical gadgets and appliances. This has provided the small scale repair service units another

booming market. There are also many small scale units in the district who are engaged in repairing leather goods, shoes, etc.

Another significant category of industry, which has witnessed growth of several MSE units in the metal products manufacturing sector. It has already been mentioned that the three giant steel producing units viz. Durgapur Steel Plant, Alloy Steel Plant and Indian Iron and Steel Company have spawned a large number of downstream industries. So, does the Aluminum factory at Asansol. The metal produced by these units are used by the numerous metal product manufacturing small scale units. These MSE units manufacturer a whole host of items. The strong agrarian base of the district has encouraged a large number of these units to produce sickles, spades and agricultural implements. The urban housing boom has led to the setting up a huge number of units manufacturing steel gates and grills. For catering to the domestic needs of the people, both rural and urban, a number of small scale units manufacturing steel almirahs and utensils have come up in the district of Burdwan.

Wood product manufacturing small scale units also have a significant presence in Burdwan district. Most of these units make wooden furniture and fixtures, while some also produce sawn timbers. Apart from this, there are also a number of units manufacturing machineries and parts, units which act is ancillaries of large plants. Moreover, there are a number of small scale units producing non-metallic mineral products, paper products and printed materials, chemical and chemicals products and rubber and plastic products.

Lastly, there are concentrations of handloom and handicraft units in some parts of the district, for example, Katwa. It is worth noting that there are around 29 thousand handlooms operating in the district. Many handicraft units specializing in curious and decorative items have flourished in Burdwan district.

The registration figures of small scale industrial establishments have shot up in absolute terms during the last 5 years though the percentage increase in MSEs have shown a moderately rising rate from 2014-15 onwards. The table below shows the year wise number of registered MSME units in Burdwan district. Upto Septembed,2015 there were 7877units registered in Burdwan district.

EM-II registered since 2007-08 to 2015-15 (Upto September)				
Year	**Micro**	**Small**	**Medium**	**Total**
2007-08	719	127	0	846
2008-09	828	122	2	952
2009-10	686	58	1	745
2010-11	668	68	4	740

2011-12	872	109	3	984
2012-13	672	91	2	765
2013-14	861	90	0	951
2014-15	1084	98	3	1185
2015-16 (Upto September)	650	58	1	709
Total:-	**7040**	**821**	**16**	**7877**

Prior to the introduction of the Udyog Aadhaar, to obtain MSME or SSI Registration, two filing namely Entrepreneur Memorandum-I (EM-I) and Entrepreneur Memorandum-II (EM-II) had to be filed. With the introduction of Udyog Aadhaar, the process of obtaining MSME registration has been drastically simplified.

Ministry of Micro, Small and Medium Enterprises (MSME) has notified the Udyog Aadhaar Memorandum(UAM) under the MSMED Act, 2006 vide gazette notification [SO No. 2576(E)] dated 18-09-2015 in order to promote ease of doing business for MSMEs.

Udyog Aadhaar Memorandum(UAM) registration in respect of BURDWAN districtupto February,2016 is given below:

Year	Category	Micro	Small	Medium	Total
2015-16 (Upto February,16	Manufacturing	178	52	1	231
	Servicing	58	20	1	79
Grand Total:-		**236**	**72**	**2**	**310**

Medium Scale Enterprises

List of the units in Burdwan & Near By Area

Sl.No	Name of the Unit
1	P.R.S Agritech Pvt. Ltd.
2	Hariom Polypacks Pvt.Ltd.
3	Sova power Ltd.
4	Utasv Agro Products
5	Pinax Paper Mills Pvt.Ltd

6	Mahabir Polyfabs Pvt.Ltd.
7	Ajit Kumar Agro Products
8	Global Casting Pvt.Ltd.
9	Chabra Ispat Pvt.Ltd.
10	Golden Casting Pvt.Ltd.
11	Riju Cement Pvt.Ltd.
12	Dataji Food Products Pvt.Ltd.
13	Anjanay Rice Mills Pvt.Ltd.
14	Sova power Ltd.
15	Himsila Ferro Alloys Pvt.Ltd.
16	Maa Sherwali Ispat Pvt.Ltd.
17	Debnath Kagoj Udyou Pvt.Ltd.
18	East India Holdings Pvt.Ltd.
19	Utasv Agro Products Pvt.Ltd.
20	Sreemaa Polyfabs Pvt.Ltd.
21	Bansal Gil Extraction Pvt.Ltd.
22	Cemmix Structural Pvt.Ltd.
23	Suniti Paper Products Pvt.Ltd.
24	Ajoy Mondal Rice Mills Pvt.Ltd.
25	Brahm Alloys Pvt.Ltd.
26	Chabra Ispat Pvt.Ltd.
27	Baba Strip & Tubes Pvt.Ltd.

Potential areas in Small Scale Industries

After studying in detail the natural resources available in the district, the traditional skills with which the population is endowed, the level of literacy and the extent of

unemployment (which throws light on availability of manpower needed for industrial development), the existing infrastructure like roads, railway network, etc. the flow of credit, the district plans and very importantly, the demand supply gap for various products, the following prospective industries are proposed to be set up in Burdwan district. The study team has visited various towns, block headquarters, large, medium and small scale units and wholesale markets to draw up the list of prospective items. The list contains of resource based as well as demand based industries having scope for development in the small scale sector. The lists of these items are given below and project information of some of these items will be found in the Annexure.

(A) Resource based Industries

1) Potato processing
2) Rice flakes (poha) and rice processing
3) Oil milling
4) Semi-processing fruits & vegetables
5) Tomato processing
6) Spice grinding
7) Rice milling
8) Jam, jelly, etc. from fruits and vegetables
9) Rice bran oil
10) Vegetable dehydration
11) Wet blue tannery
12) Ginger oil and ginger powder
13) Fruit preservation and processing
14) Leather processing
15) Processing of pulses
16) Dairy farm
    Animal fat utilisation for production of pork choke and oil

B) Demand-based Industries

1) Bread and biscuits
2) Noodles and vermicelli
3) Instant food mixtures
4) Confectionery items
5) Instant breakfast food
6) Laminated jute bags
7) Printed shopping bags made of jute
8) Decorative jute wall hangings
9) Cotton blended shirts
10) Petti coats and blouses
11) Cotton shirts, shirts, pyjamas
12) Diversified jute products
13) Leather hand bags
14) Chappals and sandals
15) Industrial hand gloves
16) Cricket hand gloves
17) Leather suit-cases and travel items
18) Leather watch-straps
19) Leather belts
20) Leather wallets and key purses
21) Leather purses
22) Hawai chappals
23) Rubber moulded industrial products
24) Plastic blow – moulded products (up to 5 litres)
25) Plastic injection – moulded products
26) Pharmaceutical formulations (tablets, liquids and capsules)
27) Black disinfectant liquids
28) Mono-chloro benzene/Hexa chloro benzene
29) Paints & varnish
30) Coal-tar distillation product
31) Springs made of alloy steel
32) Manufacturing of structural
33) Conduit pipes
34) Re-rolling of plates and production of angles, joints, etc.
35) Cycle and rickshaw spokes
36) Aluminium stores
37) Gears
38) Hydraulic valves
39) Hydraulic valves (Gas line)
40) Alloy – steel making plant
41) Tool rooms
42) Photo – voltaic solar cells

43) Mining drills
44) Agricultural implements
45) Mixers and other civil engineering, material handling equipment
46) Insecticide sprayer
47) Fishing hook
48) House handware items
49) Automobile body building and repairing
50) Agro service cnetres
51) Chokes for tube lights
52) Measuring instruments – annameters, voltameters, etc.
53) Cold storage

Existing Clusters of Micro & Small Enterprise

Details for Identified cluster in West Bengal implemented by Directorate of Micro & Small Scale Enterprises					
Sl.	**Subject.**	**Name of the Clusters**			
		Rice Mill	**Wood Carving**	**Dokra**	**Red Bricks**
1	Principal Products Manufactured in the Cluster	Rice milling	Wooden Craft	Dokra Items	Brick
2	Name of the SPV	Burdwan District Rice Mill Cluster Association	Swami Janaki Das Natungram Wood Carving Artisans' Industrial Co-Operative Society Ltd.		Red Bricks Cluster Association
3	No. of functional units in the clusters	133	82	54	70
4	Turnover of the Clusters	Rs. 800 Cr.	Rs. 0.97 Cr.	Rs. 0.50 Cr.	Rs. 83 Cr.
5	Value of Exports from the Clusters	Nil			
6	Employment in Cluster	18000	200	160	6000
7	Average investment in plant & Machinery				

8	Major Issues / requirement	Lack of testing facility, economic utilization of husk.	Design & Skill development	Technology upgradation; quality of product; awareness on marketing	Modern technology; testing of clay; mould development; clay treatment
9	Thrust Areas	Modern testing laboratory, conversion of rice husk	Design & Skill development	Modern technology; strong marketing network; increase of productivity	Design development; R&D facility.
10	Problems & constraints	Finance; Marketing; Preservation; Pollution	Finance; Marketing	Lack of awareness; finance	Pollution; Finance; Low production

Vendorisation / Ancillarisation of the Industry

In a district like Burdwan which is both agriculturally and industrially well developed, it is only expected that a large number of small scale and ancillary industrial units will come up and flourish.

The State Govt. is actively promoting MSE units as ancillaries to large and medium scale industries. Special efforts have been made by the State Govt. to motivate large public sector units to adopt MSE units as ancillaries. The number of MSE units given ancillary status are:

Name of the Public Sector Unit		No. of units given ancillary status
1)	Durgapur Steel Plant	33
2)	Alloy Steel Plant	6
3)	Hindustan Cables Ltd.	6

4) Burn Standard Co. 9

5) Eastern Coalfields 83

Service Enterprises

Sl.No	Name of the Unit
1	Sahajpur Cold Storage Pvt.Ltd.

