

Research Study on Rural Industrialization in Bihar



Submitted to

Planning Commission
(SER Division)
Government of India
New Delhi



Submitted by

Aseed Centre for Social Audit and Research
Asian Society for Entrepreneurship
Education & Development (Aseed)

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Education & Development (Aseed)**



Aseed

C-8/8007, Vasant Kunj, New Delhi - 110070

Telefax : 91-11-26130242/26130635

E-mail : training@aidmat.com; Website: www.aseedinternational.com

PREFACE

Study on Rural Industrialization in Bihar has unearthed a wide gap between potentials and productivity of the State's resource in terms of agriculture and other allied sector exploring it's nexus with industrial opportunity. Rural Industries have been defined as an appropriate blend of traditional and modern industries. However, the multi-sector coordination and interdependence of several functionaries demand critical attention in the proposed strategy.

We are deeply indebted to STFB Planning Commission, SER Division for having entrusted us the onerous task of study on rural industrialization in Bihar. Special initiative by the Chairman STFB and his guidance to the team has been very inspiring. The limited time frame and voluminous field work has posed challenge to us while completing the task. The support of the State Government particularly Industries Department, Government of Bihar deserve special mention here. Bihar State Development Commissioner's office and planning department, for extending their supportive network in data collection, has been very encouraging.

Last but not the least, we owe a lot to the several stakeholders/state government field officers and Aseed's secretarial and research team in completing the task within the given time frame.

Dr. Nagendra P. Singh
Chairman, ASEED, New Delhi

Date: 2nd January 2008

STUDY TEAM

Dr. Nagendra P. Singh, Team Leader

Dr. C.K. Ambastha Senior Advisor Research, ASEED

Dr. R.K.P. Singh, Senior Advisor, Farmers Commission, Bihar

Mr. Atul Shekhar, National Project Coordinator, ASEED

Field Support Team

Dr. Anish Kumar, Senior Research Officer, ASEED Bihar

Mr. Ajay Kumar, State Coordinator, ASEED Bihar

Mr. S.Hussain, Senior Project Coordinator, ASEED, New Delhi

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

Executive Summary

Bihar happens to be the second highest rural population below poverty, (44.3%). As per the Planning Commission Report (2001), the rural poverty in Bihar was substantially higher than urban poverty (32.9%). It was further projected that the rural poverty was to the extent of 43.18% even at the end of the year 2006-2007. This very clearly shows that decline in the rural poverty has been dismal during the last 7 years and with 9 out of every 10 persons in Bihar living in villages, poverty in Bihar is significantly a rural phenomena. Creation of rural employability amongst youth through rural industrialization is one of most potent way to address gravity of such a problem

The anxiety over the rural poverty in Bihar gets further deepened by the categorical statement made in the document on approach to 11th five year plan of Government of Bihar that is based on the household survey, conducted by the State government. State is characterized by high unemployment and under employment on the one hand and low productivity of those who are already employed on the other.

A. Financial Infrastructure & Institutional Finance

1. State department needs to develop it's own data base of several centrally assisted projects that requires strong partnership with non-governmental organisations with the local monitoring . The State of vocational education is virtually non-existent in Bihar. However, there

are 58 Industrial Institutes (ITIs) and Industrial Training centres (ITCs). Of the ITIs, seven ITIs are exclusively for women, and the seating capacity of all the ITIs is reported to be 14968. In terms of population coverage, there is one ITI per 10 lakh population, where as it is 2 lakh in U.P., and 5 lakh in Punjab and so on. Apart from the limited coverage, the existing ITIs are in extremely bad shape as far as infrastructure, equipment and teaching manpower are concerned. Other technical educational institutions, such as Polytechnics, Engineering Colleges, Medical Colleges, Dental Colleges, Pharmacy educational institutions, as well as Information The size of industrial sector in Bihar, in terms of income is hardly 3.2% of net domestic product of the State, where as the national average works out to 20.1%. As to the existing industrial units in Bihar, they cover a range of products including petroleum products (because of Barauni refinery).

2. However as per the local quotients, food products, tobacco products, leather products,, non metallic products have become prominent constituents of industrial base in Bihar, though group of industries, comprising of cotton, jute, wool, paper, rubber, plastic and chemicals also have their presence in smaller ways. In this context it may be further mentioned that agro- based industries occupy a prominent place in the industrial scenario of present Bihar as they account for nearly half of the net value added. Incidentally, during the last two decades agro-based industries viz; tea in Kishanganj district, dairy sector through cooperatives, and makhana industries have shown increasing trend. It is, however, noteworthy that 35 districts, do not have even a single medium large industrial unit and another 11 districts have less than 5 units each.

B. ROLE OF PRIVATE SECTOR IN RURAL INDUSTRIALIZATION

1. Overall position of physical infrastructure in the state is far from satisfactory. General level of development is low because of inadequate infrastructure on road and power where, private entrepreneurs have just begun to take interest. Massive construction of roads by private contractors and state bridge corporation has been taken up that will take sometime to show its impact
2. Chamber of commerce and industry association in the state are to play their active roles to influence the policies and provide the proper linkages to the market outlet. However, industrial area authority and the huge number of sick industries in the state project a serious concern due to pathetic role of private players in the state economy.
3. There is no such major retail market lead taken up by any known private players except Vishal retail at Patna. However efforts are on to mobilize 'Ambanis and Mahendra' to take the lead as private players. Innovative projects may be taken up for economic activation through cluster intervention by independent bodies under the leadership of the industries department .There is significant step taken up by the state government in this regard particularly in Handloom cluster . Strategy is being evolved to examine closer partnership with ministry of textile government of India

C. OPERATING MECHANISM AND STRATEGIC INTERVENTION

1. Dwindling interest in farm occupation has been visible in small sized farm holders compared to large sized ones. It may be due to the fact that low size farms no longer remain commercially viable holdings. Zonal picture, also supports the above hypothesis on the issue of productivity. Of course large sized farm respondents were more commercially attuned than small and medium sized farm respondents.
2. This observation clearly supports the common belief that poor households in development process need greater participation. Hence, any economic programme including rural industrialization must target poor households in Bihar as a pro-poor strategy. Ironically it was found that 42.67 percent of households had surplus income than expenses. It could drive us towards viable microfinance initiative through non governmental intervention in close partnership with formal banking set up of the state.
3. It also suggests that strong self-help group movement at the village level for economic activation would encourage sustained credit and thrift strategy for viable livelihood programme since poor are looking for such credible institutions. **Jeevika-livelihood project** initiated with the support of World Bank has made a significant move in this regard in different districts that have been selected to take up such intervention.
4. The analysis clearly indicates that the land base is still the main determinant of economic status of rural households in Bihar. In such a case farm intervention through strategic alliance with other departments must become part of the proposed and current rural industrialization programme. How long we can expect to alleviate the poverty of the rural poor through agriculture commercialization where the interest and extension orientation has come to a grinding halt for

quite some time. State horticulture mission has just taken off the ground in new work climate that might give momentum to abridge the gap. National mission has been networking with some NGOs for recruiting to employ the right team for impacting the delivery process, where the ground perception of such a process is not so positive.

5. To begin with, the State Government should consider popularizing the use of Solar Photo Voltaic Technology extensively in Bihar, particularly in rural areas to meet their immediate power need for light, fan, electrical or electronic gadgets. It will provide them pollution free energy. Thus, their children can study at night in better and healthy environment, the traders/ shop keepers/ artisans will get light for extending the hours of their gainful activities at night, radios television can be used for information & entertainment, people will have better family & social interaction at night. There may be solar street light, telephone booth etc in the villages and so on. Panchayati Raj Institution can take up this responsibility of promoting standard quality of stand alone Solar Home lighting systems, street lights in the villages. However, temptation of giving subsidy on a large scale for this purpose should be avoided as far as possible. It can at best be linked with village /cottage industries, or any income generating activities in villages. However, State Government should arrange to conduct free demonstrations of photo voltaic technology/ Solar Home Lighting System, free training to develop chains of supply and after sale services in the villages with the help of NGOs, and manufacturers of solar home lighting systems (SHLS). It will create additional self employment opportunities also. Financial institutions may be roped in to provide credit facilities for installation of SHLS. It has already started happening in other States, including Bihar.

Recommendations:

1. As regards Governance, it was felt by all stake holders¹that the cost of governance need not be added. However, there is an urgent need to have a semi-autonomous unit with the leadership of secretary industry GOB to supervise, coordinate and promote the RIP. Considering the magnitude and complexities, the State Government may consider establishing a specially dedicated Directorate of Rural and village industries (RVI) under a senior administrative officer with a State Steering Council, chaired by the Chief Minister or by the Dy chief Minister and co-chaired by the Industrial Development Minister with the representation of the heads of all the cross functional departments, expected to coordinate with the directorate of RVI for creating necessary infrastructural support and resource building as well as reasonable representation from functional clusters to facilitate implementation of the rural industrialization program in the State Departments like those of agriculture, rural development, social welfare, planning, panchayat Raj including coordinating head of the SLBC & national financial institution.. Secretary Industries Development would act as a nodal departmental head. The function of the council is to integrate all the concerned departments to impact rural economy.
 2. Alongside, Rural & village Industrialization Coordination Committee should also be constituted at District level under the chairmanship of District administrative head for ensuring proper grass root level coordination in planning and implementation of the program, that integrates all the departments.
-

3. The areas that have been identified as surplus in crop, vegetable and fruit production need to develop economic cluster. Such adjoining areas should be clubbed together to form clusters. For example, such clusters may be formed in Rohtas, Bhojpur, Aurangabad, Arwal, and some parts of Patna districts for paddy, and wheat, in Begusarai, khagaria and Samastipur districts for winter maize, in Patna, Nalanda, Aurangabad, Jahanabad and other such districts for Potato & green vegetables, in the districts of Muzaffarpur, Samastipur, Darbhanga and Bhagalpur for fruits and spices, in districts like, Sitamadhi, Darbhanga, Madhubani, Supaul, Saharsa, Purnea, and Katihar for makhana and so on similarly such pockets may also be identified in the State, though such pockets may not be in a position to be clubbed. Apart from upcoming opportunities for promoting rural industries there, these pockets may also serve as feeders for other major agro-industries centers.
4. All necessary infrastructural development like, rural extension set up for technology transfer, timely supply of quality inputs, storage, road & transport, power supply, irrigation system etc should be undertaken intensively in and around such clusters to increase and sustain agricultural modernization. Like wise such infrastructure build up should also be made available in and around the specially identified pockets to demonstrate the impact of undertaking commercial farming.
5. Special emphasis should be given to those high yielding varieties, which may be suitable for processing industries and growing off season vegetable crops in appropriate intercropping systems to enhance per unit area production. Vegetables alone could be used for producing a variety of products, such as potato chips, tomato powder/puree/juice/pulp/sauce, chilly powder/sauce/pickle, apart

from dried canned and frozen cauliflower, peas, cowpea, carrot, etc. This would open a great avenue for packaged food industries.

6. Similarly a variety of fruits, such as litchi, guava, mango, jack fruit, lemon, bael, pine apple, banana etc. is grown in Bihar. Appropriate extension programmes should be initiated for their rejuvenation and area expansion to provide enough raw material for promoting appropriate agro-industries to produce amchur, mango juice, mango pickles, green mango drinks/juice, guava juice/ jelly, lemon juice, lemon pickles, lemon-cordials amla murabba, Amla pickles , banana chips, banana powder, litchi juice etc. North Bihar offers great potentials in this regard.
7. In certain pockets of Bihar, such as in the districts of Katihar, Purnea, Madhepura, Saharsa, Kishanganj etc. jute is grown extensively. It may be used to promote jute based industries to produce carry bags, carpets, ropes etc.
8. Expansion of dairy, poultry and fisheries can be very good in Bihar. Bihar and adjoining states, including Nepal can be good market for fresh or frozen products of fisheries/poultry as well as for milk powder, butter, ghee, bottled scented milk, icecream etc. Hence, it will be desirable to put appropriate emphasis on their large scale promotion along with creation of appropriate infrastructure to support such industries
9. Apart from agro-based industries, Bihar has the potential to promote metal product industries, drugs and pharmaceutical industries, leather industries, electronic as well as electrical goods industries, traditional

industries, like handlooms, powerlooms, knitting, embroidery, painting, as well as small scale industries, such as lime based industries, stone chips industries silk weaving and printing industries, glassware industries etc. The respective clusters should be given due infrastructural support for their expansion, technological upgradation, and attractive appreciation in the economic return on investment.

10. Rural market for rural entrepreneurs need improved services for users to facilitate marketing of the local produce, creating an element of market security for the growers. It can also be effective credit, marketing link up point. It may be provided with mobile banks on haat days by Gramin Banks provided rural banks take that lead in this regard. NGOs and local lead bank need to evolve close partnership to work in partnership for several DRDA Programmes.

INTRODUCTION

1.0 Introduction

Growing concerns towards the Rural Industrialization in Bihar has set challenges of complex nature. An economy that demands aggressive growth driven interventions has deep seated economic disparity in different pockets.

In the emerging socio economic scenario of the state, the challenging agenda is to enhance the priority of rural employment generation and reduce the dependency on agriculture while strengthening local delivery mechanism and institutions. Bihar has a paradoxical mix of abundance versus scarcity of resources. For quite some time large industries have not been able to make a dent in the region and exodus of capital investment has been visible due to invisible social and physical infrastructure.

Sustainability of rural industries has assumed a critical area of attention in most of the third world countries. The mere fact that products of rural industries do not attract an appropriate market, points to missing gaps on policy and programmes of rural industrialization in different states.

The question is whether we make an aggressive focus on the preservation and revitalization of traditional industries with or without program for integrated rural industrialization. How do we help rural industries to play an effective role in integrating the rural areas into the overall industrialization process?

Rural industrialization has been defined as an establishment and promotion of industries which largely utilizes rural resources and rural skills irrespective of size and ownership, production skill, capital employed technology and market. Therefore, its basic character reflects the synthesis of traditional and modern rural industries. This raises several strategic concerns of clarity of approach and

governance as well. In view of the aforesaid merit issue of rural industrialization, therefore, needs to be viewed from an integrated mode.

Should we make an attempt to understand the market opportunities for rural products along with the state's development priorities and chalk out a strategy where rural industries have an important role to play? Rural enterprises can then become both an engine of growth as well as major contributor to the reduction of rural poverty.

Keeping in view the above, following critical concerns have been redefined in order to evolve the strategy of rural industrialization in the state of Bihar.

1.1 Definition of Problem

As far as Bihar State is concerned, 44.3% of its rural populations lived below the poverty line which happened to be the second highest in the country. As per the Planning Commission Report (2001), the rural poverty in Bihar (44.3%) was substantially higher than urban poverty (32.9%). It was further projected¹ that the rural poverty was to the extent of 43.18% even at the end of the year 2006-2007, this very clearly shows that decline in the rural poverty has been dismal during the last 7 years and with 9 out of every 10 persons in Bihar living in villages², poverty in Bihar is significantly a rural phenomena. The anxiety over the rural poverty extent in Bihar gets further deepened by the categorical statement made in the document ³on approach to 11th five year plan of Government of Bihar that based on the household survey, conducted by the State government, the figure of rural population below the poverty line may be even larger. This gains credence, since the State is characterized by high unemployment / under employment on the one hand and on the other, low productivity of those who are already employed. An analysis of NSSO data on employment/unemployment reveals that the estimated number of

¹ Planning Commission, 2001

² Census of India ,2001, Series 11 (P.27)

³ Vision for Accelerated Inclusive Growth, Government of Bihar (2006)

unemployed persons in Bihar in 1999-2000 was of the order of 23.97 lakh persons, of which 20.33 lakh persons belonged to rural areas, constituting 84.81% of the unemployment. This apart, most of the workers in the State are engaged in low paid agricultural activities either as self employed or as casual labour. This has extremely adverse impact on the per capita income of Bihar. As per an analysis⁴ per capita income gap between present Bihar and India as a whole was to the extent of 30.66% during the year 2004 or as wide as 44.5% during the year 2000 between erstwhile undivided Bihar and India as a whole question is why is it so when Bihar too is apparently endowed with rich resources base.

1.2 Critical Concerns and conceptual frame of RIP*

Although the state of Bihar has inherent strength to develop its own plan to address the huge rural unemployment problem, evident from the massive seasonal migration of labour to western India and other job centric regions of the country, job opportunities have been curtailed to bare minimum point over the years in the absence of industries, based on its rich agrarian resources.

If the informal and formal sector put together defines the character of rural industries, how do we rebuild the fledgling economy of the state to address the huge rural unemployment with concurrent infrastructure development process? What are the possible coordinating mechanisms that need to be devised with several stake holders' government, Banks and industries, entrepreneurs in addition to NGOs and other private players? In the light of the aforementioned conceptual frame, rural industries may be divided into two broad categories, namely (i) Traditional Rural Industries and (ii) Modern Rural Industries.

Traditional rural industries will employ those industries in rural areas, which are labour intensive, using existing rural skills and locally available raw material, and are specially identified with low cost traditional technology, low level of investment,

⁴ Bihar Development Report, Institute for Human Development, New Delhi (P.32)

* Rural Industrialization Programme will be used as RIP

small scale of production as well as limited local marketing etc. Cottage/household industries, handicraft, pottery, paper/leaf plates, dairy, mushroom cultivation, bee keeping, handmade carpets, jute/wood products, leather products, agro-processing, etc may be some such industries in this category. As to the modern industries, it would include (i) modern small/ tiny industrial units, and (ii) large and medium industries, using locally available raw material as well as those obtained from other region or State, upgraded local skills, modern technology, specially trained rural manpower in manufacturing, fabricating, and assembling modern products including electronic/electric goods etc which have wider market and so on.

Some plead that the problem of rural industrialization was never considered as an aspect of spatial diversification of industries, addressing the wider question of local flexibility, economies of scale and agglomeration of infrastructure, incentives and concessions. Rather it was viewed in terms of a limited concept of promoting village industries. Under such a limited approach, a vicious circle of static technology, competition from substitutes and low income elasticity of demand are natural outcome.

Some of us tend to dispute the fact that rural industrialization could reduce, if not stop, skill drain from the countryside in search of gainful and alternatives employment . *But the fact is everyone agrees that it will also have a significant spin-off for agricultural development. The creation of better rural infrastructure could raise agricultural productivity through the provision of better roads, canals, storage facilities, and commerce, transport and communication facilities. There will also be increased availability and improved capacity for the maintenance, repair and improvement of farm machinery. Further it would also help in the reduction of regional disparities through identification, development and creation of clusters of desired economic activities.*

The typical rural character of the economy is heightened by the absence of support industries i.e. heavy dependence of communities on agriculture with limited diversification to non-farm or cash crops. The rural non-farm economy, therefore,

plays a significant role in providing employment and income for the poor in rural areas in most Asian countries and its importance is rising since neither agriculture nor industry alone can absorb the increased labor. Non-farm sources of income for the rural poor are important since their direct agricultural income is not enough to sustain their livelihood either because of landlessness or insufficient owned or tenanted land and also wage employment in agriculture is highly seasonal and requires supplementation of income during lean periods.

- *Of course the non-farming sector provides a cross cutting functional blend of manufacturing, service and trade activities that meets employment for both men and women in rural areas. It also forges linkages between rural and urban areas. Its undisputed ability to unload the heavy dependence on agriculture needs no mention. However, let us accept the fact that more than key sector of industrial scene of the state it is the sub - sector analysis that draws significance. While the state has begun responding to the compelling needs of the region, an aggressive launch on rebuilding institutional and physical infrastructure has set a climate of optimism.*
- *The concern voiced above does demand detailed analysis and strategic view on how to formulate an action plan for the same. The gap analysis on agrarian productivity versus industrial productivity may throw some light. The essence of agrarian resource and its potential towards industrial value creation has been known to many yet we have not made a move in this regard due to limited nexus between agriculture and industry sector in the state.⁵*

In view of the above, prospect of rural industrialization in Bihar has to its advantage a wide range of product segments to be given effect to, by integrating activities of similar nature under various sub-sectors. They may be Food Processing Industries, Handicrafts Industries, Farm Implement and Farm Machinery industries, Service Industries etc. This can be very useful for providing technical support, pre and post installation services, development of other relevant infrastructure including marketing of products.

⁵ Nagendra Singh, "Theme Paper presented on RIP in Bihar' during state consultative meet 2007 June at Patna

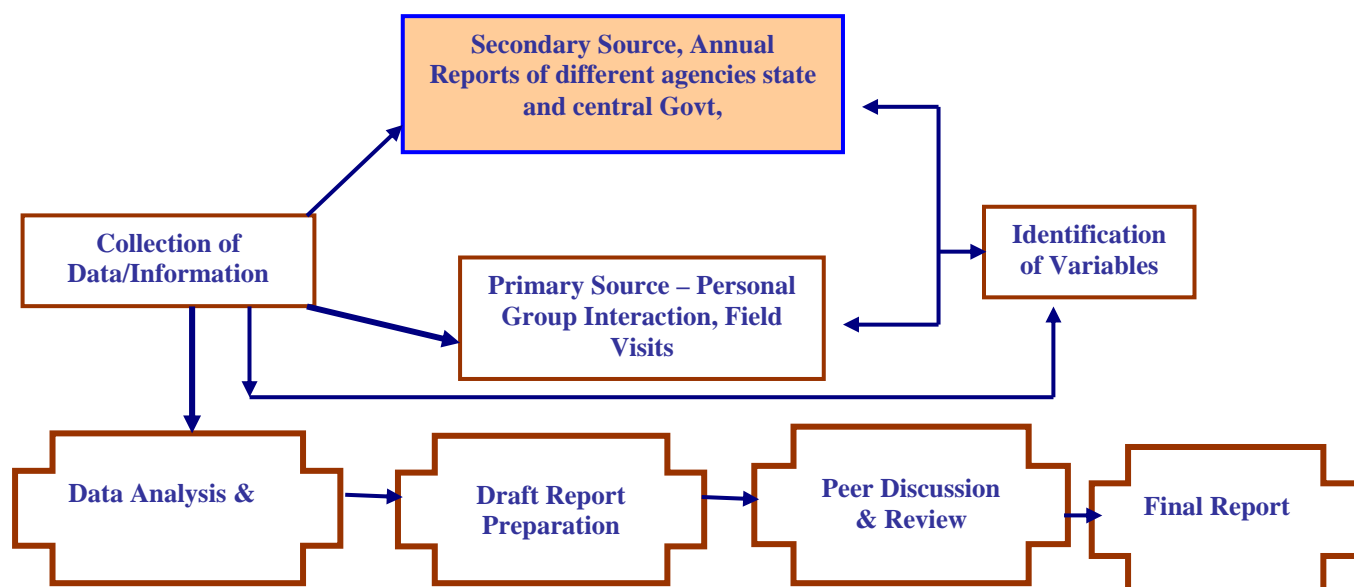
1.3 Objectives of this study

The main objective of this study is to understand the operating characters of the State economy as well as to assess the depth and dimensions of the present and the prospective rural industries in the State so as to help design an appropriate strategy for promoting rural industrialization in Bihar. The specific objectives of the study are as follows;

- *To examine the basic characters of the State economy to delineate nexus between agriculture and industry development of the region in order to plan appropriate strategy for rural industrialization of Bihar State.*
- *To find out operating mechanisms to initiate rural industrialization programme in Bihar in order to address the issue under employment and high dependence of people in general on farming.*
- *To develop institutional framework for rural industrialization programme in the State of Bihar and thereby to examine the supportive mechanism to boost forward and backward market linkage with neighboring States and eastern region in general.*
- *To determine the level of farm productivity in select agro-climatic zone along with emergence of rural entrepreneurs to explore their forward and backward linkage to hasten the process of rural industrialisation.*
- *To explore varieties of skills based training interventions for women and youth that brings convergence of rural industries programme to affect their employability and possible enterprise creation initiative.*

1.4 Methodology and Design of the Study

In order to achieve the objectives of this assignment, an appropriate methodology was designed which has been depicted diagrammatically as evident from exhibit below.



All the farmers and the entrepreneurs of Bihar State as a whole formed the universe of the study as primary respondents. In view of this, appropriate statistical techniques were employed to facilitate the conduct of this study on scientific lines.

Selection of Location: The specific location was selected based on purposive random sampling technique, divided in three agro-economic sub-zones, illustrated from table-

Table 1- Selection Of Districts and Blocks for the Study of Farmers

Zone-I		Zone-II		Zone-III	
Districts	Blocks	Districts	Blocks	Districts	Blocks
Begusarai	Begusarai	Katihar	Katihar	Bhagalpur	Sabour
Samistipur	Pusa	Purnea	Jalalbagh	Nalanda	Biharsarif
West Champaran	Nautan			Bhojpur	Sandesh
Darbhanga	Sakari			Aurangabad	Obra

1.5 Selection of Primary Respondents:

- (a) Farmers:** From each of the selected Blocks, 30 farmers were selected as the farmer respondents for the study on the basis of random sampling technique. Thus, in all, 300 practicing farmers constituted part of the total sample size for this study.
- (b) Entrepreneurs:** Entrepreneurs from diverse background were selected from different investment size and operating background from all the three zones as stated above. Total 90 entrepreneurs were interviewed who were drawn from mixed profile with enterprise running experience.

Thus, in total 390 respondents, representing both the farmers and the entrepreneurs formed the sample for the study in addition to other stake holders from cross functional organization like Banks, different state government officials at the district and state head quarter level. In addition we have interviewed 60 extension officers posted at district /divisional level who form the core of cross functional team of stake holders team associated with state department

1.6 Data Collection and Tools

The data for the study were collected both from primary and secondary sources. Interview schedules were specially prepared for (a) farmer respondents, (b) entrepreneur respondents, and (c) Stake holders that was finalized with due pre-testing. These tools were administered to the respective group of respondents for the collection of primary data.

1.7. Limitation of Study

The study has inherent limitations in terms of size and huge volume of work scattered over several agro climatic zones. The summer on one hand flood havoc on the other posed serious challenge in terms primary data collection work during these months. Scope of work has encompassed several stake holders input drawn from different departments. It took long time to carry on focused group discussions at divisional and state level to seek indulgence of several stake holders input from the field.

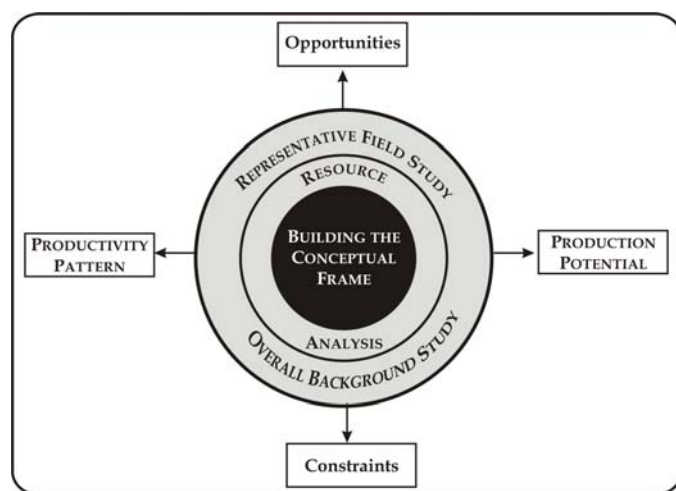
BACKGROUND SETTING ANALYTICAL VIEW

2.0 Introduction

The state of Bihar has launched series of reform commission on different areas of development to initiate the task economic growth with visible concerns on equity. However the pace and momentum has yet to make an impact at the ground level. The challenge to build synergy between agriculture and industries in the state is enormous. In view of this, an attempt has been made in this chapter to analyse the basic structure of the agricultural economy of Bihar State to bring agricultural issues in sharp focus, which could be made use of in framing appropriate industrial development strategy for the state.

Bihar State is spread over an area of 94,163 sq kms with a population of 82.9 million and population density of 880 persons per sq. km² (census, 2001). It is worth while

mentioning that as per the census of population 2001, this population density was far higher than the All India population density of 324 persons per sq. Km. This speaks loudly and clearly about the pressure of the population



Conceptual Frame of Situational Analysis

on land, the need for exploitation of natural resources by using modern technology, the need for creating non-farm employment opportunities and promotion of entrepreneurship to support the higher population density (880 sq. km.) at reasonably higher standard of living. This is quite possible since the higher density has the propensity of being converted into a great asset also to achieve the development goals.

The conceptual frame thus touches the core of our analytical process that also determines the potential and pattern of productivity both in agricultural and non agricultural aspects. Infrastructural issues in addition to other resource variable do highlight the implications while building the strategy. Analytical view describes the constraints and opportunities to initiate the RIP intervention in different geographic locations.

2.1 Agricultural Sector

Agriculture has become more important after bifurcation of Bihar State, because all the rich natural resources have now gone to the newly carved out state of Jharkhand. Nearly 90% population of Bihar depends on agriculture directly or indirectly. In reality, agriculture is the backbone of Bihar economy, contributing 40% to state GDP. Bihar has the total geographical area of 93.60 lakh hectares, with gross cropped area as 79.46 lakh hectares. However, its net sown area comprises of 56.03 lakh hectares. Bihar, on the whole, is endowed with appropriate climatic conditions to enable cultivation of a wide range of crops and trees. Based on more desegregated classification, Bihar State is divided into three agro-ecological sub-zones. These are north-west Gangatic plains (Zone-I), north-east Gangatic plains (Zone-II), and the south Bihar plains (Zone-III).

Table 2.1: Salient Characteristics of Agro-ecological Zones of Bihar

Agro-ecological zone	Geographical Area (00 ha)	NSA* (00 ha)	Gross irrigated area as %age of GCA*	Cropping intensity	Annual rainfall (mm.)	Population Density (No./sq. Km.)
1	2	3	4	5	6	7
Zone-I (North-west Gangatic plains)	1261	2153	42.03	142.17	1040 1450 (1245.00)	1073
Zone-II North-east Gangatic plains	1986	1255	44.97	158.43	1200- 1700 (1450.00)	518
Zone-III South Bihar plains	4112	2195	76.35	135.11	990-1240 (1115.00)	1065
Total	9360	5603	54.16	143.05	1234	880

* NSA = Net Sown Area, GCA = Gross Cropped Area

Source: Directorate of Statistics and Evaluation Government of Bihar (2001) Population Census (2001).

Zone-I comprises of 13 districts, such as Saran, Siwan, Gopalganj, East Champaran, West Champaran, Sheohar, Seetamarhi, Madhubani, Darbhanga, Muzaffarpur, Vaishali, Samastipur, Begusarai, As to Zone-II, it comprises of 9 districts, such as Supaul, Araria, Purnea, Khagaria, Saharsa, Madhepura, Katihar, Kishanganj, and Naugachhia and Zone-III comprises of 17 districts, such as Sekhpura, Lakhisarai, Jamui, Banka, Munger, Bhagalpur, Barahia, Rohtas, Aurangabad, Buxar, Bhojpur, Jahanabad, Arwal, Gaya, Nalanda, Patna and Nawada.

The physical features and the land characteristics of the state in all its 3 agro-ecological zones are presented in Table 2.1.

2.2 Surface Ground Water Resources

Water is a vital input to increase agricultural output not only to keep pace with the ever-increasing population but also to produce surplus so as to be made use of for generating additional income. As regards Bihar, it is externally rich in surface water resources due to various rivers flowing through the State. It has been estimated that at the aggregate level, utilizable surface water resources are nearly sufficient to irrigate one crop over its entire net sown area in south Bihar which is not so rich in

surface water resources. This apart, nearly the whole (over 93%) of the State lies in the central Gangatic plain which is one of the best ground water reservoirs in the world. The State accounts for 2.85% of the country's geographical area but contains 6.5% of its ground water resources.

2.3 Irrigation & Water Management

Development of irrigation facilities occupies prominent place in Bihar agriculture. Because, inspite of annual rainfall of around 1100mm to 1200mm, which is sufficient for Kharif crops, like paddy and maize, the occurrence and distribution of rains are highly erratic and seasonal in character. The consequences become very alarming for paddy, which is highly sensitive to drought conditions, while paddy is the most important crop of Bihar, since it covers more than 44% of the cropped area. Further, irrigation facility extends the period of cultivation beyond monsoon months and facilitates multiple cropping. Thus, irrigation facilities add substantially to agricultural production by changing the cropping pattern as well as by enabling adoption of high yielding varieties and modern agricultural technology.

The irrigation potential through surface water sources in the State has been assessed at 63.58 lakh hectares, while irrigation potential through ground water resource is assessed at 39.06 lakh hectares. (Table -2.2)

Table-2.2: Ultimate Irrigation Potential in Bihar

Source	India (Lakh hectare approximate)	Bihar (lakh hectare)	Share Of Bihar in India (%)
I. Surface water	758	63.58	8.63
Major + medium schemes	584	53.53	9.15
B. Minor Irrigation scheme	174	10.05	5.78
II. Ground Water	641	39.06	6.09
Total I+II	1399	102.64	7.34

Source: Central Water commission, Water resources Division, Bihar and Central Ground Water Board (2001).

Thus, the ultimate irrigation potential of the State is estimated at 103 lakh hectares which comes to 7.34 per cent of India's total of 140 million hectares. It is further interesting to observe that total irrigation potential in Bihar far exceeds its gross sown area of around 82 lakh hectares, and net sown area of 56 lakh hectares. Even if the cropping intensity of the State rises from 143% (present level) to 200% in future and the total sown area goes from 83 lakh hectares to 112 lakh hectares, the ultimate irrigation potential of the State can provide irrigation cover to this entire area. Thus, with available irrigation resources there is a vast scope to bring more area under crops. But in this context one must remember that (1) while canal irrigation can be relied upon to provide irrigation mainly during kharif season, there is a gap between the created irrigated potential and actual area under irrigation for want of proper maintenance and repairs and (2) as against North Bihar, endowed with abundant surface and ground water resources which can take care of entire irrigation need of the area, South Bihar is just the opposite, where even most of its rain water goes waste as surface run off.

In view of the above, while ground water holds promises for future of irrigation in Bihar, at least for some more time to come, energy would hold the key to exploit the ground water for irrigation. Therefore, energy supply and demand gap has to be taken care of to bolster up the farm economy. This apart, where ground water development and its management should get priority in north Bihar, both the surface as well as ground water should be developed in the southern region for meeting irrigation needs.

2.4 Distribution of Land Holding

In Bihar, 82.9% of the farmers are marginal farmers, (Table-2.3) having holding size of 1 hectare or less than 1 hectare and 9.6% are small farmers having holding size of more than 1 hectare to 2 hectares. It is thus, obvious that the agricultural development strategy of the State must be focused on marginal and small farmers, as they are the dominant players in agriculture.

Table - 2.3: Distribution of landholdings in Bihar

Category of farmers	No. of holding (in lakh)	% of total holding
Marginal farmers (0-1hect)	86.50	82.90
Small Farmer(1-2hect)	10.00	9.60
Semi medium farmer (2-4 hect)	5.9	5.7
Medium farmer (4-10 hect.)	1.8	1.7
Big Farmer (Above 10 hect)	0.1	0.1

Source: Economic Survey (2006-2007), Finance Department, Government of Bihar (P.14)

2.5 Cropping Pattern

Nearly 62% of the land resources of the State are occupied under crop production. It may be observed from Table-2.4 that food grain crops account for 87% of the gross cropped area in the State. Rice turns out to be the major crop of the State as it occupies 44% of the cropped area followed by wheat (23%). Cereals in general are grown on around 78% of the cropped area, leaving very little area for pulses and other food grain crops.

Table -2.4: Cropping Pattern in Bihar (%)

S.N	Crops/Crop Groups	TE 1981	TE 2003
01	Rice	45.11	44.37
02	Wheat	19.85	24.82
03	Maize	8.35	7.51
04	Coarse Cereals	11.16	8.40
05	Total Cereals	76.13	77.59
06	Total Pulses	12.92	9.09
07	Total Food Grains	89.05	86.68
08	Total Oil Seeds	1.94	2.10
09	Total Fibers	2.37	2.05
10	Sugarcane	1.38	1.28
11	Tobacco	0.20	0.23
12	Potato	1.26	1.66
13	Onion	0.15	0.18
14	Total Fruits & Vegetables	4.34	7.51
15	Spices & Condiments	0.33	0.16

Source: Directorate of Statistics & Evaluation, Government of Bihar (2003-2004)

Oilseed crops have minor presence and crops like sugarcane, jute, tobacco, potato which generate much higher value of output per hectare are grown only on 9% of the area. However, there is a positive trend in the expansion of area under fruits and vegetables. It may be mentioned that fruits & vegetables hold an important position in the agricultural economy of the State. Together, these contribute more than 30% of the gross value of agricultural produce. Bihar occupies a commanding position in mango, and litchi. In the case of litchi, it is the largest producing State, accounting for

75-80% of the total output of the country and the district of Muzaffarpur has the distinction of producing the best quality of Litchi. Banana, guava, jack fruit, papaya are the other important fruits grown in the State. The major vegetables produced are potato, tomato, onion, chillies, brinjal, cabbage and cauliflowers.

2.6 Relative Productivity & Yield Gap

All the available information are suggestive of the facts that in spite of favourable agro - climatic conditions of the State and a perceptible increasing trend in the area under high yielding varieties of rice, maize, wheat etc over the years, the productivity of certain crops is very less and there is wide gap between the actual yield and the yield potential. Yield gap for some of the crops grown in the State are furnished in Table - 2.5.

Table-2.5 Yield Gaps for Various Crops in Bihar

S.N.	Crop	State Average yield (in Kg/ha) *	Potential yield (Kg/ha)**	Yield Gap (Kg/ha)
01	Rice	1127	3026	1899
02	Wheat	1592	3052	1460
03	Maize	2120	4056	1936
04	Gram	903	1380	477
05	Arhar	1308	1830	522
06	Rape Mustard	827	1850	1023
07	Jute	1678	2010	332
08	Sugarcane	40067	62780	22713
09	Potato	8610	23500	14890
10	Onion	8320	15360	7040

*Source - Directorate of Economics & Statistics, Ministry of Agriculture, Government of India (2003-2004).

* Yield achieved in National Demonstrations and other Demonstrations

It is evident from the table that despite favourable soil and agro-climatic conditions, there is substantial gap between the actual and the potential productivity of the crops in the State. In fact, this is the trend in other crops also. It is indicative of the fact that crop output of the state can be substantially raised if technological as well as socio-economic constraints are taken care of. In this regard it is worth mentioning that Punjab has registered the highest productivity of more than 3000kg/ha productivity of rice, more than 4000 kgs/ha productivity of wheat and more than 2800 kg/ha productivity of coarse cereals. Similarly, Andhra Pradesh has achieved the

productivity of maize above 2800 kg/ha, TamilNadu achieved more than 1400/ha in the case of oilseeds and more than 105700 kgs/ha in the case of sugarcane. As far as potato is concerned, West Bengal has topped the list in India by recording the highest productivity of more than 23700 kg/ha.³

2.7 Horticulture

Bihar is one of the important States of India for the production of fruits and vegetables. The State ranks 3rd among vegetable growing States and 6th among fruit growing States in the country. Fruits and vegetables are grown on 2.91 lakh hectares (Table -2.6) and 4.86 lakh hectares (Table-2.7) respectively in the State with annual production of 29.20 lakh MT of fresh fruits and 72.58 lakh MT of fresh vegetables. Besides this, potato is grown on 3.05 lakh hectares with annual production of 53.07 lakh MT.