Potentials areas for service industry

Existing Cold Storages in Burdwan district

BURDWAN				
1	Agamani Samabay, Himghar, Vill. Kiskanda,	4000	Co-op	Potato
2	Agrasen Cold Storage, Vill. Bogemia, Satgachia.	19600	Pvt	Potato
3	Ambica Himghar, Jewdhara, P.O. Kalna	11147	Pvt	Potato
4	Annapurna Cold Storage, Vill. & P.O. Digha	3909	Pvt	Potato
5	Antpara Samabay Krishi Unnayan, Jhargram	10522	Co-op	Potato
6	Asansol Cold Storage, Raimani Lane,. Asansol	533	Pvt	Multipurpose
7	B. D. Cold Storage (P) Ltd., Vill. Ranibandh	16662	Pvt	Potato
8	Baba Kalu Roy Himghar (P) Ltd.	12948	Pvt	Potato
9	Banshi Coldstorage, Mayanguri	17300	Pvt	Potato
10	Bedia Cold Storage, Burdwan	4450	Pvt	Multipurpose
11	BENFED Himghar, P.O. Memari	4000	Co-op	Potato
12	Bengal Cold Storage, P.O. Katwa	7960	Pvt	Potato
13	Bharat Cold Storage, P.O. Katwa	4400	Pvt	Potato
14	Biswanath Cold Storage, P.O. Memari	6700	Pvt	Potato
15	Bulbulitala Cold Storage, Vill. Bulbulitala,	11500	Pvt	Potato
16	Burdwan Central Co-operativeColdstorage,Memeri	4049	Co-op	Potato
17	Burdwan Cold Storage, Bambattala, P.O. Joteram.	7754	Pvt	Potato
18	Damodar Cold Storage, G.T. Road, Burdwan	10941	Pvt	Potato
19	Debnath Cold Storage (P) Ltd., P.O. Kalna	14000	Pvt	Potato

20	Dharamraj Cold Storage, Burdwan	14000	Pvt	Potato
21	Durga Cold Storage, Vill. Assansole	3264	Pvt	Multipurpose
22	Durgamata Cold Storage, Vill. Kamalnagar,	4942	Pvt	Potato
23	G.D. Colldstorage,Belur,Raina-II	14000	Pvt	Potato
24	Ganada Cold Storage, P.O. Memari	10378	Pvt	Potato
25	Golock Cold Storage, Vill. & P.O. Memari	5977	Pvt	Potato
26	Guptipara Cold Storage, Guptipara	14054	Pvt	Potato
27	Hemanta Cold Storage, Vill. Khalispur, P.O. Bohar	12389	Pvt	Potato
28	Himalaya Cold Storage, P.O. Machkhanda	3500	Pvt	Potato
29	Jawala Cold Storage Ltd., P.O. Kosigram, Katwa	9250	Pvt	Potato
30	Jayanti Cold Storage, Burdwan	13788	Pvt	Potato
31	Jayswal Cold Storage, College Road, Raniganj	1850	Pvt	Multipurpose
32	Joyma Kali Cold Storage, Vill. Taklipur, Bhabapur	13600	Pvt	Potato
33	Kailash Cold Storage, Vill & P.O. Digha, Gushkara.	5068	Pvt	Potato
34	Kalimata Cold Storage, P.O. Memari	10537	Pvt	Potato
35	Kalishpur Coldstorage, Kalishpur	20600	Pvt	Potato
36	Kalna Block-II Co-op Cold Storage,Annada,Goda	10000	Co-op	Potato
37	Kalna Cold Storage, P.O. Kalna	9895	Pvt	Potato
38	Kalna-II CADP FSCS Ltd., P.O. Baidyapur	10000	Co-op	Potato
39	Kalyan Stores, Vill. Uttar Goara,	10838	Pvt	Potato
40	Kamal Cold Storage, Algharia.	12700	Pvt	Potato
41	Katwa Cold Storage, P.O. Katwa	6648	Pvt	Potato
42	Khajurdihi Samabay Himghar,. Khajurdihi	5600	Co-op	Potato
43	Krishak Kalyan Samabay Himghar,Kasimnagar(BENFED)	10000	Co-op	Potato
44	Krishna Cold Storage,Lakodi, Burdwan	12200	Pvt	Potato
45	Kulthi SKUS Samabay Himghar,Gram Kulti	10000	Co-op	Potato
46	Kunurika Samabay Himghar, P.O. Gushkara	10000	Co-op	Potato
47	Lucky Cold Storage, P.O. Surekalna, Jamalpur	6109	Pvt	Potato
48	Mahakali Cold Storage, Hat Bele, P.O. Kalna-I	18700	Pvt	Potato
49	Mahamaya Cold Storage, Vill. & P.O. Rasulpur	11918	Pvt	Potato
50	Memari Cold Storage, G. T. Road, P.O. Memari	12200	Pvt	Potato
51	Mogra Cold Storage, Vill. Mogra, Radhakantapur	11581	Pvt	Potato
52	Mohasakti Cold Storage, P.O. Chakdighi	16238	Pvt	Potato
53	Paharhati Co-operative C.S.	11300	Co-op	Potato
54	Prafulla Cold Storage, P.O. Chakdighi	10683	Pvt	Potato
55	Pratima Cold Storaje, Jamalpur	14000	Pvt	Potato
56	Purbasthali Block - II Co-operative Coldstorage	4000	Co-op	Potato

57	Raina Block-II Samabay Himghar Ltd	4000	Co-op	Potato
58	Raj Rajeswar Cold Storage, Vill. Sonerdanga,	9633	Pvt	Potato
59	Rameswarpur Cold Storage, P.O. Kalna	11229	Pvt	Potato
60	Ramnagar Cold Storage, P.O. Ramnagar	4980	Pvt	Potato
61	Ramrishna Cold Storage, Amadaplly,	4080	Pvt	Potato
62	Rasulpur Cold Storage, P.O. Rasulpur	5273	Pvt	Potato
63	Sajiara Faleya SKUS Ltd., Sajiara	75	Co-op	Multipurpose
64	Samudragarh Cold Storage, P.O. Samudragarh	17452	Pvt	Potato
65	Satima Cold Storage, P.O. Sripally	44600	Pvt	Potato
66	Satimata Himghar P.O. Gushkara	5948	Pvt	Potato
67	Sethia Jain Heemghar (P) Ltd., D.V.C. Road,	16681	Pvt	Potato
68	Seva Cold Storage, Vill. Kandar, P.O. Shaktigarh	5400	Pvt	Potato
69	Shaktigarh Cold Storage, P.O. Shaktigarh	12214	Pvt	Potato
70	Sharada Cold Storage, P.O. Memari	8942	Pvt	Potato
71	Sharma Cold Storage	2800	Pvt	Multipurpose
72	Shethia Cold Storage, Vill. Halara, P.O. Jamalpur	26644	Pvt	Potato
73	Shethia Jain & Co., P.O. Debipur	19455	Pvt	Potato
74	Shivashakti Cold Storage, G.T. Road,. Memari	9591	Pvt	Potato
75	Somnath Cold Storage, P.O. Parbatipur	33764	Pvt	Potato
76	Sri Durga Cold Storage, G.T. Road, P.O. Memari.	10900	Pvt	Potato
77	Sri Hanuman Ice & Cold Storage, Vill. Madhabpur,	5050	Pvt	Potato
78	Sridharpur Co-op. Bank Cold Storage C.S.	10000	Co-op	Potato
79	Srikrishna Potato Storage, Lichutala, P.O. Kalna	7800	Pvt	Potato
80	Sura Kalna Cold Storage, Surakalna	13636	Pvt	Potato
81	Swarna Himghar (P) Ltd., Ushagram,. Asansol.	2800	Pvt	Potato
82	Tirupati Cold Storage, P.O. Rasulpur	19554	Pvt	Potato
83	Tirupati Refrigeration (P) Ltd., P.O. Jamalpur	28777	Pvt	Potato
84	Utra Cold Storage, Bulbulitala, P.O. Khalishpur	9664	Pvt	Potato
85	Vikrampur Cold Storage, Vill. & P.O. Bohar.	19000	Pvt	Potato
	Burdwan	924124		

Growth Trend

Market analysis forms an important part of the industrial potentiality survey of a district because it provides some information on indicators such as nature of exchange, the level of economic activities, the possible extent of forward and backward linkages, the overall dynamics of wholesale and retail centres and the extent and quality of sales promotion and marketing

efforts of various agencies, etc. which prove to be very useful to planners, financial agencies and individual entrepreneurs in promoting small scale, cottage and village industries in a given region. As such, while planning the development of a district, considerable stress should be given on the creation of market infrastructure.

The district of Burdwan has 5 Sub-divisions and 31 blocks. In order to analyse the markets of the district, the study team visited some of its important district level and block level commercial centres, conducted market surveys and held discussions with the people engaged in commercial activities of the district. After cross checking various pieces of information, it was gathered that Burdwan district enjoys a comfortable position as far as marketing is concerned because it is very well connected with the huge market of Kolkata on the one hand and the towns of Bolpur, Bankura and also the North Indian States on the other. Burdwan district serves as a centre from where different types of consumer durables are supplied to the state of Bihar and to the neighbouring districts. Birbhum, Bankura and the coal belt of Bihar serve as ready markets for the myriad products of Burdwan district.

Moreover, the district itself provides a large market for its own products. The aggregate size of the consumer goods market of the district is significantly large. Field investigation also reveals that the urban centres, viz. Durgapur, Burdwan, Asansol, Raniganj, Chittaranjan, Kalna and Katwa have a large and growing middle class and upper middle class population and provide an attractive market for various consumer durables and non-durables. These urban centres also serve as wholesale markets as far as consumer goods are concerned and another basic function of these markets is to act as intermediate points for procuring consumer products from Kolkata and Burdwan and other parts of the State and for distributing the same to various markets both in the urban and rural areas in and outside the district.

Besides the urban centres, the rural areas of Burdwan district which are agriculturally well developed also provide a large market for consumer goods and agricultural implements.

Morevoer, the large and medium scale industries provide a large market for numerous MSE units, leading to a large degree of ancillarisation.

========XXX=======

CHAPTER – 6

PLANNING FOR INDUSTRIAL DEVELOPMENT

After studying in detail the natural resources available in the district, the traditional skills with which the population is endowed, the level of literacy and the extent of unemployment (which throws light on availability of manpower needed for industrial development), the existing infrastructure like roads, railway network, etc. the flow of credit, the district plans and very importantly, the demand supply gap for various products, the following prospective industries are proposed to be set up in Burdwan district. The study team has visited various towns, block headquarters, large, medium and small scale units and wholesale markets to draw up the list of prospective items. The list contains of resource based as well as demand based industries having scope for development in the small scale sector. The list of these items is given below and project information of some of these will be found in the Annexure.

CANDIDATE INDUSTRIES.

A) Resources-based Industries

1. Potato processing
2. Rice flakes (poha) and rice processing/puffed rice
3. Oil milling
4. Semi-processing fruits & vegetables
5. Tomato processing
6. Spice grinding
7. Rice milling
8. Jam, Jelly, etc. from fruits and vegetables
9. Rice bran oil
10. Vegetable dehydration
11. Wet blue tannery
12. Ginger oil and ginger powder
13. Fruit preservation and processing
14. Leather processing
15. Processing of pulses
16. Dairy farm

17. Animal fat utilization for production of pork choke and oil
18. Coal-tar distillation products.

B) <u>Demand-based Industries.</u>

1. Bred and biscuits
2. Noodles and Vermicelli
3. Instant food mixtures
4. Confectionery items
5. Instant breakfast food
6. Laminated jute bags
7. Printed shopping bags made of jute
8. Decorative jute wall hangings
9. Cotton blended shirts
10. Petty coats and blouses
11. Cotton shirts, shirts,
12. Diversified jute products
13. Leather hand bags
14. Chappals and sandals
15. Industrial hand gloves
16. Cricket hand gloves
17. Leather suit-cases and travel items
18. Leather watch-straps
19. Leather belts
20. Leather wallets and key purses
21. Leather purses
22. Hawai chappals
23. Rubber moulded industrial products
24. Plastic blow-moulded products (upto 5 litres)
25. Plastic injection- moulded products
26. Pharmaceutical formulations (tablets, liquids and capsules)
27. Black disinfection liquids
28. Mono-chloro benzene/Hexa chloro benzene
29. Paint & varnish
30. Detergent powder
31. Coal-tar distillation product
32. Springs made of alloy steel
33. Manufacturing of structurals
34. Conduit pipes
35. Re-rolling of plates and production of angles, joints, etc.
36. Cycle and rickshaw spokes
37. Aluminium stores
38. Gears
39. Tyre retreading
40. Hydraulic valves

41. Hydraulic valves (Gas line)
42. Alloy-steel making plant
43. Tool rooms
44. Photo-voltaic solar cells
45. Agricultural implements
46. Mixers and other civil engineering, material handling equipment
47. Insecticide sprayer
48. Fishing hook
49. House handware itmes
50. Automobile body building and repairing
51. Agro service centres
52. Measuring instruments – annameters, voltameters, etc.
53. Cold storage
54. Gate/Grill
55. Wooden furniture
56. Screen printing
57. Offset printing
58. Cyber café.

========XXX=======

CHAPTER – 7

PLAN OF ACTION FOR PROMOTING INDUSTRIAL DEVELOPMENT

Before suggesting any plan of action for industrial development SWOT (strengths, weaknesses, opportunities and threats) analysis is done for every district keeping in mind its importance and peremptoriness since every place of an economy is not bestowed with unmixed blessing. Hence, the SWOT analysis for the district of Burdwan has become inevitable and is depicted below :

Strengths:

i) Burdwan district enjoys a strong agricultural base and is rightly called the food bowl of Bengal. Rice is its major crop followed by vegetable, oil seeds and fibre crops. There is substantial agricultural surplus, which provides a foothold for the MSE sector to develop.

ii) There is a well established network of electric power with almost 100% of the mouzas being electrified 31 blocks have been electrified.

iii) Existence of a good network of a banking system ensures credit availability for the MSE entrepreneurs. The district is served by 303 bank branches which are fairly well spread over all the 31 blocks.

iv) A well branched and fairly equipped transport and communication system allows easy access to all corners of the district as well as to the surround districts and State. NH-2 or the famous Grand Trunk Road runs though the district, thereby connecting it to Kolkata and various parts of north India. As far as railways routes are concerned, the two important junctions of Eastern Railway, viz. Burdwan and Asansol lie in this district. To support the communication system, the district has 770 offices.

v) Among all the district of West Bengal, Burdwan is the riches as far as mineral resources are concerned. It is a storehouse of various minerals like iron shale, fire clay, china clay, the most important being coal, Asansol Sub-division and parts of Durgapur has rich coal deposits and is part of the coal belt, which extend into Bihar. Raniganj Coal Field is one of the oldest coal fields of India lies in this district. There are several other coal mines lying in Andal, Jamuria, Barabani, Faridpur and Salampur area.

Weakness :

i) Agriculture being the main activity, people are somewhat reluctant to start a industrial venture. A vast reserve of human resource thus remain utilize.

ii) The district lacks a proper data bank. Hence, the building rather prospective entrepreneurs are not able to take investment decisions.
iii) Incidence of sickness is MSE sector is found to be very high, new entrepreneurs seem apprehensive of pumping money into any industrial venture.
iv) Presence traditional culture has failed to kindle industrial growth.

Opportunities :

i) Development of industrial estates will induce new investment and in the process accelerate the pace of industrialization. In this context, work initiation by WBSIDC will provide opportunities to the budding as well as existing entrepreneurs to set up their venture
ii) Possibility of identifying major growth centre at Durgapur, Burdwan, Katwa, Kalna, Asansol and Raniganj will encourage setting up of a MSME units, thereby creating employment opportunities.
iii) Availability of skilled and semi-skilled labour in the district mitigates to a certain extend the problem of non-availability of skilled personnel to the MSE sector. Existing of a strong educational system including several polytechnic colleges and Regional Engg. College provides back up support in terms of availability of skill, technique and knowledge.
iv) The development of industrial sector will influence the overall development of the regions and thereby improve the standard of living of the local population.

Threats :

i) Erratic climate conditions, particularly with some parts of the district being flood prone while some parts being drought prone, quite often discourages entrepreneurs to take investment decision.
ii) Unorganized markets with price fluctuation create uncertainty about the availability of prime raw materials.
iii) There is possibility of creating and ecological imbalance due to rapid deforestation, changing topographic of land and utilization of large quantities of ground water.

Thus, the district of Burdwan is both agriculturally rich and industrially well developed, at least in comparison to the other district of West Begal. There are a number of giant public sector undertakings and also large factories belonging to the private sector, offering ample scope for ancillarisation, demand for raw material and prospects of forward linkage. There is a substantial marketable surplus of agricultural crops, a fairly large population of middle class salary earners and rich agriculturists who provide a market for consumer good and also well developed transport and communication facilities. Moreover, there are a quite a few technical institutions including one regional engineering college, polytechnics ITI. The district also enjoys state incentives and

subsidies. Despite, these advantages and facilities, small scale industries have not come as expected. Though there is no dearth of entrepreneurship, there is a lack of awareness about industry and a lack of familiarity with industrial culture among the local people. In view of the factors mentioned above, a plan of action on the lines indicated below is absolutely necessary .

1. Entrepreneurship Development Programme.

More entrepreneurship development programmes may be conducted at the district head quarters, industrial towns, sub-divisional towns and block head quarters by Governmental and non-Governmental organization (NGOs). These EDPs should focus on prospective industries of the particular areas, so as to maximize the effectiveness of the training programmes.

========XXX========

CHAPTER-8

Sample Project Profiles of Five Major Industries

(1)

PVC CABLES

Production Capacity (Per annum)

Machinery and equipments provided in the scheme can be utilized for the manufacture of wire types and signs as mentioned above. However, the commonly used wire for domestic purposes and the light wiring is 1.5 sq.mm. Annual capacity 36000 coils of 100 meters length in carton packaging. Value Rs. 72,00,000.

Quality Control and Standards

IS 694.

Motive Power 25 kw.

Pollution Control

The government accords utmost importance to control environmental pollution. The small-scale entrepreneurs should have an environmental friendly attitude and adopt pollution control measures by process modification and technology substitution.

India having acceded to the Montreal Protocol in September 1992, the production and use of Ozone Depleting Substances (ODS) like Chlorofluoro Carbon (CFC), Carbon Tetrachloride, Halons and Methyl chloroform etc. need to be phased out immediately with alternative chemicals/solvents. A notification for detailed Rules to regulate ODS phase out under the Environment Protection Act, 1986 have been put in place with effect from 19th July, 2000.