Except lady's finger and litchi, productivity of other fruits and vegetables are reported to be less than those of other States of the country.

It may be mentioned that due to lack of proper transport and storage facility 25-40% of fruits and vegetables get destroyed every year .Because of this hardship, farmers are forced to sell fresh fruits and vegetables in the local market. Hardly 6% vegetables and 4.2% fruits reach APMC.

The foregoing details strengthen the point that Bihar State is out and out an agricultural State with fertile soil, appropriate climatic conditions and rich water endowment, suitable for producing various kinds of field, aquatic and horticultural crops.

³ Agricultural Statistics at Glance, published by Directorate of Statistics, Ministry of Agriculture, Govt of India

Table-2.6 Area and Production of Fruits in Bihar

S.N	Name of Fruits	Area (in ha)	Production (in Qtls.)	Productivity (Qtls./ha)
01	Mango	140106	865619	6.18
02	Guava	27660	256057	9.26
03	Litchi	28383	204897	7.22
04	Lemon	16808	122875	7.31
05	Banana	27988	920044	32.87
06	Pine Apple	4214	122534	29.08
07	Coconut	15150	150778	9.95
08	Others	30930	277450	8.97
Total		291239	2920254	10.03

*Source - Agriculture Department, Government of Bihar (2004-2005)

What is needed is that the ongoing subsistence agriculture should be transformed in to commercial agriculture and horticulture, well supported with appropriate extension education programmes for large scale popularization of high yielding varieties, suitable for processing industries as well as off season vegetable crops for enhancing per unit area production, post harvest management, including cold storage as well as processing and value addition to respond to the present market driven economy. All these steps will open new avenues for economic growth, employment generation and remunerative economic return per unit of area. Towards this, it may also be advisable that apart from the major fruit crops like mango ,litchi , banana, guava due thrust should also be given on crops like pulses, makhana, and water tolerant fruit crops, such as amla, bael, tamarind etc.

Table-2.7 Area and Production of Vegetables in Bihar

S.N	Name of Vegetables	Area (in ha)	Production (in Quintals)	Productivity (Quintal/ha)
01	Cauliflower	59701	955216	16.0
02	Cabbage	36513	598813	16.4
03	Onion	48759	975180	20.0
04	Tomato	42987	601818	14.0
05	Chillies	38070	456840	12.0
06	Brinjal	53651	1073020	20.0
07	Lady's Finger	56173	674076	12.0
08	Pumpkin	25143	402288	16.0
09	Bitter Gaud	8424	50544	6.0
10	Parwal	4594	45940	10.0
11	Others	152951	1424034	9.3
Total		486966	7257769	14.9

*Source - Agriculture Department, Government of Bihar (2004-2005)

2.8 Livestock & Fishery

Major livestock products in Bihar are milk, eggs, meat and wool. The growth rate of livestock products are furnished in Table-2.8.

Table-2.8: Growth Rate of Main Livestock Products (2001-06) in Bihar

S.N	Items	2001-02	2002-03	2003-04	2004-05	2005-06	Growth during the entire period (%)
01	Milk (in thousand lit)	2632	2869	3175	4743	5060	92.25
02	Eggs(in thousand crores)	74	74	78	79	100	35.14
03	Meat (in thousand tons)	156	173	173	176	175	12.18
04	Wool(in lakh kg)	4.24	3.62	3.94	3.78	2.2	-48.11

Source: Economic Survey, Finance Department, Govt. of Bihar, (2006-2007) (P. 43)

It is indicated from the Table 2.8 that though there has been growth in the production of milk, eggs and meat over the years, extent of growth has not been satisfactory. Bihar has the largest livestock population in India and more than 80% of marginal and small farmers derive supplementary income from the livestock. Very little amount of meat and poultry products are scientifically produced, processed and packaged. With growing urbanization and quality consciousness the demand for quality livestock products is developing rapidly in the national & international markets. These opportunities can be taken advantage of by the State.

As regards fisheries (Table-2.9), it is reported that between 2001-2002 and 2005-2006 there has been constant growth in fish production in Bihar. In fact it has been claimed in the Survey Report ⁴that in the course of the last 10 years, the share of fish production has increased two fold in the agriculture related total domestic product in the State. However, still Bihar is not self-sufficient in meeting its own annual consumption need of nearly 4.5 lakh tones. The under utilisation of aquaculture resources, unscientific management of water bodies, lack of entrepreneurship and inadequate marketing infrastructure are the most obvious reasons for the gap.

⁴ Economic Survey , Ministry of Finance, Government of Bihar (2006-2007)

Table -2.9: Fish Production in Bihar

Source	2001-02	2002-03	2003-04	2004-05	2005-06
Fish Production from all sources (in thousand metric tons)	240.00	261.00	266.49	267.51	279.00
No of trained fishermen	861	1192	5063	1475	134

**Source – Fishery Directorate, Bihar, government. (2006-07)*

Marketing infrastructure for fish products is far from satisfactory, since it does not cater to the needs of local fish producers scattered far and wide in villages. The entire marketing & transport is dominated by private traders. In late nineties only around 3.5% of the total fish produced in north Bihar used to arrive in the regulated markets for sale, while A.P. accounted for arrival of around 40% of total fish produced in the regulated market in the State (Singh 2001). This apart, a significant area under tanks and ponds is in a dilapidated condition. Thus, there is ample opportunity for private sector small scale fishery development in Bihar.

It is thus, obvious that live stock and fisheries need careful planning and implementation in the rural areas because it has the potentiality to bring more prosperity in the State by way of creating additional gainful employment opportunity.

The aforementioned features of agricultural economy of Bihar go to show that agriculture is the backbone of Bihar economy. As much as 90% of its population depends on agriculture directly or indirectly, 83% are marginal farmers and 10% are small farmers. Fortunately the State is rich in surface as well as ground water resources and its total irrigation potential far exceeds its gross sown area, thus, opening the scope for bringing more area under crops. As of now a very large chunk of gross cropped area is used for grain crops, leaving hardly 9% of its area for oilseeds, sugarcane, jute, potato which generate higher value of output per hectare. In general there is substantial gap between the actual and the potential productivity of crops in the State. Thus, there is a great scope to increase agricultural productivity

in Bihar. It may be further mentioned that Bihar ranks 3rd among vegetable growing States And 6th among fruit growing States of the country. But farmers are not able to reap the due benefits because of lack of storage, transport, and marketing facilities. Even in fish production, Bihar is not self sufficient due to underutilization of aquaculture resources, unscientific management of water bodies, lack of entrepreneurship and inadequate marketing infrastructure.

Summary

Bihar State is spread over an area of 94,163 sq kms with a population of 82.9 million and population density of 880 persons per sq. km (census, 2001) which is relatively high if compared to the ratio of other states. After bifurcation of Bihar State, agriculture has become more important, because all the rich natural resources have now gone to the newly carved out state of Jharkand. Based on more desegregated classification, Bihar State is divided into three agro-ecological sub-zones. These are north-west Gangatic plains (Zone-I), north-east Gangatic plains (Zone-II), and the south Bihar plains (Zone-III). Despite rich water and soil resources Bihar State is unable to make best use of it to increase its productivity. This is due to lack of infrastructure and modern techniques of farming available to the farmers. Nearly 90% population of Bihar depends on agriculture directly or indirectly. There is a need to exploit the biggest strength of Bihar State i.e. agriculture to the fullest and equip the farmers so that they can make the best use of their farms and improve the productivity and their earning.

SITUATION ANALYSIS: AGRICULTURAL AND INDUSTRIAL INFRASTRUCTURAL RESOURCE

3.0 Introduction

Bihar State is spread over an area of 94,163 sq kms with a population of 82.9 million and population density of 880 persons per sq. km ²(census, 2001). It may be interesting to note that this population density was far higher than the All India population density of 324 persons per sq. Km. This speaks loudly and clearly about the pressure of the population on land, the need for exploitation of natural resources by using modern technology, the need for creating non-farm employment opportunities and promotion of entrepreneurship to support the higher population density (880 sq. km.) at reasonably higher standard of living. This is quite possible since the higher density has the propensity of being converted into a great asset also to achieve the development goals. In view of this promotion of industries has a great significance in the economic development of the State.

3.1 Industrial Sector

Experiences have clearly revealed that per capita income of industrial economy is much higher than that of predominantly agricultural economy. This is why all out efforts are made both by the Central and State Governments to promote industries. After the bifurcation of the erstwhile State, all the mineral resources are merged with Jharkhand State. Thus, the centre of industrialisation process has now to be agro-based which too holds high promises. This chapter deals with the salient features of the current industrial scenario in Bihar, such as size of industrial sector, structure of industries, pattern of industrial dispersal etc together with supportive infrastructure

² Population Census (2001)

for industrial growth so that it could generate necessary insight into development of appropriate industrialization frame work for the State.

3.2 Size of Industrial Sector

According to the available estimates, the net state domestic product of Bihar is Rs.32,004 crores, in which the share of industrial sector income is only Rs.1020 crores.

Table-3.1: Size of Industrial Sector in Present Bihar State

Sl. No.	Particulars	Bihar	India	Share of Bihar %
1.	Net domestic product (Rs.crore)	32,004	11,89,773	2.7
2.	Industrial Sector Income(Rs.crore)			
	Registered	445	1,58,240	0.3
	Un registered	575	80,904	0.7
	Total	1020	239144	0.4
3.	%age share of (2) in (1)			
	(a) Percentage share of 2(a)	1.4	13.3	-
	(b) Percentage share of 2(b)	1.8	6.8	-
	(a) Percentage share of 2 (c)	3.2	20.1	-

**Note:* Income figures are at 1993-94 prices & average for triennium record 2002-2003

Source- Economic survey 2006-07, Bihar Government (P.47)

It is revealed from the table that the size of the industrial sector in Bihar in terms of income is hardly 3.2% of net domestic product of the State, whereas, the national average works out to 20.1%. Besides its extremely small size, the industrial sector in present Bihar is also characterised by relatively larger share of unregistered industrial units. While the unregistered units account for about one-third of the total industrial income in India as a whole, they do so for more than half of total industrial income in Bihar.

3.3 Industrial Structure

The distribution of ASI covered industrial units along industry groups is presented in Table-3.2. It is obvious from the table that the existing industrial units in Bihar cover a range of products like food products, beverages, tobacco, leather products, wood products, plastic products, machinery & equipment, chemicals etc but in terms of value of out put or net value added, it is the food, beverage, tobacco, petroleum products (because of refinery at Barauni) that account for more than 85% of total

industrial income. The total contribution of remaining industry groups is very marginal. However, as per the location quotients, food products, tobacco products, leather products, non-metallic mineral products have become prominent constituents of industrial base of present Bihar. It may further be noted that agro based industries occupy a prominent place in the industrial scenario of present Bihar as they account for nearly half of the net value added. However, there still remains substantial unutilised potential of agro-based industries in Bihar.

Table-3.2: Structure of Industries in Bihar (ASI)

Industry group	No. of factories	Value of output (Rs. crore)	Net Value Added (Rs. crore)	Share % to all Industries		
				No. of factories	Value of output	Net value added
Food products/beverages/tobacco	303	171330	35401	21.8	22.1	28.3
Textile/textile products	23	418	-85	1.7	0.1	-0.1
Leather/leather products	8	7697	1318	0.6	1.0	1.1
Wood/wood products	138	2243	295	9.9	0.3	0.2
Paper/printing/publishing	64	18848	5718	4.6	2.4	4.6
Coke/petroleum/nuclear fuel	29	506106	74692	2.1	65.4	59.7
Chemicals	49	7834	2164	3.5	1.0	1.7
Rubber/plastic products	14	3601	218	1.0	0.5	0.2
Basic metals/metal products	100	29209	1299	7.2	3.8	1.0
Machinery and equipments	57	3652	826	4.1	0.5	0.7
Transport/equipment	5	2172	449	0.4	0.3	0.4
Others	599	20917	2793	43.2	2.7	2.2
All Industries	1388	774027	125090	100.0	100.0	100.0

*Source: Economic Survey, Finance Department, Government of Bihar, (2006-2007).

In this respect, it may be mentioned that two agro-based industries which have shown some positive trends in Bihar during the last decade are tea and dairy products. It is reported that about 10,000 acres in Kishanganj district are under tea plantation, providing direct employment to about 15,000 workers. Similarly, through co-operative societies, the performance of dairy based sector has been very encouraging. Milk and milk based products of COMPFED and its well known brand

'Sudha' has a high reputation even outside Bihar. But absolute size of these industries is yet very small, and much of the milk is sold directly to consumers.

3.4 Agro Processing Units

A varieties of fruits, such as Mango, Litchi, Guava, Makhana, Lemon, Jack fruit, Bael, Pineapple etc. and vegetables like Potato, Tomatoes, Cauliflowers, Garlic, Chilies, Peas, Turmeric etc. are grown in Bihar in a large quantity. But neither the farmers are able to harness due benefit, nor does it help generation of employment potential. It is all because of poor pre and post harvest management and lack of availability of appropriate fruit and vegetable processing industries (FVPI). It is not only underdeveloped, but also has illogical spatial distribution particularly in view of its relationship with easy availability of raw materials. Post harvest technology for fruits and vegetables is still unscientific. The huge annual loss, amounting to 25 to 40% of the total fruits and vegetables produced occurs on account of poor methods of harvesting and transport facilities. This apart, the fruits and vegetable produced in Bihar also lack in its processing quality. These constraints need immediate attention to help develop FVPI in Bihar. If this anomaly is addressed, varieties of canned processed products, including beverages, juices, concentrates, pulps, slices, frozen and dehydrated products, potato wafers, /chips, cornflakes, biscuits, glucose, vermicelli etc. can emanate from Bihar. Development of food processing sector can also help in promoting fisheries, poultry and dairy , because a number of frozen and canned fisheries as well as meat/poultry products, including milk powder, butter, ghee, skimmed milk powder etc can be produced in Bihar.

3.5 Geographical Spread of Large & Medium Units

As per the data available from Industries Department of Government of Bihar, out of 35 districts of the State, as many as 10 districts do not have even a single medium large industrial unit and another 11 districts have less than five units each. Distribution of large and medium industrial units among all the nine divisions of the State is presented in Table-3.3. Most of the medium and large industrial units are concentrated in Patna, Magadh and Tirhut divisions. The highest concentration is in

Patna division (38.2%), followed by Tirhut division (21.6%), Magadh division (9.7%), Darbhanga (7.3%) and so on.

It is further interesting to note that the highest percentage (32.8%) of the units represent the industry group comprising of metal products, basic metal, machinery and transport, followed by industry group, comprising of food products, beverages, and tobacco (31.7%), industry group, comprising of cotton, wool, jute, paper and leather (18.1%), and the industry group comprising of rubber, plastic and chemicals (17.4%) in descending order.

Table-3.3: Geographical Distribution of Large & Medium Industrial Units in Bihar

Divisions	No. of units under industry groups				
	Food products, beverages & tobacco	Cotton, Wool, jute, paper & leather	Rubber, Plastic & chemicals	Basic metals, metal products machinery & Transport	Total
Patna	22	18	7	52	99(38.2)
Magadh	6	1	9	9	25(9.7)
Bhagalpur	2	3	2	3	10(3.9)
Munger	2	3	12	1	18(6.9)
Saran	12	1	0	1	14(5.5)
Tirhut	21	6	13	16	56(21.6)
Darbhangha	9	9	1	-	19(7.3)
Koshi	-	-	-	-	
Purnea	8	6	1	3	18(6.9)
Bihar	82 (31.7)	47 (18.1)	45 (17.4)	85 (32.8)	259 (100.0)

*Figures in parentheses represent percentage

*Source: Economic survey (2006-2007), government of Bihar (P.49)

3.6 Artisan-Based, Tiny and Small Scale Industry Units

Small scale industries, tiny industries and artisan based industrial units play important role in promoting industrialization and in providing non-farm employment opportunities. These details are presented in Table-3.4.

It is revealed from the table that there are 55,287 artisans based industrial units 73501 tiny industrial units and only 1699 small-scale industrial units in Bihar. It is further revealed that Patna division has the highest concentration of artisan-based, tiny and small-scale industrial units, similar to those of medium/large units.

Table-3.4: Artisan-based, Tiny and Small Scale Industries in Bihar

Divisions	Number of Industries			
	Artisan based	Tiny	Small scale	Total
Patna	12580 (22.8)	19370 (26.4)	737 (43.4)	32687 (25.1)
Magadh	7700 (13.9)	10386 (14.1)	98 (5.8)	18184 (14.0)
Bhagalpur	1908 (3.5)	3142 (4.3)	76 (4.5)	5126 (3.9)
Munger	4587 (8.3)	5835 (7.9)	175 (10.3)	10597 (8.1)
Saran	2662 (4.8)	7308 (9.9)	132 (7.8)	10102 (7.8)
Tirhut	10090 (18.3)	12773 (17.4)	173 (10.2)	23036 (17.7)
Darbhanga	8365 (15.1)	6893 (9.4)	52 (3.1)	15310 (11.8)
Kishangaj	3102 (5.6)	2685 (3.7)	32 (1.9)	5819 (4.5)
Purnea	4293 (7.8)	5109 (7.0)	224 (13.2)	9626 (7.4)
Bihar	55287 (100.0)	73501 (100.0)	1699 (100.0)	130251 (100.0)

*Source: ASI Data, 2002-03 QE.

*Figures in parentheses represent percentages.

This apart, while Tirhut, Darbhanga, and Magadh divisions have comparatively higher concentration of artisan based industrial units, Tirhut, Magadh and Saran divisions are better placed as far as concentration of tiny industrial units are concerned, and Purnea, Munger, and Tirhut division have better concentration of small scale industrial units.

• Sugar Industries

Till the year 1940, in all 33-sugar units was established in Bihar, of which only 28 were in working condition. But out of 28 sugar units, 18 sugar mills are presently closed. Remaining 10 mills are in private sector, of which only 9 are functional. On an average these sugar mills could run only for 126 days in a year because of lack of adequate availability of sugarcane. In the course of the last 7 years, area under sugarcane has remained almost constant. During the year 2005-2006 only 2.30 lakh hectares was under sugarcane and its productivity was only 56.30 MT per hectare, which is far below national average of 70 MT per hectare. It is, thus, obvious that

there is enough scope of increasing sugarcane cultivation and its productivity. New initiatives have been taken and positive results are in sight in the form of 14 green field proposals from sugar majors, such as M/s Rajshree sugar and expansion proposals for the existing private sector sugar mills.

It may, however, be noted that low productivity of sugarcane in Bihar is also a constraint for giving a boost to sugar industries in Bihar. The sugarcane productivity in Bihar is only at the level of 24593 kg/ha, whereas, the national average is 63684kg/ha. In this respect Tamil Nadu has remarkable achievement of sugarcane productivity to the order of 105757 kg/ha. As such, there is a need to increase sugarcane productivity in Bihar so that farmers get better economic return and feel enthused to go for cultivation of sugarcane more seriously.