Energy Conservation

With the growing energy needs and shortage coupled with rising energy cost, a greater thrust in energy efficiency in industrial sector has been given by the Government of India since 1980s. The Energy Conservation act, 2001 has been enacted on 18th August 2001, which provides for efficient use of energy, its conservation and capacity building of Bureau of Energy Efficiency created under the Act.

The following steps may help for conservation of electrical energy.

i) Adoption of energy conserving technologies, production aids and testing facilities.

ii) Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation.

iii) Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and de-soldering stations.

iv) Periodical maintenance of motors, compressors etc.

v) Use of power factor correction capacitors. Proper selection and layout of lighting system; timely switching on-off of the lights; use of compact fluorescent lamps wherever possible etc.

FINANCIAL ASPECTS

A. Fixed Cost

(i) Land and Building

500 Sq. Meters Rented Rs. 10,000 @ Rs. 20 Sq. Meter

(ii) Machinery and Equipments

(a) Production Units

Sl.No	Description	Qty.	Value(Rs.)
1.	Laying machines, equipments with sector correction equipments	1	35,000
2	PVC Extruder and wire coating machine 65 mm complete with cooling through supply stand take up unit control panel with Automatic temperature indication controller.	1	5,00,000
3	Wire straightening equipment	1	10,000
4	Cable printing machine	1	10,000
5	Coil rewinding and length	1	25,000
6	Extrusion dies and nozzles etc.	L.S.	20,000
	Total		6,00,000

(b) **Testing Equipments**

Sl.No	**Description**	**Qty.**	**Value(Rs.)**
1.	Continuous spark tester 0-11 KV	1	15,000
2	Micrometer 0.23 mm LC 01	1	4,000
3	Travelling Microscope LC 0.001 Magnification 10 X	1	5,000
4	Chemical Balance 0-200 gms, Least measure 0-1 Mg.	1	2,000
5	Double Kelvin Bridge upto 5 Ohm least count 1 x 10^{-6}	1	10,000
6	Tensile testing machine Cap. Range 50-100-500 kg.	1	35,000
7	Electrically heated thermostatically controlled Air Cooled Oven, Size 450 x 450 mm^2 Temperature range upto 200$\pm$ 1^0C	1	15,000
8	Ageing oven fitted with vertical tubes	1	5,000
9	Pressure Test Apparatus	1	1,000
10	Stamping Dies	1	1,000

11	High Voltage Test set AC 0-10 KV	1	10,000
12	Insulation Resistance Tester 500 V DC	1	2,500
13	Hot water bath Temp. 80^{o} C + 2^{o} C	1	7,500
14	High Voltage Test Set DC 0-2 KV	1	4,0000
15	Fire Resistance Test Apparatus, complete with Burner, enclosure and stand	1	4,000
16	Mandril for bleading and Blooming test	1	750
17	Stop watch with stop and rest	1	250
18	Multimeter	1	3,000
	Total		1,25,000

© Electrification and Installation

(1) Cost of power connection 10,000

(2) Electrification and installation charges @ 10% of cost of machines and equipments 72,500

(3) Cost of office equipments etc. 50,000

(iii) Preoperative Expenses 20,000

Total Fixed Capital 8,77,500

B. <u>Working Capital (per month)</u>

(i) Personnel Salaries and Wages (per month)

Sl. No	Designation	No	Salary (Rs.)	Total (Rs.)
(a) **Administrative and Supervisory**				
	Work Manager-cum-Engineer	1	6000	6000
	Accountant	1	4000	4000
	Clerk/Typist	1	2000	2000
	Peon cum chowkidar	1	1500	1500
(b) **Skilled/unskilled workers**				
	Super visor	1	4000	4000
	Skilled worker	2	2000	4000
	Un-skilled worker	4	1500	6000
	Total (Salaries)			27,500
	Perquisites @ 15% of salaries			4,125
	Total			31,625
	Say			32,000

(iii) Raw Materials (per month)

Sl. No	Description	Qty.	Rate (Rs.)	Value (Rs.)
1	Tinned copper wire	2MT	75000/MT	150000
2	PVC compound (cable grade)	3.5 MT	50000 MT	175000
3	Polymer outer	1 MT	25000 MT	25000
4	Packing materials (polythene film)	3000	2/coil	6000
5	Packing Box	3000	2/box	6000
	Total:			3,62,000

(iii) Utilities **Rs.**

1 Power 4,000 units @ Rs.2.25/unit 9,000

2.Water 1,000

Total: 10,000

(iv) Other Contingent Expenses (per month) **Rs.**

1. Rent 10,000
2. Postage and Stationery 2,000
3. Telephone 3,000
4. Consumable stores 5,000
5. Repair and maintenance 5,000
6. Transport charges 10,000
7. Advertisement and publicity 10,000
8. Sales Expenses 5,000

Total: 50,000

(v) Total Recurring Expenditure (per month) **4,54,000**

(vi) Total working capital (for 3 months) **13,62,000**

C. Total Capital Investment

(i) Fixed Capital Rs. 8,77,500

(ii) Working capital for (for 3 months) Rs. 13,62,000

Total: Rs. 42,10,000

Machinery Utilization

Utilization of major machines is expected to be 80%

FINANCIAL ANALYSIS

1. Cost of Production (per year)	**Rs.**
a. Total recurring cost	54,48,000
b. Depreciation on machinery and equipment @10%	72,000
c. Depreciation of office equipment @ 20%	10,000
d. Interest on total investment	4,03,110
	Total: 59,33,110

2. Turnover (per year)

Production of 36,000 cols of 100
Meter each @ Rs. 200 per coil
Turnover 36,000 x 200 = **Rs.72,000.00**

3. Net Profit (per year)

= Rs. 72,00,000-59,33,110
= **Rs. 12,66,890**

4. Net Profit Ratio

$$= \frac{\text{Net Profit per year x 100}}{\text{Turnover(per year)}}$$

$$= \frac{12,66,890 \times 100}{72,00,000}$$

= **17.59%**

5. Rate of Return

$$= \frac{\text{Net Profit per year x 100}}{\text{Total capital investment}}$$

$$= \frac{12,66,890 \times 100}{22,39,500}$$

= **56.57%**

6. Break even Point

(i) Fixed Cost	**Rs.**

a) Depreciation	82,500
b) Rent	1,20,000
c) Interest on total capital investment	4,03,110
d) 40% of salary and wages	1,53,600
e) 40% of other contingent expenses(including rent)	1,92,000
Total :	**9,51,210**

(ii) Net Profit (per year)

B.E.P. Fixed cost x 100

= ----------

Fixed cost + Profit

= 951210 x100

951210 + 12,66,890

= **42.88%**

Addresses of Machinery and Equipment suppliers :

1. M/s Dhiman Engineering Works,
   2535, Prem Narain Street,
   Churi Walan,
   Delhi-110006.
2. M/s NSIC Limited,
   (Marketing Divn.)
   Industrial Estate,
   New Delhi: 110021.
3. M/s International Plastic Engineers,
   M-10, Street No.1, Indl. Estate,
   New Rohtak Road,
   New Delhi: 110005.
4. M/s. Golden Engineering Industries,
   8797, Shidipura Crossing,
   Rani Jhansi Road,
   New Delhi: 110005.
5. M/s. Blue State Ltd.,
   Bhandari House,
   91, Nehru Place, New Delhi.

Addresses of Raw Material Suppliers:

1. M/s. National Organic Chemical
   Industries Ltd.,
   Bank of Baroda Building,

Parliament Street,
New Delhi.

2. M/s Shriram Chemical Industries
Limited,
Shriram Nagar,
Kota.

3. M/s. Calico Plastics Ltd.,
Anil Chambers,
Mumbai.

(2)

FLY-ASH BRICKS

A. INTRODUCTION :

Fly Ash is one of the major waste materials obtained from thermal stations in the country using pulverized coal. According to present estimates, India is producing about 80 million tons of fly ash per annum which shall increase to 100 million tons by 2010. The waste material can be utilised as an integral mix with brick making soil yielding good quality building bricks. Bricks used in masonry construction work are of various kinds with different manufacturing processes, depending on the brick-mix contents.

1. Soil or mud stabilized bricks, in which no firing is needed.
2. Clay burnt brick.
3. Clay fly ash burnt bricks.
4. Fly ash lime stabilized bricks(without firing)
5. Sand lime auto claved bricks.

The manufacturing process for all the above bricks are different. The scheme envisages the manufacture of Fly ash lime stabilized bricks.

B. MARKET :

In modern civil engineering, for all constructional work brick is a basic material. This industry is very important for Housing development, P.W.D., Factories, Hospitals, Educational Institutions, Industrial Estates etc. The present demand for good quality building bricks is about 60 billion bricks every year in the country. Since the addition of fly ash in clay does not after the properties of the bricks, these can be used for all types of construction where normal clay building bricks are used. There is no need to explain its good scope and market demand in future.

C. BASIS AND PRESUMPTIONS :

1. The scheme is proposed to manufacture bricks for 300 working days in a year on a single shift basis.
2. The transportation from the source of fly ash to the unit is to be 50 to 75 km.
3. Margin money will vary from 25-35% depending upon the location and it is as per norms of the financial institutions.
4. Labour wages mentioned as per the prescribed minimum wages.
5. The interest rate on capital investment is considered at 15%
6. The land cost has been taken on an average rate applicable in areas outside the city.
7. Cost of machinery and equipment as per the prevailing market rates.
8. The full production capacity can be achieved, early in the 3rd year of production.
9. Operative period of the project. Depreciation rates on machinery and equipment and furniture has been taken at the rate of 15% and on building is at 5%.