• **Makhana Industry**

Gorgon nut or foxnut, commonly known as Makhana, is an aquatic crop and is grown in stagnant water in various States of India. But Bihar is the leading Makhana producing State (Table – 3.5) of the country, since 90% of the national production comes from Bihar. Madhubani, Darbhanga, Saharsa, Katihar, Purnea, Samastipur, Supaul, Kishanganj and Araria districts of Bihar are the main centers of Makhana production. There is a possibility of bringing one lakh hectare more under Makhana cultivation. During the year 2006, State Investment Promotion Board has approved the white Ball Project, launched by Shakti Sudha Industries at a Project cost of Rs. 70 crores. With the forward and backward linkage to be provided under this project, nearly 4 lakh farmers of the Sate will join the production process of Makhana.

Table – 3.5: Makhana Production in Bihar

	Area (in hectare)	Production (in tons)	Value (Rs. In crore)
India	18500	54500	450
Bihar	16850	50550	400

**Source: Economic Survey (2006-2007), Government of Bihar (P.54)*

• **Leather Industry**

There are a large number of cattle in Bihar and their hides are of good quality. Hence, leather based industry is an important sector which has a great potential in the State. There are nearly 50,000 footwear artisans in the State. State has also tanneries in private sector. There are in all 85 leather units of which 60 units are working in Betia, Muzaffarpur and Patna and 25 units are undertaking the job work.

Table - 3.6: District wise Distribution of Closed Industrial Units in Bihar

Sl.No.	Name of district	No. of closed units			Percentage of totally closed units
		Rural	Urban	Total	
1.	West Champaran	223	469	692	3.37
2.	East Champaran	411	313	724	3.53
3.	Sheohar	15	16	31	0.15
4.	Seetamarhi	458	443	901	4.39
5.	Madhubani	309	273	582	2.84
6.	Supaul	42	73	115	0.56
7.	Araria	59	138	197	0.96
8.	Kishanganj	11	68	79	0.38
9.	Purnea	53	273	326	1.59
10.	Katihar	271	269	540	2.63
11.	Madhepura	149	160	309	1.51
12.	Saharsa	68	112	180	0.88
13.	Darbhanga	108	204	312	1.52
14.	Muzaffarpur	562	891	1453	7.08
15.	Gopalganj	396	263	659	3.21
16.	Siwan	382	361	743	3.62
17.	Saran	398	314	712	3.47
18.	Vaishali	212	172	384	1.87
19.	Samastipur	181	166	347	1.69
20.	Begusarai	357	500	857	4.18
21.	Khagaria	206	185	391	1.90
22.	Bhagalpur	121	661	782	3.81
23.	Banka	120	50	170	0.83
24.	Munger	92	353	445	2.17
25.	Lakhisarai	23	88	111	0.54
26.	Sekhpora	2	65	67	0.33
27.	Nalanda	299	436	735	3.58
28.	Patna	134	2431	2565	12.50
29.	Bhojpur	128	158	286	1.39
30.	Buxer	89	120	209	1.02
31.	Kaimur	155	39	194	0.95
32.	Rohtas	258	319	577	2.81
33.	Jahanabad	546	293	839	4.09
34.	Aurangabad	534	376	910	4.43
35.	Gaya	609	818	1427	6.95
36.	Nawada	290	232	522	2.54
37.	Jamui	59	93	152	0.74
	Total	8330	12195	20525	100.00

Source: Third All India Industrial survey (2001-02)
Economic Survey, (2006-2007), Finance Department, Government of Bihar (P.69)

- **Handloom**

There are a large number of handloom industrial units in the State, of which 10,817 handlooms are operational in cooperative sector. This apart, there are 11,361 power looms also in the State. Handloom industrial units are mainly concentrated in Patna, Gaya, Bhagalpur, Bihar, Madhubani and Siwan. There are in all 1089 primary weavers cooperative societies of which 411 are functional. Around 98000 weavers are out of cooperative fold. If proper training, financing designing and machinery facilities are made available, there is a great potential of developing handloom/power loom sector in the State

- **Mines and Minerals**

Undivided erstwhile Bihar had 25% of the country's total mineral deposits. But as per the economic survey of Bihar Government (2006-2007), after the bifurcation, the present Bihar is left with only 1% of the total mineral deposits of the undivided Bihar. Only lime stone and pyrites are available in the present Bihar in adequate quantity. Bauxite, magnetite, feldspar etc are very less. In this respect only 8 districts, such as Rohtas, Kaimoor, Bhagalpur, Banka, Jamui, Gaya and Nawada are important. Bihar has 68 million cubic meter of granite deposits of which only 32.04 cubic meter is of good quality.

- **Industrial Sickness**

In spite of the fact that Bihar has a very poor record of industrial promotion and development, quite a large number of the existing units are sick. As per the economic survey, Government of India (2006-2007), there were 259 medium and large industrial units in Bihar of which 18 units were pronounced by BIFR as sick, to the extent that it was decided to close 17 units. As per the third All India Census of small-scale industries (2001-2002), out of 72632 registered units only 52,107 were functional and the remaining 20,525 (28.3%) were closed.

Of the closed units 40.6% industrial units are in rural areas, and 59.4% of the units in urban areas. Patna, Gaya, Aurangabad, Seetamarhi, Begusarai and Jahanabad districts had comparatively higher number of closures. The impact of sickness has

been such as Bihar State Finance Corporation and Bihar State Credit and Investment Corporation itself became sick due to poor recovery of their loans, granted to the industrial units in Bihar. Inadequate infrastructure facilities have been found to be responsible for major set back. Some of the factors responsible for sickness have been identified as (i) lack of working capital (ii) unavailability of raw material (iii) extremely bad road (iv) inadequate communication facility (v) delay in granting loans by banks & financial institutions, which have stalled the progress of industrialization in Bihar.

3.7 Physical Infrastructure

Improvement and further expansion of physical infrastructure in Bihar holds the key to development and growth of Bihar economy, since existing poor infrastructure facilities are the major bottlenecks to accelerate the process of development in Bihar.

Some of the important infrastructural bases of Bihar are discussed here under:

- **Power Sector in Bihar**

It is reported in the Economic Survey, Government of Bihar (2006-07) that after bifurcation of State, Bihar is left with two thermal power stations, namely Barauni thermal power station with power generating capacity of 330 MW and Muzaffarpur thermal power station with power generating capacity of 220 MW. But this capacity is only misnomer, since Muzaffarpur power station is completely closed down and Barauni station hardly provides 30 MW to 35 MW intermittently, because they are very old, their technology is old, and their maintenance is difficult due to non-availability of spare parts etc.

Table-3.7: Share of Bihar State in Central Sector Power Stations

Power Station	Share of Bihar
1. Kahalgaon TPS	265.19MW
2. Farakka St-1&2	362.88 MW
3Tata Hydro PS	86.70Mw
4 Talchar TPS	354.00 MW
5. Rangit	21.00 MW
6. Chukla HEP	88.00 MW
Total	1169.77 MW

Source: Economic Survey (2006-2007), Finance Department, Govt of Bihar (P.86)

Bihar owns hydro power generating capacity, such as Koshi Hydro Power Station (BSEB) with power generating capacity of 19.2 MW, South East and West Canal (BHPC) with the capacity of 9.9 MW, and East Gandak Canal with the capacity of 150 MW. But these small units also are in dilapidated conditions and can not be taken advantage of without proper renovation and total repair.

In view of the above, the only reliable supply of electricity is from its share of 1169.77 MW (Table- 3.7) in central power generation stations against the estimated demand of 2332 MW in 2007. Thus, there is a wide gap between the demand and supply of power. It shows that Bihar is in very difficult position in terms of reliable supply of electric power and inspite of initiative taken by the State Government, this situation will continue for quite some time.

• **Rural Electrification**

There are 45,103 villages in Bihar, and only 47% of the villages were electrified till the year 2004-2005. But here too neither all the households of these villages have electric connection nor is the supply of electricity regular. Bihar State Electricity Board has adopted a Phased Manner Development of Franchise Schemes of different activities of Electricity Distribution in Rural Areas, such as Meter reading, Bill Distribution, Revenue collection, Minor maintenance of LT Lines, attending Fuse calls etc. This is with a view to providing electrification in all villages and to all households. The successful implementation of the programme is expected to bridge the gap of urban-rural divide as well as lead to 24 hours quality power supply to both urban and rural areas and eventually to transformation of quality of life in rural areas. Experience shows that with the introduction of Franchisee system in Rural Areas, revenue realization has improved considerably. However its ultimate success is dependent on adequate availability of power supply.

- **Roads**

Transport infrastructure is considered to be the life line for the development process. But unfortunately road transport infrastructure is very weak in Bihar. In addition, it is proving difficult to construct and maintain roads in the flood prone north Bihar. At present Bihar has a total road length of 81655 kilometers (Table -3.8). It may be noted

Table-3.8: Category wise Total Road Length in Bihar (in km)

Category	Road length in km.			
	Pucca	Katcha	Total	Percentage (%)
National Highways	3629.00	0.00	3629.00	4.4
State Highways	3232.22	0.00	3232.00	3.9
Major District Roads	7714.25	0.00	7714.25	9.5
Other District Roads	2828.00	990.00	3818.00	4.7
Village Roads	27400.00	35861.63	63261.63	77.5
Total	44803.47	36851.63	81655.10	100.00

*Source: Road Construction Department, Government of Bihar
Economic Survey (2006-2007), Finance Department, Govt of Bihar (P.92)*

That 36851 kilometers of kachha roads are in villages and districts, and conditions are not very good. In all 27 National Highways pass through 35 districts of Bihar and connect the international border of Nepal as well as adjacent States of West Bengal, Jharkhand and UP. A total of 711.10 kms of National Highways have been transferred to NHAI for upgradation to 4 lane divide carriageway under NHDP scheme.

Infact situation of road network has to be judged in terms of relative size of the State and the quality of the roads. In this context, it may be mentioned that length of the road per square km area is much lower in Bihar than many other states. On 31st March 2002, there were 80.78 kms of road per 100 square kilometer area in Bihar, the national average being 74.73 kms. Bihar being a densely populated State, one can get more meaningful information if its road density is measured with respect to population. In terms of population, while for the country as a whole, road availability is to the order of 234.58 kms per lakh of population, in Bihar it is only 89.28 kms per lakh of population. Therefore, road density in Bihar is much lower

than the national average. It may also be mentioned that in general only one third of the villages in Bihar (36.1%) are accessible by road. However, villages with more population have better road connectivity (Table-3.9).

Table-3.9: Accessibility of Villages by Roads in Bihar and India

Types of Villages	%age of villages accessible by roads	
	India	Bihar
Villages with population < 1000	37.4	27.7
Villages with population 100-1500	75.9	53.2
Villages with population >15000	91.7	70.6
All villages	47.9	36.1

Source: Basic Road Statistics of India, Min. of Shipping, Road Transport and Highways, Government of India (2004).

Considering the issue of quality of roads, the position of Bihar is much to be desired. The share of surfaced road to total road length in Bihar is only 43 per cent whereas nearly 58% of the total road length in India is surfaced. In nutshell, it may be concluded that progress in road infrastructure in Bihar has not been at par with the national average, and has been far behind some of the fast moving States.

• Motor Vehicle in Bihar

Apart from road length and road density, availability of motor vehicles in the State is also very important as far as assessing the road infrastructure in Bihar is concerned. As per the data available, the number of motor vehicles per sq. km. was only 11.9 as against 20.39 motor vehicles per sq. km in India till the year 2002-2003 (Table-3.10).

Table-3.10: Motor Vehicles Density in Bihar and India

	Number per square kilometer			
	1999-2000	2000-01	2001-02	2002-03
Bihar	9.25	10.08	10.87	11.90
India	14.86	16.73	17.92	20.39

Source: Bihar Development Report, Institute for Human Development (P.104)

It may be noticed from the table that growth in the number of vehicle has been comparatively slow in Bihar. In general, it may be mentioned that the present situation of road transport in Bihar is far from satisfactory. On one hand, the availability of roads is low and on the other, the quality of roads is poor since more than half are unsurfaced roads and even the surfaced roads are not always smoothly motorable due to their poor maintenance. It is, therefore, obvious that ways and means have to be worked out to beef up availability of fund for improving road transport infrastructure in Bihar.

• Railways

Rail-route density of Bihar is 30.15 kilometers per one thousand square kilometer as compared to 19.09 for whole of India. In fact as compared to many States, Bihar enjoys an advantageous position regarding railway route density with regard to its geographical area. However, rail-route density, measured in terms of route kilometers per lakh population is only 6.07 and it is one of the lowest in India. Thus, though the State ranks better in terms of rail-route kilometer and geographical route density, the existing facility is much less if seen in context of railway route kilometers per lakh of population. Geographically, the railway network in present Bihar is along the thickly populated Gangatic valley areas, leaving large part of north Bihar outside the railway networks. It is, however, satisfying that initiatives have been taken to increase railway route length to cover new areas and to modernise the routes in many areas.

• Airports

There are two international airports in Patna and Gaya. This apart, airports at Purnea, Darbhanga, Gopalganj and Madhubani can also be used for air flights. Other airports of the State at Muzaffarpur, Bhagalpur, Saharsa, Chhapra, Arah, Munger, Seetamarhi, Dumraon etc can be taken advantage of by renovation and modernization. Presently Indian Airlines, Jet Airways, Deccan Airways, and Sahara Airways are providing air services from Patna Airport.

• **Inland Water Transport**

Inland waterways can provide relatively low cost freight in Bihar, since Bihar has a good network of major and minor rivers. The river Ganga, passing through Bihar has been declared as National Waterways (NW) No. 1 by the central Government. On NW-1, least available depth (LAD) of 2 meters is being provided between Haldia and Patna for a distance of 1020 kms as well as 1.5 meters between Patna and Varanasi for about 330 days in a year. Floating terminal facilities have been provided at Haldia, Karagola, Bhagalpur, Munger, Patna, Varanasi, Chunar and Allahabad. A permanent terminal has been constructed at Gaighat, Patna. The Central Inland Water Transport Limited (CIWTL) and private operators are operating river services on NW-1. In addition, there are a large number of rivers with a total navigable length of over 1300 kms in Bihar which could provide links to various important cities of the State in course of time, depending on its economic viability.

• **Tele-Communication**

At present, there are 67.1 lakh telephones (basic & mobiles) in Bihar. BSNL, Reliance, Bharti and Tata Telecom are the four telecom operators, providing services in the State. However BSNL is the leading operator having 41% market share.

As to the telecom service density, it comes out to 809 per 1000 population⁵. This will definitely improve further in the course of time.

• **Postal Communication**

Bihar has 9,054 Post Offices. Each post office serves 9,263 persons. There is a proposal to open 14 new Post Offices. However, the private courier services are also active in the State, particularly in urban and semi urban areas.

3.8 Financial Infrastructure & Institutional Finance

In Bihar there are four types of financial institutions, which cater to the financial needs of the State. They are (i) Commercial Banks, (ii) Regional Rural Banks. (iii) Cooperative Banks, (iv) State level financial institutions, and (v) national level

⁵ Economic Survey (2006-2007) , Government of Bihar

financial institutions. Cooperatives mainly cater to the credit-requirements of agriculture sector whereas; commercial Banks provide credit-facilities for a number of activities, including agricultural and industrial development. As regards state level financial institutions, they largely help promotion of industrial development in the State; whereas, the national level, financial intuitions though fill the specific gap of financial needs in the State, cater extensively to the interest of corporate houses.

• Commercial Banks

Commercial banks are the backbones of financial sector infrastructure. Table -3.11 shows the distribution and progress of commercial banks in Bihar.

Table-3.11: Distribution of Commercial Banks Branches offices in Bihar (March end)

Year	Distribution (%age)			Total	Growth rate (%)
	Rural	Semi-Urban	Urban		
2001	69.3	18.5	12.2	3620	1.49
2002	69.1	18.5	12.4	3616	- 0.11
2003	69.1	18.6	12.3	3609	- 0.19
2004	68.7	18.9	12.4	3618	0.25
2005	68.0	18.9	13.1	3646	0.77

Source: Economic Survey (2006-07), Finance Department, Bihar Government (P.137)

It may be noticed from the table that by the end of Mach, 2005 Bihar had 3646 branches in the State, of which 68.0% were in rural areas, 18.9% in semi-urban areas and 13.1% in urban areas. As regards growth of branches, it may be noted from the table that between 2001 and 2004 there was hardly any growth. In fact during 2001-2002 and 2002-2003 the growth rate was negative because of merger of loss making branches with other branches within the same service area. However, if analyzed in terms of population coverage or village coverage, each Branch office covers nearly 25000 populations and near about 12 villages of the state .The coverage may be termed as satisfactory.

• **Credit -Deposit Ratio**

It may be observed from Table-3.12 that rate of growth of outstanding credit has constantly been on higher side, whereas, deposit growth has remained almost constant.

Table-3.12: Credit and Deposits of Commercial Banks in Bihar and India (Rs in crores)

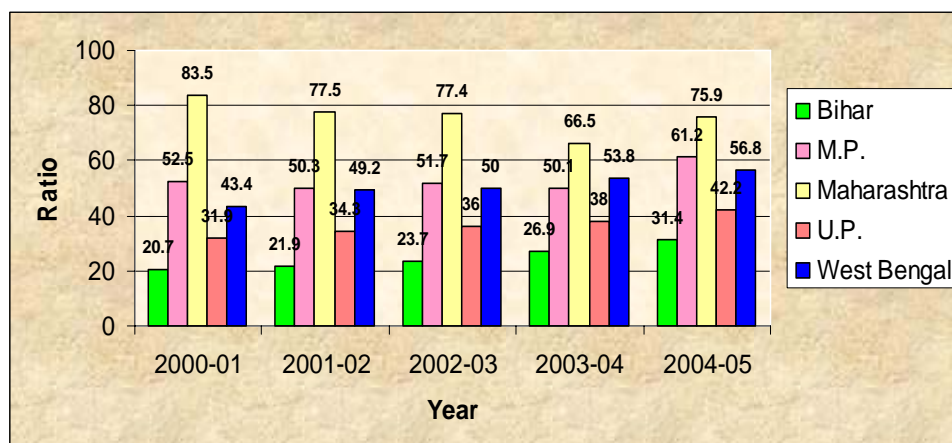
		2000-01	2001-02	2002-03	2003-04	2004-05
A. Bihar	Credit	5547.2	6547.3 (18%)	7802.6 (19%)	9667.1 (23.9%)	12868.5 (33.1%)
	Deposits	26800.7	29832.5 (11.3%)	32931.6 (10.3%)	36000.6 (9.3%)	41007.4 (13.9%)
	Credit-Deposit Ratio	20.7	21.9	23.7	26.9	31.4
B. India	Credit	538433.8	655993.1	755968.8	880312.0	1152467.9
	Deposits	949433.3	1123393.3	1276195.7	1511273.4	1746814.0
	Credit-Deposit Ratio	56.7	58.4	59.2	58.2	66.0

Note: Figures in parentheses show the %age growth over proceeding year.

Source: Economic Survey (2006-07), finance Department, Bihar government (P.138)

From the year 2001-02 to 2003-04. A little higher deposit growth has been recorded only in 2004-2005. The growth rate of both the credit and deposit in Bihar is lower than the national averages. But what is more important is the application of deposit for the economic development of the State which is measured from credit deposit ratio, popularly known as CD ratio. The CD ratio normally depends upon the level of economic activities and level of credit absorption capacity of the State. At times credit dispensation shrinks also because of poor repayment of outstanding loans. In fact till 1990, CD Ratio was at the lowest level as compared to other States in the country. However, some improvement was recorded after 2000-01. But even in 2004-05 also it was at very low level as compared to average national CD ratio. Presently, this ratio is 31.4, which is very low as compared to national average of 66.0. This situation is not favourable for economic growth of the State. It may be noted from

Table-3.12.1: CD Ratio of Bihar, Compared to a few Other States of India



Source: Economic Survey (2006-07), Finance Department, Govt. of Bihar (P.138)

Figure 3.1 CD ratio is the lowest as compared to States like M.P., Maharashtra, U.P., and West Bengal for all the years ranging from 2000-01 to 2004-05.. Bankers will have no hesitation to use the deposits for the development of the State, subject to launching of viable economic development projects, smooth law and order situation, and reasonably good loan repayment behaviour of borrowers. However, potential linked credit plan (PLP) at the district level is more credible data base to ascertain the bankers credit orientation and its ability. The challenge lies more in creating a viable credit absorption capacity amongst rural entrepreneurs instead getting caught up in CD ratio jugglery alone.

It may be noted that investment is a must for productive economic activities and at the present CD ratio it will take a long time to reach a substantial investment level. As per the Economic Survey (2006-2007) of Bihar Government during the year2004-2005 per person bank loan stood at Rs 1575 in Bihar, whereas, it was Rs 5048 in M.P, Rs 27589 in Maharashtra, Rs 3204 in U.P and Rs 7425 in West Bengal. Lower level of credit dispensation in Bihar also indicates that credit needs are even now met by private moneylenders at higher rate of interest, which adversely affect the profitability of enterprises. Naturally, this is a serious bottleneck in the industrial development of the State.

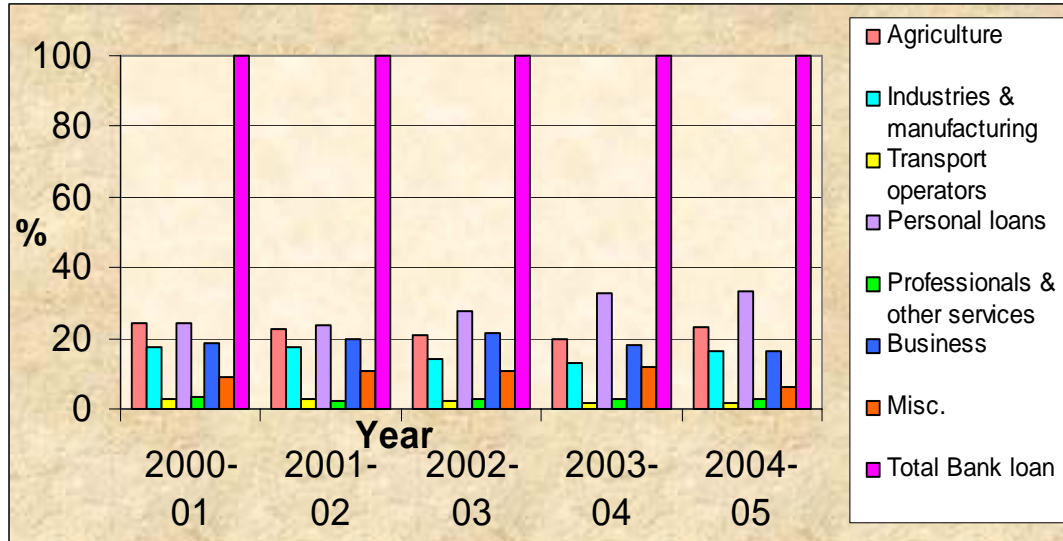
▪ **Regional Rural Banks**

There are five Regional Rural Banks in Bihar, namely ‘Madhya Bihar Kshetriya Gramin Bank (sponsored by Punjab National Bank), Bihar Kshetriya Gramin Bank (sponsored by UCO Bank), Samastipur Kshetriya Gramin Bank (sponsored by SBI), Uttar Bihar Gramin Bank (sponsored by Central Bank of India) and Koshi Kshetriya Gramin Bank (sponsored by Central Bank of India). Except Uttar Bihar Gramin Bank, whose CD ratio is 34.37 as on 30.09.06, all other Gramin Banks have CD ratio at more than 40, ranging from 44 to 59, which is much better than those of commercial Banks in Bihar.

• **Share of Industries in Total Bank Loans**

Table-3.2 shows percentage share of total loans of commercial Banks for various sectors between the years 2000 to 2005. It may be noted that there has not been very significant change in the relative shares of loans to various sectors.

Table-3.12.2: Share of Industries in Outstanding Loans of Commercial Banks



Source; Economic Survey (2006-07), Finance Department, Bihar Government (P.148)

During the year 2004-05, of the total loan agriculture shares 23%, industries and manufacturing shares 17%, personal loans shares 34% and business 17%. This does not augur well for the development of agriculture and industry. The causes need to be identified and addressed to facilitate better credit flow.

• **Financial Institutions**

There are various national level and state level financial institutions, operating in Bihar which provides a variety of financial products and services to cater to the needs of industrial sector. The national level institutions are IDBI, IFCI, ICICI & IDBI which provide financial assistance to medium & large industries as well as IDFC and SIDBI which cater to the financial needs of the infrastructure sector and small sector. All these institutions also undertake promotional & development activities. Besides them, there are specialized financial institutions, such as EXIM Bank and NABARD. NABARD plays a major role in increasing credit flow for the development of agriculture, small industries, rural & cottage industries, handicrafts and other rural crafts. This apart, it plays significant role in development of rural infrastructure through funding under Rural Infrastructure Development Fund (RIDF).

The state level financial institutions, operating in Bihar are BSFC (Bihar State Finance Corporation) BSIDC (Bihar State Industrial Development Corporation) BISICO (Bihar State Investment and Credit Corporation) and BPRFC (Bihar Panchayati Raj Finance Corporation). These institutions have to improve its functioning to contribute effectively.

Cooperative Banks

Bihar has a large network of cooperative institutions. Cooperatives in general have suffered because of lack of proper management and political interference. Bihar State Cooperative Bank, Central Cooperative Banks, and Primary Agriculture Cooperative Societies are functioning in the State and they provide credit facility. But it is unfortunate that due to poor recovery of loans the percentage of their NPA is very high. As per the data available, the recovery rate was 9.1% during 2000, 6.4% in 2001, 11.7% in 2002, and 20% in 2003. The NPA as percentage of their total advances as on September 30, 2002 was recorded as 41.57% much higher than commercial Banks. Similarly, recovery of loan of central cooperative Banks, as percentage of demand

was 29% in 2002 and 24% in 2003. Recovery performance is highly unsatisfactory even in the loans dispersed by Primary Agricultural Cooperative Societies and Land Development Banks. With the result, the cooperative structure is in a bad shape and its dwindling credit delivery capability calls for recapitalization and liberalization for increasing their profitability and overall performance.

3.9 Credit-flow Thorough Self-Help Groups (SHGs)

Micro-credit through SHGs can make significant contribution in poverty eradication. SHGs are small and cohesive group, less bureaucratic, more participative, thoroughly decentralized and effective in a large number of cases. It is mostly because they easily cater to the basic needs of their members, ensure better credit utilization and prompt loan repayment due to peer pressure. In principle, lending through SHGs leads to reduction of transaction cost. But inspite of all this, the performance of SHGs-Bank Linkage in Bihar is poor. Performance of commercial banks also is not very encouraging in this respect with exception to RRBs which have slightly better record than other institutions.

3.10 Poverty and Employment

Bihar is the third most densely populated state (880 persons/sq km. in 2001) and is characterized by high unemployment/under employment as well as low productivity of those who are already employed. Most of the workers in the State are engaged in low paid agricultural activities either as self employed or as casual labour.

Table 3.13 indicates the participation role of work force in rural and urban areas. It is quite obvious from the table that both in the year 2001-02, and 2004-05 the participation of labour force in Bihar is much below the figures of all India figures.

Table: 3.13 Work Force Participation Rate in Bihar and India

	Rural 2001-02			Rural 2004-05		
	Male	Female	Persons	Male	Female	Persons
Bihar	52.2	14.9	34.9	47.7	13.8	31.6
India	54.6	31.4	43.3	54.6	32.7	43.9
	Urban 2001-2002			Urban 2004-2005		
	Male	Female	Persons	Male	Female	Persons
Bihar	47.6	6.3	28.2	45.2	6.5	27.2
India	55.3	13.9	35.5	54.9	16.6	36.5

Source: NSSO Repot No. 481, 2001-2002, No. 515, 61st round. Economic Survey (2006-07), Finance Department, Bihar Government (P.128)

The participation of female labour force is still worse as compared to male labour force. In urban areas also participation of labour force in general and of female labour force in particular is no better as compared to all India figures both in the year 2001-02 and 2004-05. The state of employment, particularly among the females is a reason of slow economic development of the State.

Less productive employment avenues and low rate of participation of labour force, both among males and female have pushed the people of Bihar towards economic backwardness. A number of programmes have been launched in Bihar from time to time to reduce poverty and help people create asset and income generating avenues. But inspite of all these, it has been projected that 44.81% of rural population and 32.69% of urban population in Bihar were below poverty line as at the end of the year 2006-07 as against 21.07% rural population and 15.06% urban population of India as a whole at the end of the same year. Hence, it is widely acknowledged that creating adequate productive work opportunities should be the main plank of the development strategy in Bihar.

3.11 Human Resource Development

Human resource development occupies important place in the scheme of economic progress of a State, since it empowers the human resources not only through formal education but also through training and skill development. As regards formal education, the scenario is much to be desired. During the last more than a decade, literacy has grown but at a sluggish rate as compared to India as a whole. As per the SES, 2002-03, school dropout in schools from primary to secondary classes has been recorded between about 62% and 86% both in the cases of boys and girls, which are much higher than all India averages. Pupil- teacher ratio was also very high (73 to 80), and single classroom and single teacher schools still continued to be the features of primary school system. If one compares the proportion of students enrolled in higher education, the situation in Bihar is not much different from national average. Similarly, in professional education also the performance of Bihar is much poor as compared to all India level.

The State of vocational education is virtually non-existent in Bihar. However, there are 58 Industrial Institutes (ITIs) and Industrial Training centres (ITCs). Of the ITIs, seven ITIs are exclusively for women, and the seating capacity of all the ITIs is reported to be 14968. In terms of population coverage, there is one ITI per 10 lakh population, where as it is 2 lakh in U.P., and 5 lakh in Punjab and so on. Apart from the limited coverage, the existing ITIs are in extremely bad shape as far as infrastructure, equipment and teaching manpower are concerned.

Other technical educational institutions, such as Polytechnics, Engineering Colleges, Medical Colleges, Dental Colleges, Pharmacy educational institutions, as well as Information Technology based educational centres are also there in Bihar. They too are suffering due to one or the other limitations. The size of industrial sector in Bihar, in terms of income is hardly 3.2% of net domestic product of the State, where as the national average works out to 20.1%. However as per the local quotients, food products, tobacco products, leather products,, non metallic products have become prominent constituents of industrial base in Bihar, though group of industries, comprising of cotton, jute, wool, paper, rubber, plastic and chemicals also have their presence in smaller ways. In this context it may be further mentioned that agro-based industries occupy a prominent place in the industrial scenario of present Bihar as they account for nearly half of the net value added. Incidentally, during the last two decades agro-based industries viz; tea in Kishanganj district, dairy sector through cooperatives, and makhana industries have shown increasing trend. It is, however, noteworthy that 35 districts, do not have even a single medium large industrial unit and another 11 districts have less than 5 units each.

As regards artisan based, tiny and small industrial units, there are around 55000 artisan based industrial units, 74000 tiny industrial units and 1700 small industrial units in Bihar. However, their concentration is comparatively more in Tirhut, Darbhanga, Magadh and Saran Divisions. With already a small industrial base, rise in industrial sickness in Bihar is also a phenomenon needing attention. In totality, improvement and further expansion of physical infrastructure, such as power, road and water transport network, railway network, tele-communication, banking, and

training institutions for skill up-gradation as well as entrepreneurship development hold the key to development and growth of Bihar economy and promotion of industrialization process in rural areas. Thus, future industrialization of Bihar can be planned and implemented around (1) agro-based industries, (2) metal product industries based on the inputs, obtained from neighbouring Jharkhand State and chemical industries, (3) industries, based on the bye products petro-chemical complex at Barouni as well as drugs and pharmaceuticals, (4) traditional industries ,such as handlooms, power looms, wooden furniture, leather goods etc mostly in the unorganized sector industries and (5) small scale industrial clusters, some of which have already been identified as Lime based units at Gaya, Aurangabad, Rohtas; Stone chips units at Gaya, Nawada; Silk weaving and printing units at Bhagalpur; hand looms and Power looms units at Gaya, Bhagalpur, Siwan, Madhubani, Nalanda; Glassware industries at Rohtas; Metal utensil units at Patna, Buxer, Aurangabad, Bhojpur and Hosiery units at Patna and Muzaffarpur

Summary

Summary analysis reveals a clear picture of the inherent strength and and gaps .The ratio between man and land speaks loudly and clearly about the pressure of the population on land, the need for exploitation of natural resources by using modern technology, the need for creating non-farm employment opportunities and promotion of entrepreneurship to support the higher population density. Besides, there is not only a need to develop the capacity of individuals but also Bihar State as a whole. The non farm sector in Bihar has for long been ignored even when it's the sole producer of certain products. Makhana, textile and handloom industry (Bhagalpur silk and Madhubani art) has for long been a specialty of Bihar which is once again in demand not only within the country but also overseas. However it is very unfortunate to see these industry die out and not come up due to lack of reinforcement and sustained effort by state institutions. Of course efforts are on way to streamline the improvement process on a faster pace but there is need to encourage greater flexibility and tight monitoring of execution.. Also efforts have to be made to improve the communication channels, like railways, airways, road transportation and even roads for that matter.

RURAL ENTERPRISE CREATION AND INDUSTRIAL EXTENSION PROCESS

4.0 Introduction

The definition of rural enterprise creation is closely linked to the fundamentals of rural industries promotion. Theoretically speaking, rural industries promotion is characteristically defined as a strategy of pragmatic blending of both the traditional and modern industries with a sharp focus on addressing the prime need of employment creation for unemployed rural youth, in dynamic synchronization with the exploitation of rural resources and the local skills.

This chapter explains the profile of rural enterprises in the State of Bihar vis-a-vis the pattern of economic non farm cluster being developed by the State and other agencies. It also discusses the nature of industrial extension orientation of the development officers as against the recent emphasis placed by the State Government on rural industrialisation. In other context it may also be noted that there is no specific change in the industrial policy of the State .However; the Udyog Mitra⁶ has become very active in the recent past.

4.1 Rural Enterprises and Entrepreneurs

Large number of rural entrepreneurs engaged in several economic activities has been studied to ascertain their performance and problems to determine the pattern of entrepreneurial issues at the grass root level. Sample respondents have revealed interesting information on nature of common issues and concerns that might give us

⁶ Udyog Mitra is evolved as a friend of entrepreneurs set up as independent unit under department of Industries that keeps direct interface with entrepreneurs to render support and services to them. In addition to build information bank for them.

a lead to our policy formulation and strategic approach. Most of the entrepreneurs, having set up their units were found to be untrained and unexposed to several modern management practices or the modern marketing.

As is evident from the table 4.1, almost 70% of them never had any training exposure before or after setting up the enterprise. Hardly 20 % of them had undergone normal EDP program quite some time back, conducted by local state agency outlived its utility as of now. While verifying the nature of training offered to small entrepreneurs it was found that major focus had been on general information coverage and the training was carried out by the different state agencies particularly by DICs. Self employment training module, offered by DICs had no local credibility amongst the select respondents. It was also observed that such district agencies hardly offer such courses by them. They rather outsourced the services of some local agencies which were not known for their training resource and competence. Of course state level IED is better equipped in terms of experience provided quality programs.

Table 4.1- Pattern of Enterprise Training Offered to Rural Entrepreneurs

<i>Trained before starting the venture</i>	<i>Trained after having set up venture</i>	<i>No training ever (neither before or after launching the enterprise)</i>	<i>Employees trained on technical skill</i>
10%	20%	70%	25%
<i>Quality orientation training</i>		<i>Work culture and better work habits</i>	
10%			12%
<i>Enterprise management</i>	15%	<i>Market and packaging</i>	15%
<i>Motivation training</i>	18%	<i>Finance and other Regulatory information</i>	30%

Around 25% of their total employees were trained by ITIs and other agencies beyond the State. Many picked up the technical skills while doing in the job the factory or in Punjab and Delhi. Majority of the entrepreneurs (65%) preferred to have workers/supervisors from outside the State than the local ones due to their poor work culture and unhealthy performance orientation.

It was also found that entrepreneurs, in general, did not have any interest in training nor did they have any knowledge about the resource agencies operating in the State. It may be due to no exposure, absence of local competitiveness and apathetic training climate of support agencies to instill in them the value of positive work culture and contractual work orientation of their staff in general.

Table -4.2 Reasons of Low credibility of Rural Entrepreneurs Training
(frequency of response (N=90))

<i>Items</i>	<i>High Total%</i>	<i>Moderate</i>	<i>Low</i>
<i>1.Poor trainers delivery and orientation</i>	28% 100	30%	42%
<i>2.Quality of poor escort services after training</i>	64% 100	26%	20%
<i>3.Inadequate training material in local language</i>	45% 100	30%	25%
<i>4.Finance agencies give no weightage of training for loan sanction</i>	78% 1000	12%	10%
<i>5. Absence of special prog as per need based</i>	21% 100	29%	59%

Note: High, moderate and low categories define load of respondents in the given category. Multiple reasons in the given item for the respondents added complexities of the problems

While examining the reasons of deep seated low credibility on training amongst rural entrepreneurs, it was found that almost 78% of them felt that Banks hardly attached any significance to training while extending loan. Almost 54% of them felt training was of no use since quality of escort services was very poor and 59% of the respondents opened that such programs were not based on the specific needs of the existing enterprises.

As a matter of fact, State level entrepreneurship training institute has been offering series of such courses for new ones. But considering the views of the respondents, urgent attention to build their capacity to remodule their. Even quality of training offered at the district level with DICs partnership need improvement to establish it's credibility amongst the ultimate users. Absence of adequate data base with the local entrepreneur trainers and negative mindset of trainers in general adversely affected the training quality at the ground level, evading its credibility amongst rural entrepreneurs at large. The lack of good trainers and accredited training to meet the

needs of ever increasing scope of training and development paralyses the pace of government expectation inspite of Governments gesture of support.

Absence of independent cell of training at head office level further compounds the problem, except that of IEDs that caters to states' training need of rural enterprises .Quality of trained trainers and significance attached to training to build the capacity of small and tiny rural entrepreneurs need urgent attention. State need to have a sound strategy in this regard to address these issues.

4.2 Rural Extension Orientation

It was noted that both agriculture and industrial extension scene at the ground urgent attention. It was revealing to note officers at the DICs level had little time to build capacity of rural entrepreneurs and help provide technical information. Their primary occupation remains to be regulatory and supervisory task driven followed by routine correspondence and attending meetings of the government. They shared that they had neither time nor any transport facilities to go to the field to offer the extension support facilities.

Lowest weightage was given by the officers on transmitting techno- services and other extension work to rural entrepreneurs due to several reasons attributed by them. Most of the officers (almost 90% of them) indicated that they had never attended any training on related theme almost for the last ten years., Of course response of quality of training being offered and its credibility may be understood by response of table 4.2 as above.