IMPLEMENTATION SCHEDULE :

Activity	**Time in Months**
Project report preparation, selection of site and SSI Registration.	1
Application to the financiers for finance/loan, Process of application and sanction of the loan.	3
Construction of the factory shed and placement Of orders for machinery and raw materials.	3
Procurement of machinery and raw-materials.	1
Machinery erection and installation and electrification	1
Trial run	0.5
Actual commercial production.	0.5

Keeping in view, the overlapping of some of the activities, the total time of around 10 to 12 months may be needed to commence the production.

E.TECHNICAL ASPECTS :

1. Process outline :

Fly ash: For production of good quality fly-ash bricks , the quality of fly-ash should be maintained as under.

a) It may be either dry or moist(containing moisture not more than 5%)
b) Visual appearance should be light steel grey or smoking grey in colour. The brownish or light yellowish grey colour flyash is of inferior quality.
c) Containing about 5% un-burnt carbon

Fly-ash,lime, calcined gypsum,sand and aggregate are the raw material required for making flyash bricks/blocks. The raw-materials of brick mix in desired proportion are blended intimtely in dry or wet form in suitable blender/mixer. Water/brick mix ratio be maintained between 6 to 7%. The percentage changes with different brick-mix raw material ratio. The wet brick mix is fed into the machine mould. The vibration is given for a while and the mould is again fed. The stripper head is pressed and vibration is given simultaneously for about 10 seconds. The mould is lifted and 4 bricks produced, pallet is removed and kept on the platform for air-drying. The next day, the bricks produced on the previous day are put in the stack. The stack is formed with much care to see that curing water and air for drying reaches to every brick. After 3 days warm water on small quantities is poured on the stacked bricks without any pressure. After 5 days hot water is sprinkled on the brick stack for 2 times a day. The bricks stack after each watering are immediately covered with black PVC sheets. The curing is continued for 15 days and the PVC cover is removed. The bricks are then left in the stack for drying for 7 days. The bricks are ready for despatch after 22 days from the date of manufacture. The compressive strength of the brick produced from the brick-mix and manufacturing process suggested herein will be 80 kg/cm^2 to 110 kg/cm^2

2. Quality Specifications :

For production of good quality fly ash bricks, the quality of fly ash shall be maintained as under:-

i) It may be either dry or may contain moisture not more than 5%.
ii) The colour should be either light steel grey or smoke grey.

Bricks conforming in the range of grade 50 to 300 as prescribed in IS:3102-1976 can be used for all types of brick masonary, pavings and soiling purposes.

3. Production capacity per annum :

Item	Quantity in thousands	Value (Rs.)
Fly ash bricks	*950*	*15,60,000*

4. Power requirement 25 HP

5. Pollution control: There is no specific pollution control needs/requirement of this type of industry. Only the workers may be provided with the dust masks during mixing period.

6.Energy conservation Not applicable as far as fuel energy is concerned. Simple precautions and knowledge of effective utilisation of electrical power is necessary.

F. Financial Aspects :

1. Fixed Capital :
Land and Building :

Land ½ more. Rs. 1,25,000

Building particulars.	Area in sq.mtrs.	Rate/sq.mtrs.	Cost in Rs.
Godown(Raw material)	30	2500	Rs. 1,25,000
Production area	150	2000	Rs. 3,00,000
Wet drying area.	100	2000	Rs. 2,00,000
Office	30	5000	Rs. 1,50,000
Tube well with overhead tanks, pipe lines pipe fittings etc.			Rs. 30,000
Other civil works like boundary & gate etc.			Rs. 20,000
		Total cost of land & building	Rs. 9,50,000

2. Machinery & Equipments :

Sl.No.	Description	Indigenous/ Imported	Qty.	Price(Rs.)
1.	Pan Mixer	Indigenous	1	1,60,000
2.	Brick making machine with 15 HP motor.	-do-	1	3,00,000
3.	Wooden pallets.	-do-	60 Nos.	1,60,000
4.	Pallet car	-do-	4 Nos.	40,000
5.	Moulds for making solid blocks of various sizes.	-do-	20 Nos.	24,000
6.	Hand Tools & Misc.equipment	-do-	-	6,000
7.	Office furniture & Equipment	-do-	-	35,000
8.	Electrification and installation	-do-	-	25,000
	Total cost of machinery & equipment			7,50,000

3. Preoperative expenses : 50,000

Total fixed capital(1+2+3) Rs. 17,50,000

4. Working Capital(P.M.)

i) Personnel:

Designation	No.	Salary(Rs.)	Total(Rs.)
Administrative & Supervisory			
Manager	1	4000/-	4,000
Typist/Clerk	1	2000/-	2,000
Peon	1	1500/-	1,500
Chowkidar	1	1300/-	1,300
Technical-Skilled & Unskilled			
Machine Operators	2	2400/-	4,800
Semi-skilled workers	2	2000/-	4,000
Helpers.	4	1600/-	6,400
		Total Salaries :	22,700
(+) Perquisites @ 15% of salaries(P.M.)			3,400
		Total :	26,100
		Say	26,000

ii) Raw Materials(P.M.)

Particulars	Indigenous/Imported	Qty.	Rate(Rs.)	Value(Rs.)
1. Fly Ash	Indigenous	60 MT	Rs.300/-ton	18,000

2. Lime	-do-	30 MT Rs.1800/-ton	54,000
3. Cal.Gypsum	-do-	10 MT Rs.2000/-ton	20,000
4. Sand and fines Aggregate	-do-	200 MT Rs.170/MT	34,000
		Total cost of raw materials	1,26,000

iii) Utilities(P.M.)

Power 3000 KWH units @Rs. 5.40/- - unit	16,200
Water	1,800
Total cost of utilities.	18,000

iv) Other contingent expenses(P.M.)

Postage and stationery	Rs.	1,500
Travelling expenses	Rs.	1,500
Insurance	Rs.	1,800
Advertisement and Publicity	Rs.	2,200
Repairs and maintenance.	Rs.	1,500
Consumable stores	Rs.	3,000
Miscellaneous expenses.	Rs.	12,000
Total cost of other contingent expenses:	Rs.	23,500

v) Total recurring expenditure(P.M.)

Personnel	Rs.	26,000
Raw materials	Rs.	1,26,000
Utilities	Rs.	18,000
Other contingent expenses	Rs.	23,500
	Rs.	1,93,500

vi) Total working capital (on 3 months basis):

Rs. 1,93,500/- x 3 = Rs. 5,80,500/- or say Rs. 5,80,000/-

5. TOTAL CAPITAL INVESTMENT :

i)	Fixed Capital	Rs. 17,50,000/-
ii)	Working capital for 3 months	Rs. 5,80,000/-
	Total (i) + (ii)	Rs. 23,30,000/-

G. Machinery Utilisation :

Mixing, moulding and curing are the three major operations in the manufacture of fly ash bricks. Mixing can be done in the pan mixer and curing can be done by sprinkle methods with the help of jute cloth. Hence the unit may face the bottleneck operation in moulding while manufacturing the fly ash bricks.

H. Financial Analysis :

1. Cost of production per year.

	Rs. In lakhs
Total recurring cost per year.	23.22
Interest on total capital investment.	3.48
Depreciation on machinery @ 10%	0.70
Depreciation on furniture @ 20%	0.07
Depreciation on building.	0.40
	27.87

2. Turnover (Per year)

Item	Qty. in thousands.	Rate per 1000 bricks	Value(Rs.) in lakhs
Fly Ash	950	Rs. 3400/- 32.30	Rs. 32.30 lakhs

3. Net profit per year :

H2 – H1 = Rs. 32.30 - Rs. 27.87 = Rs. 4.43 lakhs

4. Net profit ratio : $\frac{\text{Net profit per yer x 100}}{\text{Turnover per year}} = \frac{4.43 \times 100}{32.3} = 13.7\%$

5. Rate of return $\frac{\text{Net profit per year x 100}}{\text{Total investment}} = \frac{4.43 \times 100}{23.3} = 19\%$

6. Break Even Point:

1. Fixed Cost :

a)	Insurance	Rs. 15,000/-
b)	Interest on total investment	Rs. 3,48,000/-
c)	40% of salaries	Rs. 1,24,000/-
d)	40% of other contingent expenses	Rs. 1,12,000/-
e)	Depreciation on furniture.	Rs. 7,000/-
f)	Depreciation on buildinhg	Rs. 40,000/-
g)	Depreciation on machinery	Rs. 70,000/-
	Total Fixed cost :	Rs. 7,17,600/-
	Say :-	Rs. 7,17,000/-

2. Net profit per year: Rs. 4,43,000/-

B.E.P.% = Fixed cost x100 / Fixed cost + profit = 7,17x100 / 7,17 +4.43 = 62%

Addresses of machinery & equipment suppliers :

1. M/s.Susanji Udyog(P)Ltd. C-47,Indl.Estate, Sanathnagar,Hyderabad-18.
2. M/s. Pratap Industries, Enkipadu(P.O.,Vijaywada-321-108
3. M/s. Engineers Enterprises, S.F. 315,Muthuswamy Nagar,Ganapathy, Coimbatore-641 006.
4. M/s.Minato Shirke Concrete machines(P)Ltd. 72-76,Mundhvala,Pune-411 036.
5. M/sHindustan Engg.Co. 123/7, G.L.Tagore Road,Kol-108.

Addresses of Raw material suppliers :

Fly Ash :

1. Durgapur Steel Plant,Durgapur
2. Alloy Steel Plant Durgapur
3. Kolaghat Thermal Power Station, Kolaghat,Midnapur
4. M/s. Mandel Thermal power,Bandel, Hooghly.

Sand & Aggregate : Local sources.