In fact industrial extension programme needs rejuvenation in order to give boost to the process of rural industrialization at the village level. Khaadi village industries officers or DICs level officers are highly ill equipped to deliver what they are supposed to meet the growing demand of unemployed rural youth of the state.

The job assigned to them and stated priorities taken up by the officers hardly provide glimpse of desired extension services. Similar result in agriculture sector is likely complicating the situation of our inherent blocks towards rural industrialization. In fact agriculture- extension is more critical stage compared to that of industries sector

Table 4.3- Priorities Assigned and Industrial Extension Orientation of officers

Items	Rank order score	Job priority rank
1. Regulatory and supervisory work	1.2	I
2. Training to Rural -Entrepreneurs/farmers on innovative process.	5.9	
3..Giving technical information to entrepreneurs	5.7	
4.Linkage with NGO and awareness to their job	7.3	
5.Complying to routine and meeting jobs	2.1	II
6.Networking to financing agencies/banks	3.5	IV
7.Going to field is difficult nor it is important	4.1	V
8.Interacting with DRDA officials micro economic clusters	6.4	
9. Replying to Head office letters and General quarries	2.4	III
10. Developing market info and project profiles	8.9	

**Note Higher the rank score lower is the priority assigned by the officers on the given functions*

It was evident from the table-4.3 that first five rank scores did not support the observations officers' apathy at the district level that had little interest in extension job nor they were equipped with the desired extension skills and aptitude. The supportive climate has to gear up the team by multi- stage training and high motivation for the officers along with entrepreneurs as well.

4.3 Profitability of Rural Enterprises

It was revealing to note that most of the units were operational on low profit range in spite of easy access of labour and raw material. It might be due to the lack of market opportunity or absence of infrastructural support to transport the goods to right market .It could also be due to high cost of production due to irregular electricity supply and unplanned production schedule to meet the growing market demand.

Table-4.4 Distribution of sample Industries on its Gross Profitability

Industry	High Above 1 Crs.	Medium Between 50-99 Lacs	Low Below 50 Lacs	Total
Agro based Industries	11(11.1%)	7(8%)	35(39%)	53(59%)
Leather Industries	1(1.1%)	2(2.5%)	8(9%)	11(12%)
Steel Industries	1(1%)	3(4%)	9(10%)	13(15%)
Miscellaneous (PVC+ Handloom+Plywood)	1(1%)	2(2%)	10(11%)	13(14%)
Total	14(14%)	14(18%)	62(68%)	90(100%)

Note: Range of Gross Profit defined the trend of visible success of running enterprise in the given sectors

However the factorial analysis of the problem areas, as apart of our investigation may support the hypothesis in this direction .It was heartening to note that majority of them (68%) fell in the low gross profit range income. Hardly 14 % of them could be placed in high gross-profit range. Of course it was obvious that conservative estimate of the gross profit showed emerging trend of success in spite of several problems

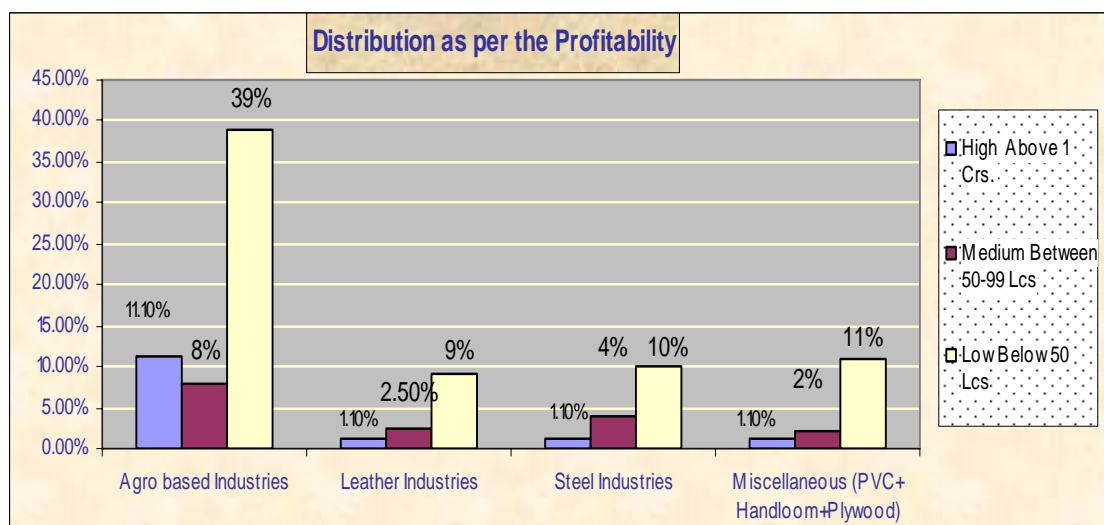


Exhibit 4.1 Distribution of Profitability

We may infer at this juncture that lower the industrial productivity in general, greater is the problem of encouraging rural entrepreneurship in the region. Because people would be hesitant to launch at their own in search of self-employment.

Observations do indicate that growing positive socio-political climate of the region is still wanting at the ground level due to slow and sluggish decision making process with poor monitoring of development projects. District level and block level functionaries are seemingly apathetic and fearful to take initiative and caught in paper web all the time as discussed earlier in this report (see table 4.4 above) on extension orientation of the stake holders.

4.4 Problem of Rural Industrial Promotion

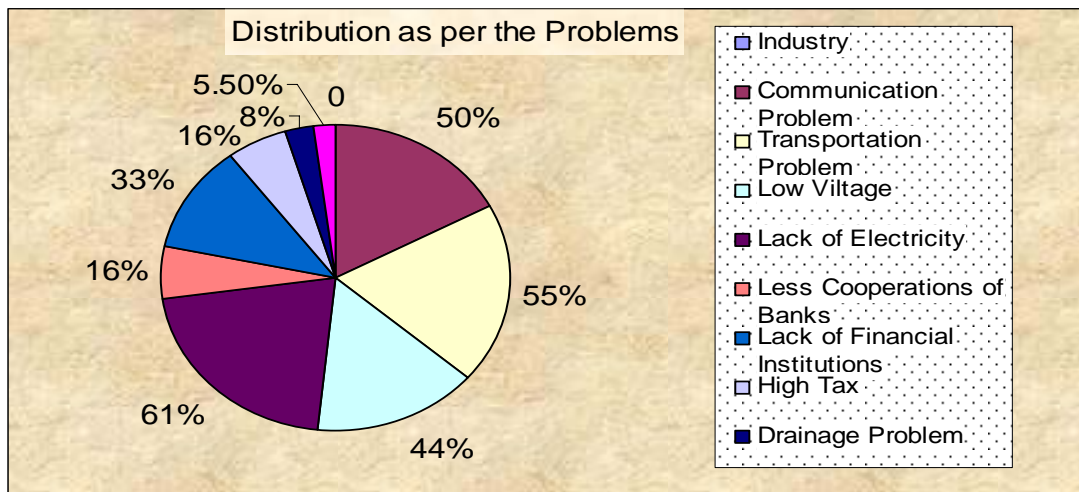
There are several operating problems confronted by local small entrepreneurs in pursuit of their of work life right from launching to managing their enterprises. Medium and large level enterprises deal with such issues by creating several alternative outlets in search of their survival. They do not try to build their visible market image on account of their hidden fear of law and order problem. Though they do feel more safe and reassured than before in the given social -political climate. "It has become entrepreneurs' friendly state yet the mindset has to be more supportive that what it is make things moving" many respondents asserted.

Table 4.5 Problem Analysis of Selected Respondents

Industry	Comm- unation Problem	Trans- portation Problem	Low Voltage	Lack of Electricity	Less Co- operation of Banks	Lack of Financial Institutions	High Tax	Drainage Problem	Labor Problem
Agro based Industries	45(50%)	50(55%)	40(44%)	55(61%)	15(16%)	30(33.3%)	15(16.6%)	8(8.8%)	5(5.5%)
Leather Industries	10(11.1%)	9(10%)	6(6.6%)	8(8.8%)	8(8.8%)	5(5.5%)	4(4.4%)	5(5.5%)	4(4.4%)
Steel Industries	5(5.5%)	13(14.4%)	16(17%)	10(11.1%)	6(6.6%)	8(8.8%)	7(7.7%)	8(8.8%)	4(4.4%)
Miscellaneous (PVC+ Handloom+ Plywood)	11(12.2%)	7(7.7%)	2(2.2%)	4(4.4%)	13(14.4%)	8(8.8%)	5(5.5%)	0	10(11%)

Note: Figure in the parenthesis indicate % of the total sample size (N=90) .Each respondent has series of common problem over lapping each other in the given category

Table 4.5 A: Distribution as per the Problems



Above graph and the pie chart shows that most of these industries are facing series problem due to lack of infrastructure like low electricity voltage, insufficient electricity, bad communication facilities and lack of transportation facilities which covers the total of 72%, and other problems are like lack of cooperation from the officers and the banks. Generally it was found that labors working in these industries are not skilled nor are trained to give a cost cutting measure in particular.

State government by it self may not do much in this regard unless strategic intervention is envisaged on strengthening backward linkage process. .However improvement in the road infrastructure would eventually enhance the supply pattern of the raw material problem in particular in addition general profitability of the enterprises. The challenge of the institutions would be explore the evolution of consortia through a strategic design of value chain analysis by the state institutions.

It was found that the ambivalence of sub-sector analysis and understanding of value chain process was almost missing at system level. Nor any support agencies have placed their energy off this area except on piece meal basis by some commercial banks like SBI and PNBs as sporadic impact in the state on identification of the cluster.

4.5 Capacity Utilisation of Rural Industries

It was evident from the analysis that almost 67% of rural industries in the sample had hardly utilized 40% of the capacity of their production. It was definitely a discouraging trend to find that enterprises were not fully using their installed capacity. Out of them agro-based and handloom units were found to be highly underused in terms of their installed capacity. The primary reasons of the such an under use of the sector is their poor market linkage and poor marketability of their finished products itself.

Table4.6 Distribution of sample industries according to their Utilisation against their Installed Capacity

Industry size	Agro-and food based	Leather	Steel/alloy	Handloom /artisans
Small /tiny (Below 10 Lacs)	40%	30%	33%	45%
Moderate (10 lacs -35 Lacs)	35%	39%	17%	35%
Large sized	67%	48%	10%	30%
Total/ overall	48%	40%	20%	36.6%

Note: Percentage indicate degree of utilization of given installed capacity in terms of potential hours and used hours of operation .Estimated hours of potential use was determined on average of 8-12 hours daily for small and large units respectively. It was found that they were in operation much below their capacity of potential operating hours to the maximum of 7 hours on an average of out of total capacity of 12 hours .in large and medium enterprises.

Lack of adequate market nexus and absence of sub-sector approach with no value chain analysis on related theme by the government and other support agencies has been to help enhance the operating capacity of the units. Most of the units that do not seem to be doing well due to several reasons ,as stated earlier ,had visible under-utilization problem.

The questions posed to them were as to how long you operate these units under the given constraints. Very few could share that majority had stretched their capacity to maximum of more than 35 % of their total operating capacity. As stated earlier the units had been facing electricity and marketing problem. Small units could survive

without electricity whereas medium and large had face setback at higher level due to power infrastructure.

4.6 Economic Cluster in Different Regions

Different regions have been recognized to have ongoing cluster of economic activities. Many of the cluster have become very active .However the supportive role of government agencies is important in keeping the momentum high .The fear is that the moment project supportive umbrella is withdraw the community self supporting mechanism might come to grinding halt. Except few of them most of the cluster projects are driven by government donors' mode with exclusive government functionaries .Community participation their ownership is not strongly visible except that in Bhagalpur and adjoining areas

Table 4.7 Ongoing Economic Activities' Cluster with Support of Different Agencies

<i>Focus on economic activity</i>	<i>Location</i>	<i>Implementing Agency</i>	<i>Current</i>
<i>Gun Manufacturing Cluster</i>	<i>Munger</i>	<i>Ministry Of SSI GoI</i>	<i>Already in progress</i>
<i>Brass And Bronze Metal Utensils Industry Cluster</i>	<i>Pareo</i>	<i>-Do-</i>	<i>do</i>
<i>Food Processing Industry Cluster</i>	<i>Muzaffarpur</i>	<i>Ministry of Food Processing ,GoI</i>	<i>do</i>
<i>Handloom</i>	<i>Bhagalpur,</i>	<i>Ministry Of Textile I partnership with NGO</i>	<i>do</i>
<i>Handloom</i>	<i>Gaya Bihar sharif Nalanda</i>	<i>State Government dept of industries</i>	<i>do</i>

An industrial unit in which the investment in fixed assets in plant and machinery does not exceed rupees one Crore is said to be small scale industry. Such plant and machinery may be owned or obtained on lease - while calculating the investment in plant and machinery items like land, building and some equipments required for quality control, pollution control etc. are excluded.

It is not necessary to engage in manufacturing activity for self-employment. One can set up industry-related service and business enterprises. These are known as Small Scale Service & Business Enterprises (SSSBs).

Summary

Bihar is a place which has an abundance of natural resources. For the past some times large industries have not been able to make a great success due to the lack of capital, social and physical infrastructure. However study of rural industries and strategic intervention to formulate the design for the state would call for proactive mode of intensive and extensive strategic approach. Farmers orientation and farm productivity in particular, based on sample respondents would also give us clue to evolve strong strategic nexus with industry and agriculture. The process of rural industrialisation demands critical attention on above in order to build appropriate strategy.

AGRO-CLIMATIC-ZONE AND ECONOMIC OPPORTUNITY

5.0 Introduction

As stated earlier, agriculture still holds the key of state's economy by contributing one-third to state domestic product and providing employment to more than three-fourths of working force. In the present section an effort has been made to analyze the agricultural production system for identifying potential and clusters of growth centres for development of agro-based industries in Bihar.

Analysis is based on primary data obtained from 300 farm households of 10 districts located in three agro-climatic zones of Bihar. (See Appendix-1 pie chart). Challenge for rural industrialization also lies in fragmented small holding, that is farm households under study belong to various farm size groups but 68 percent of them belonged to small farm categories. Average farm size of farmers under study is worked out to be 10 acres however, average size of small farm households is about 1 hectare (3.42 ha).

5.1 Profile of Respondent Households

It was evident from the analysis that 84% were found to be nuclear family in the villages. It appears that majority of respondents with limited assets had nothing to hold back together nor they could show their inkling towards joint family orientation. Eventually almost 63 % of the respondents fell in small family size

It was evident from the analysis that small and medium farms households jointly constituted 68 percent of households under study. However, the proportion of small farm holding was higher in zone III and the reverse situation was observed in zone II

where as the proportion of large size farms was comparatively high than other two agro-climatic zones i.e. zone I & zone III (see table 5.1)

Table 5.1 Size group wise distribution of farmer in different agro-climatic zones of Bihar

S.No.	Farm size	Zone-I	Zone-II	Zone-III	Total
1.	Small (below 5 acres)	36 (30.0)	11 (18.34)	69 (57.5)	116 (100)
2.	Medium (5-10 acres)	43 (35.83)	14 (23.33)	31 (25.83)	88 (100)
3.	Large (10 acres and above)	41 (34.17)	35 (58.33)	20 (16.67)	96 (100)
	Total	120 (100)	60 (100)	120 (100)	300 (100)

**Figures in parentheses indicate percentage to respective size group.*

About two thirds of large farm households continued to have agriculture as main occupation whereas importance of agriculture as primary occupation declined with decline in size of farms. However, 57 percent of small farm households and 61 percent of medium farm households had agriculture as main occupation. More than one-third of households had non farm activities as main occupation which included mainly agriculture wage earners petty shopkeeper, non farm worker, and small transporters (see table 5.2).

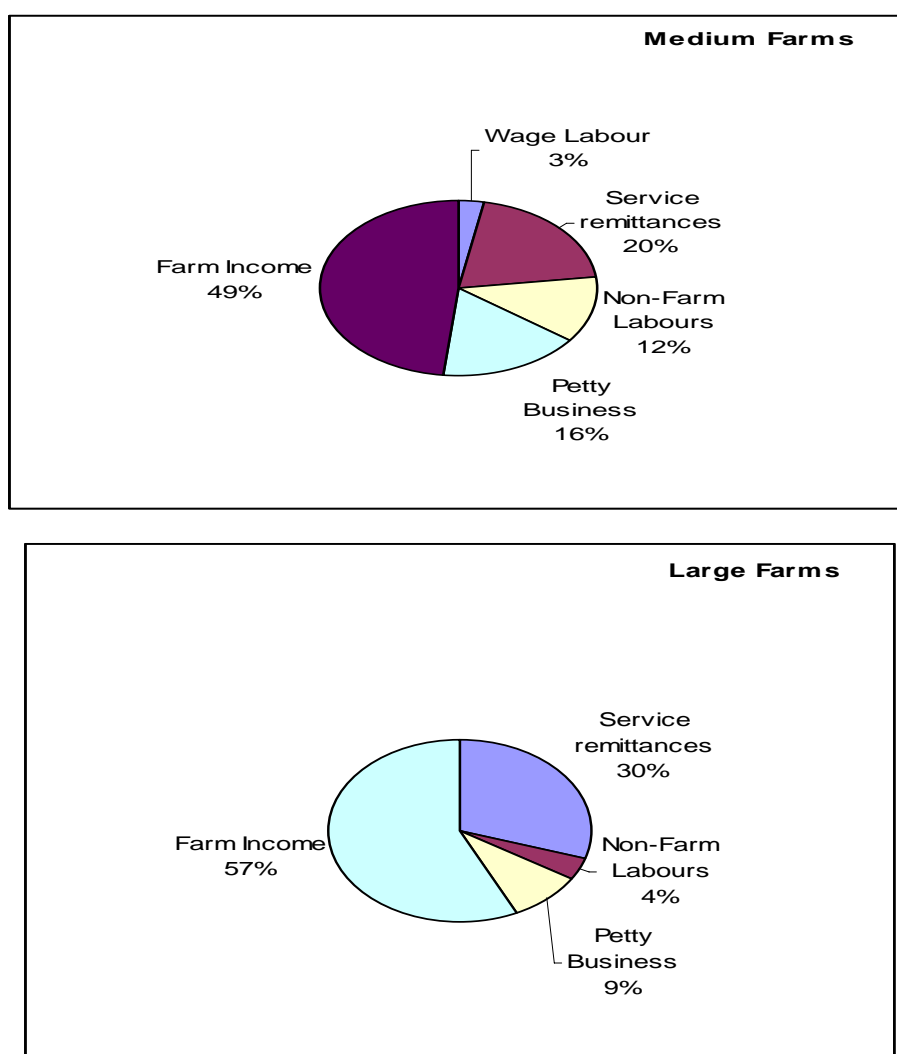
It was revealing to note that size of farm was positively associated with farming being the primary occupation. Of course, non farm activity continued to be secondary occupation at every level. With the result the latter, has been contributing the income of the small farms (see in this report separately) significantly to enable them move away from survival level.