Calcined Gypsum: M/s. Saravana Fertilizer and Chemicals, 80,Syrong Street,Cuddalore – 607 003 Tamilnadu.

Lime : Local sources.

(3)

CEMENT CONCRETE BRICKS/BLOCKS.

Capital Investment: Rs. 9,95,500/-

Quality and Standards: (1) Specification sizes as per consumers choice.

(2)Concrete Masonry Blocks

IS:2185(Pt.I)1979: Hollow solid

(3) Concrete blocks.

IS:2185(Pt.2)1983: Hollow and solid

Light concrete blocks.

INTRODUCTION:

Cement concrete dense/hollow bricks and blocks are very popular and are extensively used in building construction throughout the country. The advantages of using these bricks are higher strength, higher structural stability and durability compared to fly ash based building bricks or KB bricks. It has adequate benefit over fire resistance, insulation and sound absorption properties.

The cement concrete blocks have an attractive appearance and are readily adaptable to any style of architecture. It lends itself to a wide variety of surface finishes for both exterior and interior walls.

The blocks are used for both load bearing and non-load bearing walls where dampness and rainfall or natural calamity prevails most of the time these blocks have good advantageous use.

The blocks are made out of a mixture of cement, sand and stone chips. With the use of these blocks in masonary there is a saving in cement, steel, time and labour compared to other bricks.

A. MARKET:

The cement concrete dense/hollow bricks and blocks are replacing conventional building bricks gradually due to inherent properties like strength, size accuracy and insulation. These are used both for laying load bearing and non-load bearing walls. Cost of blocks are low compared to cost of red bricks.

C. BASIS AND PRESUMPTIONS

a. The profile is prepared for automatic building blocks/bricks making plant with 80% machinery capacity utilisation.
b. The unit will be in operation 300 days in a year on double shifts basis a day.
c. The full capacity utilisation can be achieved within 6 months of regular production.
d. The salary and wages have been considered as per the prevailing market rates and as per minimum wages act.
e. The promoter may be arranged around 10% of the margin money as per the norms of the financer.
f. Rate of interest on both fixed and working capital has been considered as 13%.
g. Operative period of the project has been considered as 10 years and the repayment of loan is mentioned accordingly.
h. Cost of land and building and machinery have been considered as per prevailing market rates.

D. IMPLEMENTATION SCHEDULE:

The regular commencement of production will take around 6 months after availability of finance from the Financial Institution.

(i) Survey for the collection of data in respect of demand availability of power ,water and raw material etc.	0 to1st month.
(ii) Preparation of project documents registration and arrangement for margin money	1st to 2nd month.
(iii) Arrangement for Financial assistance	2nd to 4th month.
(iv) Selection of land and development of land	3rd to 4th month.
(v) Power and water tie-up for availability	3rd to 4th month,
(vi) Construction of building and shed	4th to 6th month.
(vii) Purchase of Machinery and equipment	4th to 6th month.
(viii) Purchase of raw material and recruitment of Personnel	7th to 8th month.
(ix) Trial run	9th month.

E. TECHNICAL ASPECTS:

a) Process in brief:

The process of manufacture of cement concrete brick/block is simple and quite suitable to start. All the three raw materials are available in open market. All these are to be mixed in concrete mixer in 1:3:6 or 1:5:6 or 1:2:4 proportion depending on the type of construction and strength required. For higher strength and good finish a mix ratio of cement: sand: stone chips = 1:2:4 can be used. The first two ratios are used for normal load bearing construction. The water cement ratio is approximately 0.44:1. The sizes of stone chips generally should be bellow 12 mm and well graded. (Different grades of stone chips of 2mm to12 mm should be mixed to get minimum porosity.)

The mixer is collected in tipping barrows and fed into the mould of the hydraulic or mechanical tempting machine and vibrated to ensure complete compactness. Now the blocks are placed on the floor for 24 hours for initial setting. The products are stacked in layers and cured by sprinkling water for 21 days. Then the bricks /blocks are allowed to dry before use to avert drying shrinkage.

Compressive strength obtained of these bricks are in the range of 30-50 Kgs./cm.^{2}. The blocks produced in different shapes and sizes are as under:

100 x 200 x 400 mm

200 x 200 x 400 mm

75 x 200 x 400 mm

150 x 200 x 400 mm

b) Quality Standards/ Specification:

IS: 2185(Part 1&2): Hollow and solid concrete block

IS 383-1970: Specification for coarse and fine aggregates from natural resources of concrete.

IS 2572-1963: Code of practice for construction of hollow concrete block machinery.

IS: 456-1965:

c) Approximate motive power requirement: 16 Kw

d) **Pollution control need:**

There is no specific pollution control need of this type of industry. However, the workmen working with powdered materials during mixing operation may be provided with dust mask.

e) **Energy conservation needs :**

Necessary care has to be taken for effective and efficient utilization of available man and machine hours including electrical power consumption.

f) **FINANCIAL ASPECTS :**

Land/Building : ½ Acre Own

Shed 300 sq. ft.@Rs.300/sq.ft. Rs. 90,000/-

Machinery & Equipment:

Concrete block making machine With vibro-compaction type with 10 HP motorand other accessories	1 no.	Rs.3,50,000/-
Concrete mixer 10 cft Capacity With other accessories,motor capacity 10 HP	1 nos	Rs.1,30,000
Ram & Mould of different sizes	10 sets	Rs.50,000
Tipping barrow 4cft and 7 cft capacity	2 sets	Rs.10,000
Hand trolley, Wooden pallets etc	4 sets	Rs. 80,000
Tulu pump with motor 1/2 HP cap.	1 set	Rs. 5,000
Electrification and Installation		Rs. 48,000
Office furniture	L.S	Rs. 45,000
	Total	**Rs.7,28,000**

Total fixed capital investment: Rs.8,08,000/-

1) **Working Capital**

a) Personnel (Per month)

i) Manager (self) --------

ii) Supervisor cum office asst. 1 no Rs. 8,000/-

iii) Machine operators 3 nos. Rs. 15,000/-

iv) Unskilled workers 5 nos Rs. 20,000/-

Rs. 43,000/-

b) Utilities and other expenses (Per month)

i) Power 2500Kwh@5/unit Rs. 12,500/-

i)	Water	Rs. 1,000/-
ii)	Postage and stationery	Rs. 1,000/-
iii)	Telephone , Advertisement and sales	Rs 1,500/-
iv)	Repair and Maintenance	Rs. 1,000/-
vi)	Consumables, Misc. other expenses	Rs. 1,000/-
		Rs. 18,000/-

c) Raw materials(per month)

i)	Cement	25 MT @3,500/- per MT.	Rs. 87,500/-
i)	Sand 9 MT	@2000/-/M.T.	Rs. 18,000/-
ii)	Stone chips 3500 cft	@6/-	Rs. 21,000/-
			Rs.1,26,500/-

d) Total recurring Expenditure(Per month)

i)	Personnel	Rs. 43,000/-
ii)	Utility and other expenses	Rs. 18,000/-
iii)	Raw materials	Rs.1,26,500/-
		Rs.1,87,500/-

5) Total capital Investment

i)	Plant and Machinery	Rs.8,08,000/-
ii)	Working capital for 1 months	Rs.1,87,500/-
		Rs. 9,95,500/-

MEANS OF FINANCE:

Promoter's contribution 10%	Rs. 99,550/-
Bank loan 90%	Rs.8,95,950/-
Subsidy 25%	Rs.2,48,875/-

Cost of Production (Per annum)

i)	Total Recurring Expenses	Rs. 22,50,000/-
ii)	Depreciation on Building/Shed@10%	Rs. 4,500/-
iii)	Depreciation on Plant & Machinery@15%	Rs. 48,000/-
iv)	Depreciation on Furniture@20%	Rs.. 9,000/-
v)	Rate of interest on Capital Investment @ 13%	Rs. 1,16,474/-
		Rs.24,27,974/-

6) Turn over (Annual)

By selling cement concrete, dense/Hollow brick, blocks of assorted sizes.After allowing rejection as said in the Production target Total 3,60,000 Nos. of bricks/Blocks @ 8/-Per block.

Rs.28,80,000/-

8) Profitability Analysis

i) Net Profit (P) Rs.4,52,026 /-

ii) Net profit ratio (%) = (Net Profit/ Annual T.O) x100= 18.6%

iii) Rate Of Return (%)=(Net Profit /Total invest.) X100 = 45.4%

iv)Break- Even- Point(B E P):
(FCx100)/ (FC +Profit) = **51%**

Fixed Cost:

i) Total Depreciation	Rs.	61,500/-
ii) Interest on investment	Rs.	1,16,474/-
iii) 40% of salary and wages	Rs.	2,06,400/-
iv) 40% of other expenses	Rs.	86,400/-
	Rs.	4,70,774/-

IX. ADDRESSES OF SUPPLIERS OF MACHINERY:

1. M/s Elson Vibro Concrete Block Machine, Kathiawar Metal & Tin Works (P) Ltd., Ishati Plot, Sunder nagar, Rajkot-370003
2. M/s Sayaji Iron & Engg. Co., Chilani Road, Baroda-2
3. M/s Esvee Engineers, B-164, Janta Colony, Jaipur-302004
4. M/s. Minato Shirke Concrete Machines Pvt. Ltd., 72-76, Industrial Estate, Mundhwa, Pune-41103

(4)

BONECHINA ART& NOVELTY WARES.

PRODUCT	:	Bone China Art and Novelty wares including toys.
QUALITY AND STANDARDS	:	As per Consumers Specifications.
PRODUCTION CAPACITY :		72,000 pcs./annum.
MONTH AND YEAR OF PREPARATION	:	December, 2007.