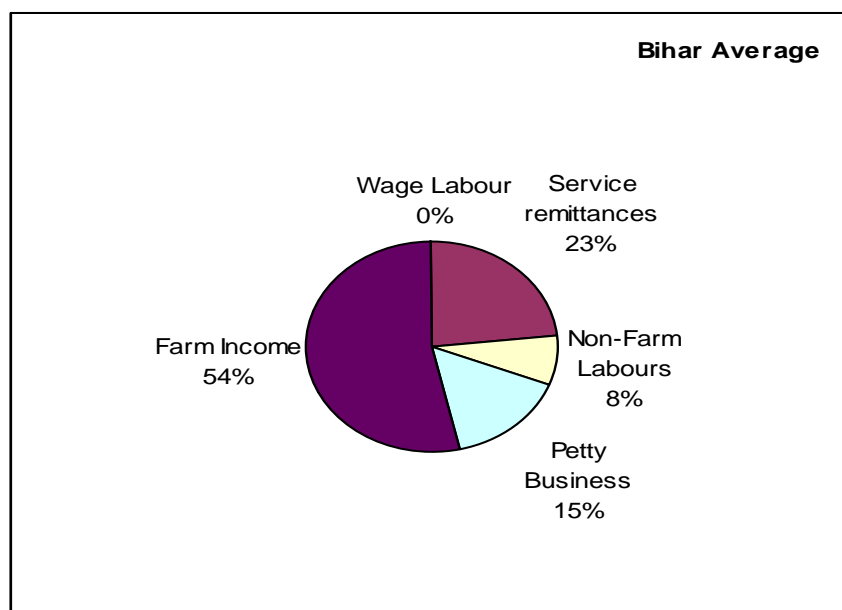
Table 5.2 Occupation of farm households

Farm size	Primary occupation (% of total)		Secondary occupation	
	Farm	Non-farm	Farm	Non-farm
Small	56.92	43.08	25 (6.41)	87 (22.31)
Medium	60.63	39.37	18 (6.27)	42 (14.63)
Large	66.67	33.23	20 (6.57)	48 (15.79)

Needless to mention that agriculture provided employment to more than three-fourth of working force and only one-fourth of working force are employed in non agriculture activities which are directly and indirectly related to agricultural performance. (see graph 5.3). At aggregate level, the trend of employment in agricultural and non-agricultural activities was found to be almost similar at all the three size group of farms. But agro climatic zone wise analysis revealed that the small farm workers of zone II got much lower employment in agriculture, probably due to undeveloped agriculture of the zone.

Graph 5.3 Income through different sources on different size of farms in Bihar





5.2 Age Structure of Family Members

Family members of sample households under study were classified into four categories. Analysis of data revealed that 70 percent of population was found to be in the age-groups of 14-50 years, (see table 5.4). Farm size wise analysis of data also revealed that the proportion of youngster population (<14 years) was higher on our small size of farm holding and lower on large size farm holdings. The older population (50 years and above) was higher on large size farm holdings (17.42%) and lower on small size farm holdings (12.50%)

Hence it may be said that a large proportion of adult persons (>70%) were providing gainful employment either in agriculture or agro-based industries in rural area. The development of agro-based industries in rural Bihar would not face any problem of labour scarcity.

Table 5.4 Age structure of family members on different size of land holdings.

S. No.	Age Group	Small	Medium	Large	Total
1	< 14 years	100 (15.91)*	66 (16.06)	51 (10.45)	217 (14.22)
2	14 to 30 years	179 (28.51)	89 (21.65)	162 (33.20)	430 (28.16)
3	30 to 50 years	268 (42.68)	177 (43.07)	190 (38.93)	635 (41.58)
4	50 years & above	81 (12.50)	79 (19.22)	85 (17.42)	245 (16.04)
	Total	628 (100.00)	411 (100.00)	488 (100.00)	1527 (100.00)

*Figure in parentheses indicates percentage to total population of respective category.

It is established that education variable has contributed significantly to the process of technology transfer and agricultural productivity (Kumar, Petal 2001)* Therefore, keeping in view the importance of education in agricultural development, educational level of farming community has also been closely associated with productivity of the state.⁷ As mentioned elsewhere in this report, Bihar is least literate state in India though, the efforts made in last 10 years various educational program, of course, have improved the situation. Analysis of data also revealed that above 56.78 percent persons were literate in Bihar (2007), however, literacy of female has also recorded at 49.46 percent (see table 5.5).

5.3 Type and Size of Family

As evident earlier, it was obvious that zone II had large farm size concentration followed with Zone I and Zone II respectively. Generally speaking, it is established that zone III and Zone IV has more of fragmented and small sized land .Ironically; it is largely due to cropping intensity and soil structure of the zone. (See the second chapter situation analysis) that productivity is higher inspite of the small size farms more prevalent.

⁷ Kumar, P; Kumar, A and Singh, R.K.P. (2001) *An economic analysis of total factor productivity in agriculture (A collaborative project) Indian agriculture. Research Institute, New Delhi-14*

Table 5.5 Educational level of family members on different size of farm holdings

Edu. Level	Small		Total	Large		Total	Medium		Total	Large		Total
	M	F	T	M	F	T	M	F	T	M	F	T
Illiterate	131 (40.06)	188 (62.46)	319 (38.21)	77 (38.21)	110 (52.38)	187 (45.50)	75 (29.65)	79 (33.62)	154 (31.56)	283 (36.24)	377 (50.54)	660 (43.22)
Primary	138 (42.20)	85 (28.24)	223 (35.51)	62 (30.85)	66 (31.43)	128 (31.14)	66 (26.08)	86 (36.59)	152 (31.15)	266 (34.06)	237 (31.77)	503 (32.94)
Secondary	34 (10.40)	18 (05.98)	52 (08.28)	36 (17.92)	24 (11.43)	60 (14.60)	72 (28.46)	40 (17.02)	112 (22.95)	142 (18.18)	82 (10.99)	224 (14.67)
Higher Secondary and above	24 (07.34)	10 (03.32)	34 (05.41)	26 (12.93)	10 (04.76)	36 (08.76)	40 (15.81)	30 (12.77)	70 (14.34)	90 (11.52)	50 (06.70)	140 (09.17)
Total	327 (100.00)	301 (100.00)	628 (100.00)	201 (100.00)	210 (100.00)	411 (100.00)	253 (100.00)	235 (100.00)	488 (100.00)	781 (100.00)	746 (100.00)	1527 (100.00)

Households under study are classified in two groups that is nuclear and joint family to have an idea about fabric and bondage of family system. About 84 percent of sample households belong to nuclear family and 16 percent to joint family, indicating prevalence of nuclear type of family in rural Bihar (Table 5.6 & 5.7)

Table 5.6 and 5.7 Distribution of respondents to different types of family

Sl. No.	Categories	No. of family	Percentage of total
1.	Nuclear type	252	84
2.	Joint type	48	16
3.	Total	300	100
<i>Distribution of respondents in different family size</i>			
Sl. No.	Categories	No. of respondents	Percentage of total
1.	Small size (1 to 5 members)	189	63
2.	Medium size (6 to 7 members)	66	22
3.	Large size (8 and above members)	45	15
	Total	300	100

5.4 Asset Possession

Asset possession is a necessary factor for realizing agricultural potential. Per households asset possessed of cultivators (Rs. 2.94 thousand) in one of the lowest among major states of India and much lower than the corresponding national average (Rs. 3.73 thousand) (NSS, 2005).

In present section, an effort has been made to examine the proportion of farmers of various size groups possessing different type of farm assets namely; animals, tractor and threshers, farm building and Irrigation structure. Analysis of data revealed that 69.33 percent of households under study had animals that kept increasing with the size of farm holdings, indicating the higher proportion large farms processing animals (see table 5.8).

Table 5.8 Status of Farm inventory on different categories of households (Number)

Sl. No.	Items	Small (116)	Medium (88)	Large (96)	Total (300)
1.	Animals	76 (65.52)*	60 (68.18)	72 (75.0)	208 (69.33)
2.	Implement/Machinery	79 (68.10)	88 (100.00)	96 (100.00)	263 (87.67)
3.	Farm Building	-	42 (47.73)	90 (93.75)	132 (44.00)
4.	Irrigation Structure	26 (22.41)	80 (90.91)	96 (100.00)	202 (67.33)

*Figures in parentheses indicate percentage of total number of household of respective categories

While tractor and thresher (particularly thresher) were most common farm machineries. All the medium and large farm households had threshers and even two thirds (65.10%) of small farmers reported to have threshers. Farm building is not common in Bihar. Dwelling houses are generally used for farm purposes. But about 93.7 percent of large farmers and 47.3 percent of medium farmers had farm building exclusively for agricultural purposes.

About two- thirds of farm households under study had their only irrigation structure however all the large farms, 90.9 percent of medium farms and only 22.4 percent of small farms had their own irrigation structure. Such an irrigation structure is just creating their tube wells and sharing with some one in the neighborhood. In Bihar higher proportion of farmers had their own irrigation structure because general state designed irrigation system has already collapsed in Bihar.

5.5 Rural Scenario and Economic Condition

In Bihar, agricultural growth is worked out to be 0.9 percent in 10th five year plan which had not any significant impact on rural scenario.

We asked direct question to respondents about change in rural economy as perceived by them. Questions asked by us was whether farming system and its level has deteriorated over the years according to farmers' own standard of farm practices or improved in terms of quality of seeds ,fertilizers, and improved tech. Most of the small farmers (about 49%) responded that it had deteriorated. Whereas large farm sized respondents (about 68%) felt that quality of farming has improved. However, dwindling interest in farm occupation has been visible in small sized farm holders compared to large sized ones. It may due to the fact that low size farms no longer remains commercially viable holding. Of course, overall productivity of small sized farm remains to be reasonably high as stated earlier in this report. Zonal picture, also support the above hypothesis on the issue of productivity Of course large sized farm respondents were more commercially attuned than small and medium sized farm respondents

Table 5.9 Change in rural scenario reported by farmers during last 5 years

Farm size	Improved	Unchanged	Deteriorated
Small (116)	27 (23.28)*	33 (28.45)	56 (48.27)
Medium (88)	49 (55.68)	27 (30.68)	12 (13.64)
Large (96)	66 (68.75)	24 (25.00)	6 (6.25)
Bihar (300)	142 (47.33)	85 (28.33)	73 (24.33)

*Figures in parentheses indicate percentage to respective totals.

This observation clearly supports the common belief of less participation of poor households in development process. Hence, any programme including rural industrialization must target poor households in Bihar. An effort has also been made to have an idea about economic condition of different types of households by their own evaluation. About 42.67 percent of households reported that they had surplus economy i.e. higher the income than expenses.

As evident from table 5.10, it was clear that their expenses are bare minimum to sustain their livelihoods. Among different size groups of farms, only 11.21 percent of medium farm households and 68.76 percent of large farm households had surplus economy. About one-third (30.33 percent) of households reported to be self sufficient

but only 24.14 percent of small farm households were self sufficient whereas 37.50 percent of medium farm households and 31.25 percent of large farm households were reported to be self sufficient. Hence, it may be said that all the large size farm households were either surplus or self sufficient. About two-thirds of small farm households were either moderately or extremely poor whereas only 6.82 percent medium size farm households reported to be moderately poor.

Table 5.10 Economic condition on different group of farms in Bihar

Farm size	Surplus	Self sufficient	Moderately poor	Extremely poor
Small(116)	13 (11.21)*	28 (24.14)	47 (40.52)	28 (24.14)
Medium (88)	49 (55.68)	33 (37.50)	6 (6.82)	-
Large (96)	66 (68.75)	30 (31.25)	-	-
Total (300)	128 (42.67)	91 (30.33)	53 (17.67)	28 (9.33)

*Figures in parentheses indicate percentage to respective totals.

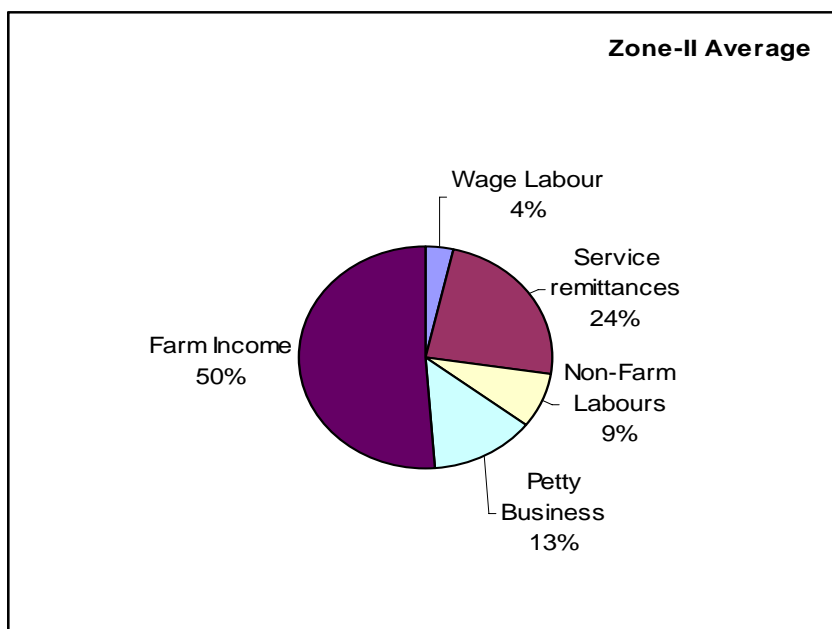
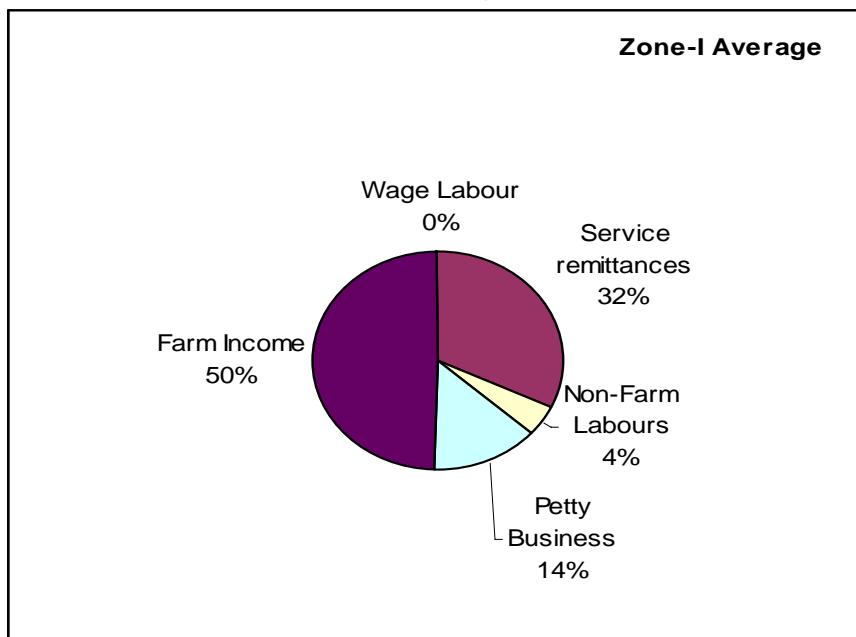
The percent analysis clearly indicates that the land base is still the main determinant of economic status of rural households in Bihar. In such a case farm intervention through strategic alliance with other departments must become part of the proposed and current rural industrialization programme. How long we can expect to alleviate the poverty of the rural poor through agriculture commercialization where the interest and extension orientation has come to a grinding halt (see in this report next chapter).State horticulture mission has yet to take off the ground. National mission has been networking with some NGOs for recruiting to employ the right team for impacting the delivery process, where the ground perception of such a process is not so positive.

5.6 Income Structure

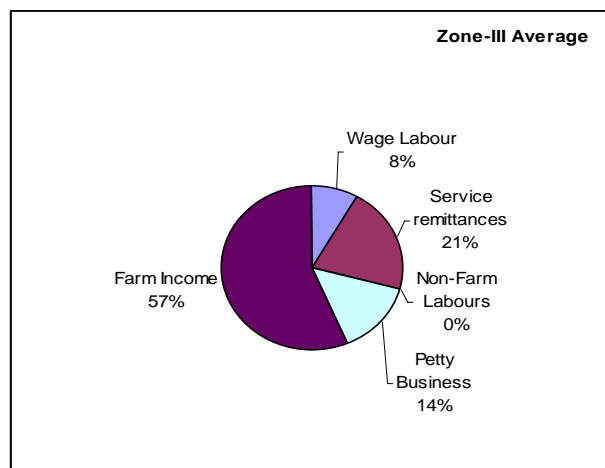
Analysis indicate that farm income is still a major source revenue on rural farm households .Such reasonable surplus is to be used from commercial gain in order to meet their domestic need, for child education and health care etc. On sample farm households, annual income is worked out to be Rs. 78.684 (on current price), constituting 51.69 percent from farm and 48.35 percent from non farm (see graph 5.11) However, farm income and its proportion decrease with decline in farm size and quantum of non farm income had the similar trend but proportion of non farm

income increase with decline in size of farm. Average farm income is much higher in Zone I (Rs. 89.47 thousand) than Zone III (Rs. 79.14 thousand) and Zone II (Rs. 71.92 thousand). The comparative high per farm income in Zone I may be explained, mainly due to diversified agriculture.

Graph 5.11 Zone Wise Income through Different Sources in Bihar



Services and remittances from migrants' farmers is the second important source of income in rural Bihar, which constituted 22.20 percent of total income of sample households which varied from 31.88 percent in Zone I to 23.52 percent in Zone II and 19.32 percent in Zone III. Wage labour

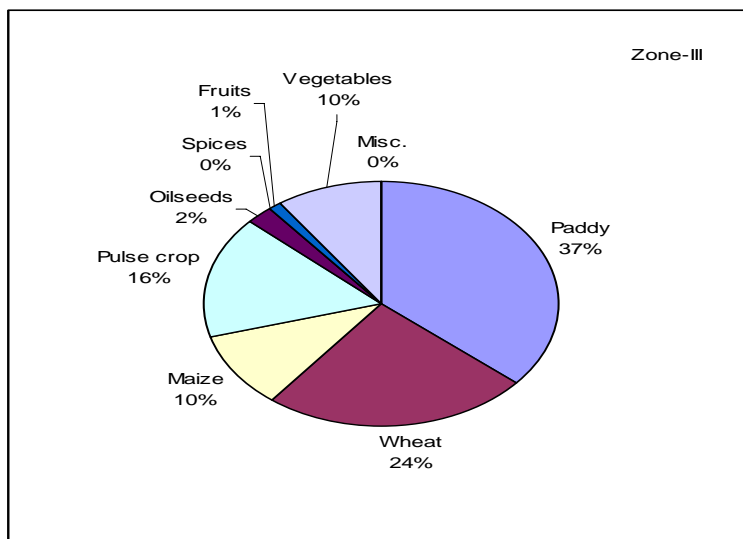
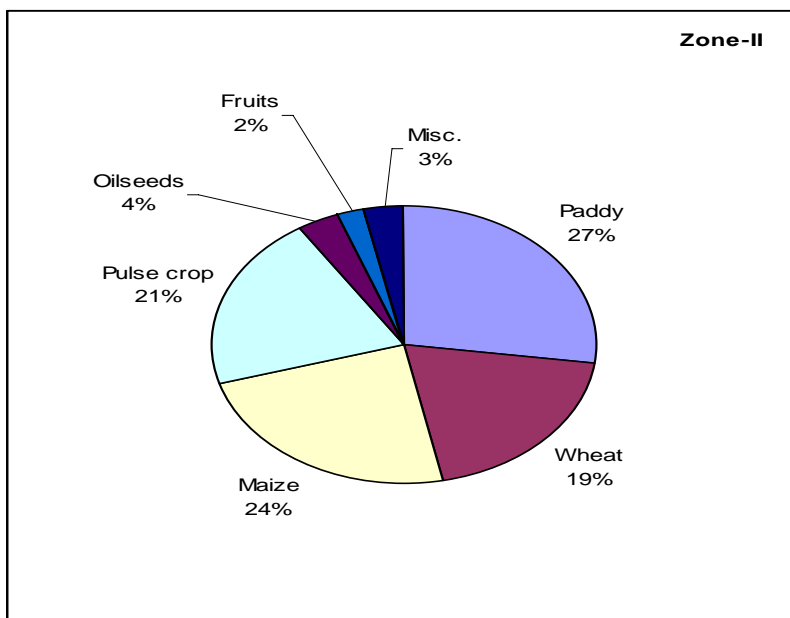
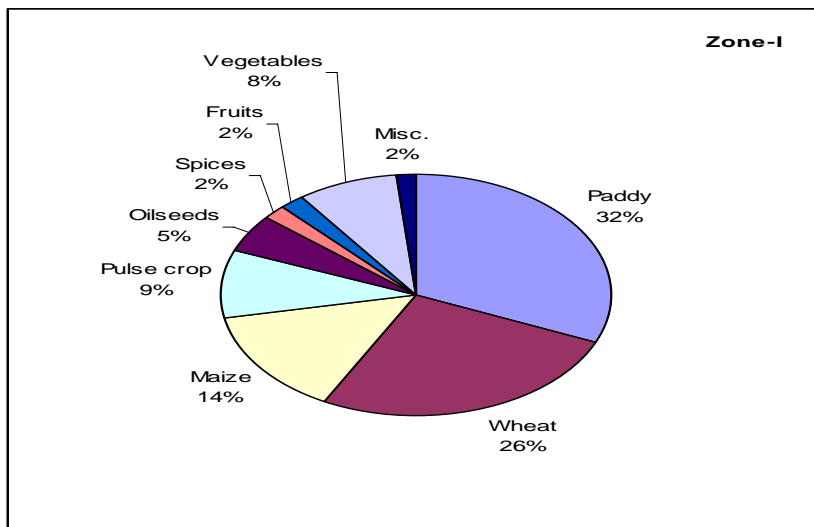


income, on an average, was 4.72 percent of total income on sample households however; it was much higher on small farms of Zone II (20.79 percent) and Zone III (15.73 percent). Non-farm labour income is also worked out to be 4.38 percent on sample farms under investigation however; it was higher on small size of farms which varied from 10.17 percent in Zone I, 9.50 percent in Zone II and 3.79 percent in Zone III. The low income through non-farm labour is mainly due to undeveloped non-farm sector in the state. Income through petty business constituted about 14.53 percent of total income on respondent households but these businesses are very small which generates about Rs.11.44 thousand annual per household income.