INTRODUCTION :

Ceramic Art and novelty ware are familiar for their irresistible artistic, decorative and asthetic appeal. Broadly, the products may cover such items as Ashtrays, flower vases, figurines , Lamp bases, statues, decorative trays, souvenirs, toys and table wares including coffee Mug, Decorative plates etc. However apart from technological parts, working with such product requires a good deal of imagination, artistry, design and aesthetic sense. Thus, to be precise, the products knows no bounds in their ranges and limits in innovations.

For this reason, the products are always preferred by a section of consumer's for the purpose of preservation thereof as specimen of art, as also for regular usage.

MARKET :

Besides their considerable demand from within the country, ceramic art wares and toys also have a very good export potential. The products are usually value added and highly priced. With the application of innovative ideas, newer design features and modern technology, the sphere of market is expected to widen both in the indigenous as well as export market.

BASIS AND PRESUMPTIONS :

The unit will work on single shift basis for 300 working days in a year. However, the kilns and furnaces of semi-continuous nature may have to be operated throughout the year depending upon the requirements. The plant will operate on 70% capacity in the first year, and subsequently achieve upto even 80% capacity utilisation in the next two years. Salaries and wages have been computed keeping in view the minimum permissible wage limits. Interest on investment has been considered at a flat rate of 12% flat. The entrepreneur will bear the expenses towards margin money to the extent Of 25% of investment.

IMPLEMENTATION SCHEDULE :

Market study and preparation of project documents	1st month
Registration	2nd "
Financial sanction	3rd-6th "
Construction of shed and placement of order For machineries.	6th-7th "
Arrangement of required power	6th-8th "
Installation of machineries	9th-10th "
Recruitment of personnel	9th-10th "
Procurement of Raw-Materials	9th-10th "
Trial Run	11th "
Commercial production	12th "

TECHNICAL ASPECTS :

All the required raw-materials including Bone Ash, Feldspar, China/Ball Clays etc. are obtained in coarsely ground condition and weighed in requisits proportion as per batch composition. The materials are charged in a Ball Mill for further wet grinding and mixing as per requirement and discharged in a Blunger where suitable quantity of electrolyte and other essential additives may be mixed therewith.

The casting slip, thus obtained, will be used for fabrication by way of slip casting only. However a small quantity of the clay ship may be further de-hydrated and used for fabrication by manual jiggering. The required de-hydration of the clay slip may be effected in a plaster of paris vat, separated by a thick cloth in between the clay slip and the vat, so as to obtain the desired plastic body. This process will eliminate the use of Agitator tank diaphragm pump, filter press and Pug Mill thus saving investments thereof.

For the purpose of slip casting of the desired designs, suitable clay/plaster models are prepared and plaster moulds thereof are taken out, which are finally used for slip casting. When a number of moulds of the same design are required. A mother mould from the same, mould is prepared and working moulds are subsequently taken out from the same.

Mostly, the articles are to be shaped by clip casting in plaster moulds. Some articles may be shaped by the process of jiggering or throwing in a potter's wheel. They are then dried, finished, applied with glazes and decorations followed by bisque gloats firing. The decorations may include under glaze, overglaze, transfer printing, embossing etc.

It is proposed to work primarily with bought out glazes and colours. However, possibilities of testing and working with small untidy of certain uncommon varieties at times may not be ruled out. Provision for a small laboratory has therefore, been provided in this profile together with other essential equipment. For the purpose of firing, a shuttle kiln has been proposed which will eliminate the requirement of kiln furniture for covering the wares. However, refractory setters for setting the wares are proposed to be manufactured within the works by slip casting. Firing of the wares may be effected at temperature ranging from 1100°C to 1250°C depending upon the type of firing objects and the nature of decoration applied thereupon. Usually, bisque firing is done at 1250°C while that of the glost firing at 1100°C.

Quality Specification :

As such, there is no standard specification laid down for the purpose of manufacture of art and novelty wares. The products will, therefore, be manufactured as per market demand and customers' specifications.

iii) Production capacity (Per annum):

a)	Quantity	:	80,000 pcs.
b)	Value	:	40.50 lac.

iv) Power requirements : : 30 H.P.

v) Pollution Control :

Necessary arrangements to control airborne dust and emissions during operations of the machines and the kiln are required to be ensured as per the Pollution Control Act.

Energy Conservation :

All necessary precautions so as to ensure energy conservation must be adopted. A new generation shuttle kiln has been provided in the profile which will take care of the conservation of energy as compared to the coal fired down draught kilns.

FINANCIAL ASPECTS :

FIXED CAPITAL :

Land & Building :

Land	1500 sq.mtrs.		Rs.2,50,000/-
Building :-			
Office	20 sq.metres.	60 sq.mts.	
Stores	25 sq.metres.	@Rs.2000/-	Rs.1,20,000/
Laboratory	15 sq.metres.	Per sq.metre	
Work -shed	300sq. meters	@Rs.1000 per sq.m.	Rs.3,00,000/-
Water pump set, raw materials storage bins, Overhead tank, pipelines, amenities etc.		L.S.	Rs. 50,000/-
			Rs. 7,20,000/-

B. Machineries & Equipments(Indigenous):

Production unit :

Sl.No.	Description	Quantity	Price (in Rs.)
1.	Ball Mill(3' dia x 3' face) complete with porcelain balls, lining, 5 H.P. motor, starter and accessories. Capacity : 150 kgs. of batch material along with 300 kgs. of grinding pebbles.	1	1,00,000/-
2.	Ball Mill(2' dia x 2' face) complete with porcelain balls and lining, 3 H.P.motor, starter and accessories. Capacity : 50 kgs. of dry material alongwith 100gs. of grinding pebbles.	1	65,000/-
3.	Pot Mill consisting of 3 pots of standard size, self driven complete with 1 H.p. electric motor, starter & C.I. stand etc.	1	20,000/-
4.	Vibrating sieve (600mm x 600mm) with all accessories and 1 H.P. Motor.	1	15,000/-
5.	Electromagnetic separator with rectifier.	1	10,000/-
	Hexagonal Blunger vat (PVC moulded) size : 3'x3', capacity : 500 litres, complete with stirrer, 1 H.P.Motor.	1	10,000/-
7.	Potters wheels, connected with a common line shaft and operatedby motor of 2 H.P.	2	10,000/-
8.	Jigger Jolly for shaping with 1 H.P.Motor.	2	25,000/-
9.	Glaze spraying out fit with motor, compressor and accessories.	1	20,000/-
10.	Painters wheels	2	5,000/-
			Rs 2,80,000/-
C.	**Electrification and installation**		Rs. 30,000/-
Testing Equipment			
Muffle furnace, quick heating			
Type, chamber size : 6"x6"x12"			Rs. 1,00,000/-
Analytical and pan type weighing scale.			
Alterberg apparatus			
Misc. glass apparatus			
Apparatus for testing green MCR			
			Rs. 4,10,000/-
E.	Stools, modelers and throwers tools, Casting tables, drying equipments, wooden Racks, stands, wheel barrows etc.		Rs. 30,000/-
F.	Cost of office equipment and furniture		Rs. 20,000/-
	Total cost of machineries & equipment :		**Rs. 4,60,000/-**

Kilns:

i)	Ceramic fibre lined shuttle/push bat kiln with two cars control system, capacity upto 300 kgs. per cycle.	Rs. 8,00,000/-
ii)	Electric Kiln(Pit type),Capacity : 3 cft	Rs. 30,000/-
iii)	Crucible type frit furnace	Rs. 20,000/
		Rs. 8,50,000/-
	Gross total (S.No. B to G) :	Rs. 13,10,000/-

Working capital/P.M. :

i) Personnel :

Designation	**No.**	**Salary/PM(in Rs.)**	**Total Salary(in Rs.)**
Manager-cum-Ceramist	1	5,000/-	10,000/-
Supervisor	1	3,000/-	3,000/-
Designer-cum-Modeller	1	4,000/-	4,000/-
Clerk-cum-Typist	1	2,000/-	2,000/-
Skilled Workers	4	2,500/-	10,000/-
Unskilled workers	4	2,000/-	8,000/-
Peon-cum-Watchman	1	2,000/-	2,000/-
			39,000/-

Raw-materials(Indigenous):

(Raw-materials have been assessed considering 15% breakage and wastage.

Sl.No.	**Raw Material**	**Quantity(in M.T.)**	**Rate(Rs.)**	**Price(in Rs.)**
1.	China Clay	1	4000	4000
2.	Ball Clay	0.5	3000	1500
3.	Feldspar	0.5	3000	1500
4.	Bone Ash	1.0	7000	7000
5.	Gypsum	1.0	4000	2000
6.	Fire Clay x Grog	0.5	3000	2000
7.	Misc.chemicals	L.S.	-	5000
8.	Glazes & transfers	L.S.		3000
				26,000

Utilities :

Power charges for machineries(30 H.P.)	Rs. 10,000/-
L.D.O(5000 litres) @Rs. 30/- per litre	Rs. 1,50.000/-
	Rs. 1,60,000/-

Other contingent expenses :

Postage and stationary	Rs. 1,000/-
Consumable stores	Rs. 1,000/-
Repair & Maintenance	Rs. 5,000/-

Advertisement & Publicity	Rs. 1,000/-
Packing materials	Rs. 10,000/-
Trnsportation	Rs. 2,000/-
	Rs. 20,000/-

Total Recurring expenditure(per month):

Personnel	Rs. 39,000/-
Raw materials	Rs. 26,000/-
Utilities	Rs. 160,000/-
Other contingent expenses	Rs. 20,000/-
	Rs. 2,45,000/-

vi) Total working capital(3 months basis): Rs. 2,45,00 x 3 = 7,35,000/-

Total capital investment :

i)	Fixed capital	Rs. 20,30,000/-
ii)	Working Capital	Rs. 7,35,000/-
	Total	**Rs 27,65,000/-**

6. Machinery utilisation : 1st year - 60%
IInd year- 70%
IIIrd year - 80%

Financial Analysis :

Cost of production(Per year)

Total recurring cost	Rs. 29,40,000/-
Depreciation on building @ 5%	Rs. 35,000/-
Depreciation on machinery & equipment @ 10%	Rs 28,000/-
Depreciation on Kiln @ 20%	Rs. 2,60,000/-
Interest on capital investment @ 12%	Rs. 3,31,800/-
Total :	**Rs. 35,94800/-**
Say :	**35,95,000/-**

Turnover :

(After allowing 15% margin towards breakage wastage and rejections, the net available saleable quantity will be 80,000 pcs.)

By sale of :-

i)	40,000 pcs. 1st quantity @ Rs.55/- per piece	Rs. 22,00,000/-
ii)	30,000 pcs.IInd " @ Rs.50/- per piece	Rs. 15,00,000/-
iii)	10,000 pcs. IIIrd " @ Rs. 35/- per piece	Rs. 3,50,000/-
	Total :	**Rs. 40,50,000/-**

3. Net profit per year (Before Income Tax):
Rs. 40,50,000/- - Rs.35,95,000/-= Rs.4,55,000/-
Net profit ratio : 11.23%
Rate of Return : 16.45%

Break-even point(% of total production envisaged)

Fixed cost :

Depreciation on Building	:	Rs. 35,000/-
Depreciation on machineries	:	Rs. 28,000/-
Depreciation on Kilns	:	Rs. 2,60,000/-
Interest on investment	:	Rs. 3,31,800/-
40% of salary	:	Rs. 1,63,200/-
40% of contingent expenditure	:	Rs. 96,000/-
		Rs. 9,14,000/-

ii) Break-even point - $\frac{\text{Fixed cost x 100}}{\text{Fixed cost + Net Profit}} = \frac{\text{Rs. 9,14,000x 100}}{\text{Rs 9,14,000+ 4,55,000}}$

$\frac{\text{Rs. Rs. 9,14,000x 100}}{\text{Rs. 13,69,000}} =$ 66.76%(Approx.)

ADDITIONAL INFORMATION :-

Addresses of Machinery and Equipment Suppliers :

1. M/s. Keshab Machineries Pvt.Ltd.,
   Bose Park, Sukhchar, Dist : 24 Parganas(N) West Bengal
2. M/s. Kiln and Machineries
   Sarkarpara, P.O.Sheoraphuli, Dist : Hooghly, W.B.712223(Kilns).
3. M/s. Sabarwal Metal Industries,
   9,Industrial Estate,Kalpi Rd.Kanpur- 208 012(UP)
4. M/s. Modern Engg. & Fabricating Works,behind Kuleswar Mahadeva,
   Saijpur(Ambavadi)Narada Road,Ahmedabad.
5. " Saboo Engg.Works,
   Kuchaman Road,Rajasthan-341 509.
6. " Perfect Machine Tools Corpn.
   1,Smith Road,Madras-600 001.
7. " St.Vincent Industries,Convent Road,Calicut (Kerala)
8. " Jacea Traders,12,Gitanjali,1st Floor,P.B.No.378,Bombay-400 005.
9. " Associated Industrial Furnace,238-B,
   AJC Bose Road,Cal-20.(Shuttle Kiln)

Addresses of Raw Material Suppliers :

1. M/s. Allied Agency, 16,Bonfield Lane,Cal-1.
2. " Calcutta Mineral,31,Jackson St.,Cal-1.
3. " Krishna Mineral Industries,1/1,Chitpur Ghat Lane,Cossipur,Cal-2.
4. " Gajanan Minerals(P)Ltd.B-47, 1st Phase,Adityapur Indl.Area,
   Jamshedpur,Bihar
5. " Radhika Minerals,C-1,130-131,Ricco Indl. Area,Bewar,Rajasthan
6. " Murugappa Morganite Ceramic Fibres Ltd.
   28,Rajaji Road,P.B.No.1570,Madras- 600 001

(5)

COLD STORAGE

Target:

Storage Capacity :- 450 MT,

Value :- Rs. 22,50,000/-

Power Requirement :- 30 HP.

Financial Aspects:

Land % Building

a) Land – 2000sq.mtrs. @ Rs. 200/- per sq.mt = Rs 4,00,000

b) Building- 5500sq.ft.@ Rs.400/- per sq,ft. = Rs. 22,00,000

c) Insulational charges (L.S) = Rs. 2,50,000

Total:- Rs.28,50,000

Machinery and Equipment:

1) Heavy duty Ammonia Compressor with standard accessories
2) Ammonia air cooling units with equipments
3) Ammonia receiver
4) Heavy duty industrial double cylinder,vertical reciprocating Ammonia compressor
5) Atmospheric type Ammonia Condensorsmade of pipe with stands
6) One set of Ammonis pressure gauge (3 sets)
7) One Ammonia receiver size 12”x20”withy flanges

8) One 25 HP meter with 1440 RPM suitable for operation on 400/40 volts 50 cycles AC supply
9) Starters,drive accessories slid rails,belt guard
10) Other equipments such as condensers,pumps,GI Ammonia pipe fittings,switches,boards,wire,cable conducts,fittings ect.
11) Let pn suction line insulation,one direct on line starter
12) Two standard cold storage doors having clear opening of 2' -5' X 6' - 3'with auxiliary frame
13) Water spray pipe size 20'
14) Gas header,liquid header And fitting
15) Foundation rods,piston guide,fly wheel,suction and discharge valve assembly oil pump with filter and pipe line
16) Ammonia cooling coils made of ¼ " or 1" pipe

a) Total Cost of Manhines And Equipments = Rs. 9,00,000/-

b) Erection and electrification = Rs. 50,000/-

Cost of office equipments-

c) Working tabte,chair,computer ect. = Rs. 50,000/-

Total:- Rs. 10,00,000/-

Pre –operative expenses:

Like fees for prepration of project report,deposit to

Electricity Board ect. Rs. 30,000/-

Total Fixed Capital :

Land and Building -- Rs. 28,50,000/-

Machinery and equipments -- Rs. 10,00,000/-

Pre-operative expenses -- Rs. 30,000/-

Total:- Rs. 38,80,000/-

Working Capital (per month):

i)personnel

Sl.No	**Description**	**Nos.**	**Amount (Rs.)**
Administrative & Supervisory			
i)	General Manager-Cum-Accountant	1	5,000
ii)	Clerk-cum- Store keeper	1	4,500
iii)	Peon-cum-Watchma	2(@3000/-)	6,000
Technical			
iv)	Refrigeration Engg.	1	7,500
v)	Mechanic	1	5,000
vi)	Skilled Workers	3(@4,500/-)	9,000
	Perquisites @ 15% of salaries		5,550
	Total:		**42,550**

i) **Raw Matyerials** = NIL

ii) Utilities (per month):

a) Power = Rs. 15,000/-

b) Water = Rs. 3,000/-

Total:- Rs. 18,000/-

iii) Other expenses per month :

Sl.No	**Description**	**Value(Rs.)**

a	Consumable stores (Ammonia ect.)	3,000
b	Repair and maintenence	7,500
C	Transport charges	3,000
d	Insurance	4,500
e	Misc.expenses	4,000
	Total:	**22,000**

iv) Total recurring expenses(per month):

Sl.No	**Description**	**Value(Rs.)**
a	Personnel	42,550
b	Raw materials	Nil
C	Utilities	18,000
d	Other expenses	22,000
	Total:	**82,550**

v) Total Capital Investment:

Sl.No	**Description**	**Value(Rs.)**
a	Fixed Capital	38,80,000
b	Working Capita (for 3 months)	2,47,650
	Total:	**41,27,650**

Say Rs. 42,00,000/

FINANCIAL ANALYSIS

1) Cost of Production (per year):

Sl.No	**Description**	**Value(Rs.)**
a	Total recurring cost per year	9,90,600

b	Depreciation on building	1,22,500
C	Depreciation on machinery & equipment	90,000
d	Interest on total capital investment	7,56,000
	Total:	**19,59,100**

2) Turnover (per annum):
Potatoes,Vegetables Ect. 450 MT @ Rs. 5000/- = Rs. 22,50,000/-

3) **Net profit per year :** Turnover (-) cost of Production
= 22,50,000 /- - 19,59,100/-

= 2,90,900 /-

4) Nat Profit Ratio:

Net Profit per year X 100 2,90,900 X 100

---------- ------- = ----------

Turnover per year 22,50,500

5) Rate of Return:

Net Profit per year X 100 2,90,900 X 100

---------- ------- = ----------

Total Investment 22,50,000

6)Break Even Point:

i)**Fixed Cost:**

Sl.No	**Description**	**Value(Rs.)**
a	Depreciation on building	1,22,500

b	Depreciation on machinery	90,000
c	Interest on total investment	7,50,000
d	40% salary and wages	2,04,240
e	40% of other expenses	1,05,600
Total:-		**12,72,340**

vi) Net profit per year :

$$\text{Break Even Point: } = \frac{\text{Fixed Cost X 100}}{\text{Fixed cost + Annual Profit}}$$

$$= \frac{12,72,340 \text{ X } 100}{16,63,240}$$

$$= \textbf{81.4 \%}$$

========XXX========