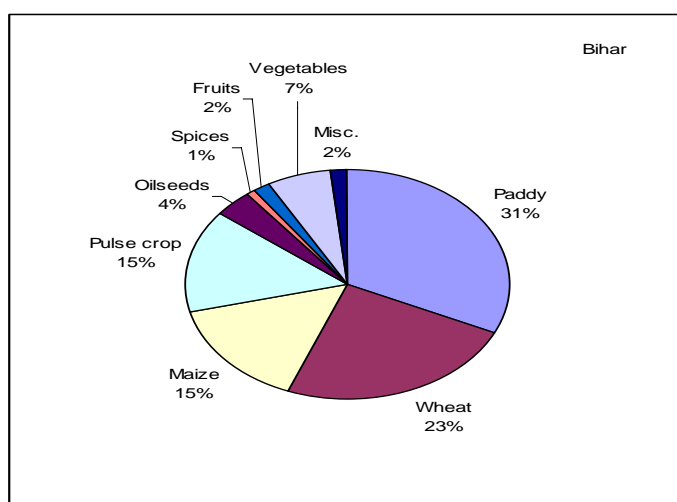
5.7 Crop Rotation and Cropping Pattern

As stated, paddy-wheat is the main cropping rotation. In kharif season, paddy is the main crop however maize, spices and vegetables are also grown in kharif season, particularly in Zone I (graph 5.12). In Zone II, paddy is generally grown in kharif season whereas small area is allocated to vegetable crops in Zone III, particularly near urban area. Rabi season has more diversified crops namely; pulses, maize, sugarcane, potato and vegetables. But winter maize is prominent crop in Zone I and Zone II whereas lentil is more important crop in Rabi season in Zone II and Zone III. Potato is grown at large scale in Zone III.

Graph 5.12 Cropping pattern of different Agro climatic zones in Bihar



Due to unreliable and costly source of irrigation, summer crops are grown in few villages on generally resourceful farm holdings in Zone II, summer Mooring is grown due to comparatively high level of soil moisture and occurrence of summer rain in this particular Zone. Vegetables are grown in



all the agro-climatic zones in summer season. Cropping pattern is predominated by food grain crops constituting about 85 percent of gross cropped area in the state. Whereas foodgrain crops constitute 80 percent of gross cropped area in Zone I, indicating more diversified crop production in the zone. Species, fruits and vegetables constitute about 15 percent of gross cropped area on simple farm households. (See table 5.13).

Table 5.13 Cropping pattern in different agro-climatic zones of Bihar *(Acres)

Different crop		Zone-I	Zone-II	Zone-III	Bihar
i)	Paddy	525.40 (31.44)	316.41 (27.29)	566.41 (36.20)	1407.95 (32.03)
ii)	Wheat	439.44 (26.29)	224.46 (19.36)	380.65 (24.33)	1044.55 (23.77)
iii)	Maize	238.00	275.50	156.30	669.80
		(14.24)	(23.76)	(9.99)	(15.24)
iv)	Pulse crop	152.13 (9.10)	238.10 (20.53)	252.82 (16.16)	643.04 (14.63)
v)	Oilseeds	84.60 (5.06)	41.30 (3.56)	38.89 (2.49)	164.79 (3.75)
vi)	Spices	30.10 (1.80)	-	1.60 (0.10)	31.70 (0.72)
vii)	Fruits	34.12 (2.04)	26.15 (2.26)	14.25 (0.91)	74.52 (1.70)
viii)	Vegetables	137.90 (8.25)	-	152.80 (9.77)	290.70 (6.61)
ix)	Misc.	29.60 (1.77)	37.60 (3.24)	0.80 (0.05)	68.00 (1.55)
	Total	1671.28 (100)	1159.52 (100)	1564.52 (100)	4395.05 (100)

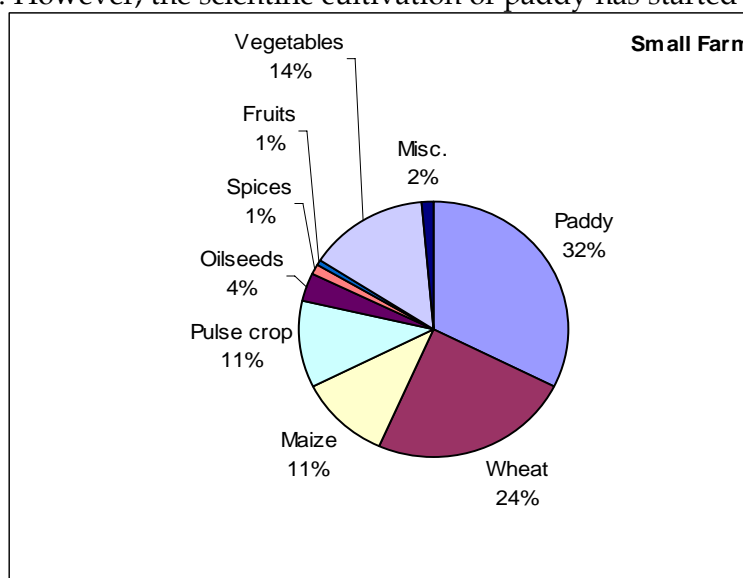
However, fruits and spices cultivation is more concentrated in Zone I i.e. Muzaffarpur, Samastipur districts. Moreover Mango is produced in Darbhanga district but it is also found an important place in Bhagalpur district of agro climatic Zone III. In Zone II, winter maize is grown at large scale in Khagaria district known for winter maize production in Bihar. Paddy-wheat cropping system is most common in Zone III, constituting more than 70 percent of gross cropped area. However, pulses and vegetables are also grown at large scale in this zone.

Size group-wise analysis revealed that the spices and vegetable crops are grown on larger proportion of smaller size of farms however fruits have larger area on large farms and smaller proportion on small size of farmers.(see annex II)

5.8 Production pattern and potential

Effort was made to analyze exploitation level of potential of principal crops in the state. Paddy has been found to be the most important crop in the state and it is grown in all parts of state. However, the scientific cultivation of paddy has started in

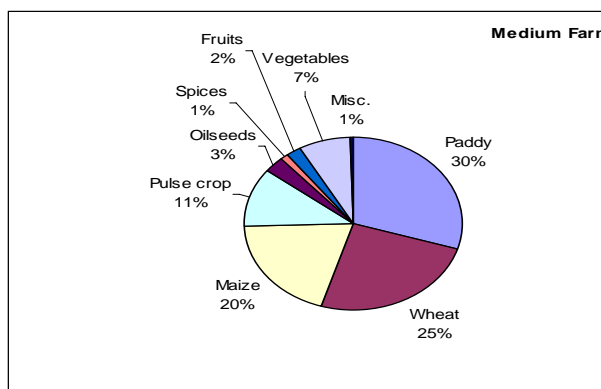
Sone command area (Rohtas, Bhojpur, Aurangabad Arwal and some part of Patna) and West Champaran district. Average productivity of rice in these districts was found higher than national average. But at state level, only 50



percent of rice production potential is exploited, indicating further scope of intensification in rice cultivation in Bihar.

As evident from table 5.15, wheat was found to be the second important crop in Bihar. During previous three years, average productivity of wheat showed declining trend but farmers under study could be able to harness about 60 percent of wheat production potential in Bihar.

Despite a comparative high level of winter maize productivity, about 54-66 percent potentially of winter maize is exploited in Bihar. Bihar has a significant position in pulses production in the country. Our average Arhar productivity is higher in the country and ranked



second in productivity of other pulses. However, area and production of pulses declined significantly during last 25 years. It may be due to slow pace in development of pulses technology in India in general and Bihar in particular.

Table 5.14 Potential and Productivity of Principal crops in different agro climatic zones of Bihar

*(Kg. per hectare)

Crops	Zone I		Zone II		Zone III	
	PRD	Potential	PRD	Potential	PRD	Potential
Rice(Paddy)	2285 (50.78)*	4500	2063 (45.84)	4500	2558 (51.16)	5000
Wheat	2511 (62.78)	4000	2451 (61.28)	4000	2740 (60.89)	4500
Winter Maize	5284 (66.05)	8000	4340 (54.25)	8000	4553 (56.91)	8000
Pulses	622 (34.56)	1800	727 (40.39)	1800	760 (42.22)	1800
Oilseeds	1593 (88.50)	1800	1482 (82.33)	1800	1521 (84.50)	1800
Spices (Turmeric&Ginger)	11629 (77.53)	15000	--	--	7888 (52.59)	15000
Jute	--	--	2433 (81.10)	3000	--	--
Makhana	1722 (86.10)	2000	1121 (56.05)	2000	--	--

*Figures in parentheses indicate percentage of realized potential of respective crop

Source: - Potential data are obtained from RAU, Pusa, and Samastipur

Pulses were still grown with traditional technology in Bihar, resulting in realization of 35-42 percent of potential yield. Oilseeds, particularly rape seeds is emerging an important crop in Bihar. Farmers could be able to exploit more than four-fifths of potential, particularly on farms under investigation. Turmeric and ginger are important crops in Zone I, particularly in Samastipur district. Moreover, other spices namely; corriander and chillies were also grown in Samastipur and its adjacent districts. Hence, on the basis of present status and potential of various crops, the cluster for agro based industries are identified.

<i>Rice -</i>	<i>Udwantnagar, Bikarmaganj, Aurangabad, Arwal and Betiah</i>
<i>Pulses -</i>	<i>Mokama</i>
<i>Maize -</i>	<i>Samastipur, Begusarai, Khagaria</i>
<i>Spices -</i>	<i>Samastipur</i>
<i>Fruits -</i>	<i>Muzaffarpur</i>
<i>Banana -</i>	<i>Darbhanga and Bhagalpur, Katihar</i>
<i>Potato -</i>	<i>Biharsharif</i>
<i>Vegetables -</i>	<i>Lalganj, Tajpur, Dalsinghsari, Dumraon</i>
<i>Oilseeds -</i>	<i>Purnea</i>
<i>Jute -</i>	<i>Katihar</i>

Summary

Despite possibilities in many non farm products, the farmers of Bihar are more agro centric. Most of the farmers in this region are medium or large farm owners who are more agro centric. The small farm owners are the ones who are involved in non farm production and are not too well off, however the medium and large farm owners are doing well in farming sector. Taking note of the fact that there is a lot of scope in agriculture, due to fertile land and human resource available for farming, it is advisable for Bihar State to move ahead, enhance their farming abilities and flourish in the agricultural sector. Since most of the states are dependent on vegetables, food grains and fruits from Bihar State, it could develop that avenue and have a monopoly.

COMMERCIAL ORIENTATION AND CREDIT SUPPORT TO RURAL ENTREPRENEURS

6.0 Introduction

This chapter dwells upon general commercial orientation and credit support to potential farm and rural entrepreneurs⁸. Let us look at the basic acumen of the of rural target audience in the given resource constraints. The general credit structure and marketing yards etc would give us a glimpse of basic trend of farmers' industrial acumen and its possible linkage with their farm practices.

6.1 Marketing Channels

Analysis reveals that a large number of marketing channels are highly unorganized and are aligned on ad hoc basis. Farmers use their own intuition to maximise their commercial gain on purely ad hoc basis.

Table 6.1 Marketing channels of farm produce

	Crop	
1.	Cereals	Produce-local trader
		Produce - Primary, whole seller - Secondary whole seller
2.	Pulses	Produce - Local trader
		Produce - Local trader - Secondary whole seller
3.	Oilseed	Produce - Local trader
		Producer - Local trader - Secondary whole seller
4.	Vegetables	Produce - Local trader
		Produce - Local trader - Secondary whole seller
		Producer - Retailer
		Producer - Primary whole seller - Secondary whole seller
		Produce - Local trader
		Producer - Local trader - Secondary whole seller
		Producer - Whole seller
		Produce - Local trader
		Producer - Whole seller
		Producer - Local trader - Secondary whole seller

⁸ Rural and farm entrepreneurs are used interchangeably, in this chapter, in order to examine the overall risk orientation and commercial acumen of target audience in the given economy. Commercial mindset will eventually create quality of rural entrepreneurs in the state. Respondent selected therefore, were those who had all visible quality step in to entrepreneurial shoe.

It was evident that a good number of agril. Market yards (53) and agricultural marketing are still unorganized in Bihar. About 50 percent of farmers sell their agril. produce in villages to itinerant traders (see table 6.1) Most farmers, particularly small and marginal farmers did not have required quantum of surplus to hire a transport vehicle for carrying out their produce to regulated markets or places where they can get reasonable price.

Table 6.2 Places of marketing of Farm Produce

Farm size	Within village (% of produce)	Outside village (% of total produce)	Outside district (% of total produce)
Small	44.77	55.23	-
Medium	55.53	37.26	7.21
Large	44.06	46.64	9.30
Average	47.70	47.21	5.09

About 16 percent of produce of sample households is sold to market located outside district (see table 6.2) about 50 percent of farmers still transport their produce on cycle and head load. About 90 percent of large farm households reported use of tractor for transporting their produce to distant markets. Horse cart/bullock cart are now not common mode of transport in villages. (Table 6.3), ironically, storage facilities available for agricultural produce is very poor as evident from the table 6.4.

Table 6.3: Mode of transportation of produce

Farm size	Head load/cycle	Horse cart/ Bullock card	Tractor/Four wheeler
Small	116 (100.00)*	28 (24.14)	12 (10.34)
Medium	34 (29.31)	52 (59.09)	48 (50.00)
Large	-	49 (51.04)	87 (90.63)
Total	150 (50.00)	129 (43.00)	147 (49.00)

*Figures in parentheses indicate percentage to respective category of farm households. Respondents have more than one mode of transport.

The mode of transport of goods to the market remains the same. Maximum small farm holders carry 100% their farm produce on head or on bicycle and just 12% use tractors. Even the medium farm holders carry the farm produce on bicycle and on head to an extent i.e. 34%, and the rest i.e. 52% bullock cart is used for the transportation purpose. 87% of large farm holders having adequate surplus prefer tractors as a mode of transportation followed by carts which is 49%. However it is

important to note that still the most commonly used mode of transportation used on an average is higher for bicycle/on head is 150% to carts 129% and tractors 147%.

6.2 Surplus Quantity of Farm Produce

Average farm surplus has been worked out to determine the expected supply of farm produce for agro-based industry. It was found that Rice has been a main crop which is generally grown on 62 percent of net area sown that seem to contribute to 50 percent of food grain produced in Bihar.

Table 6.4 Duration of storage of agricultural produce on different categories of farms

Zone	Long term (%)		Short term (%)	
	Own (No)	Own (%)	Own (No)	Own (%)
Zone-I				
Small	11	22.45	31	43.06
Medium	20	40.82	30	41.67
Large	18	36.73	11	15.27
Total	49	100.00	72	100.00
Zone-II				
Small	1	5.56	19	51.35
Medium	2	11.11	9	24.33
Large	15	83.33	9	24.32
Total	18	100.00	37	100.00
Zone-III				
Small	7	31.82	53	68.83
Medium	4	12.12	9	11.69
Large	22	66.66	15	19.48
Total	33	100.00	77	100.00
Bihar Total	100		186	
Small	25	25	93	50.0
Medium	26	26	48	25.81
Large	49	49	45	24.19
Total	100.00	100.00	186.00	100.00

The above table clearly reveals the disparity related to infrastructure accessible to the farmers in long term. In each zone there is a huge margin in the storage facility available to the farmers. While 36.73% large farm holders in Zone 1 have storage facility, only 22.45% small farm holders own storage space. Largest margin can be seen in Zone II where 83.33% large farm holders have storage space, only 5.56% small farmers have storage space. Likewise in Zone III too, 66.66% large farm owners have storage capacity and only 31.82% small farmers have any sort of storage facility.

The entire trend in Bihar is similar. But the case is reverse when it comes to short term accessibility to storage facility. In Bihar the small farm owners are in a majority (50%) as compared to large farm owners (24.19%) and medium farm owners (25.81%). However, the difference is very sharp and visible in both the cases.

It was found that estimated surplus of rice was about 29 percent on large farms followed by about 21 percent on medium and 18.64 percent on small farms. However, almost all the rice would be available for processing if an efficient system on reasonable cost is created in Bihar. Maize is the second important food grain which is surplus in Bihar for agro-based industry.

It was revealing to note that winter maize is grown in Bihar for market purposes .About 17 percent maize is surplus even on small size of farms. If full potential of winter maize is exploited particularly in Begusarai, Khagaria, Samastipur, Bhagalpur and Katihar districts of Bihar, maize based industries would not have any constraint for raw materials, more so because medium farms surplus maize is worked out to be 45 quintals per farm, whereas on large farms, the surplus maize was about 53.82 quintals/farm. (See Table 6.5).

Table 6.5 Average farm Surplus quantity of farm produce (kg)

Crop	Small	Medium	Large
Paddy	2166.65 (18.64)	3021.43 (20.91)	5548.09 (28.57)
Wheat	1052.67 (9.05)	2124.02 (14.70)	2919.91 (15.03)
Maize	1698.64 (14.61)	4511.77 (31.23)	5382.20 (27.71)
Pulses	210.51 (1.82)	175.80 (1.23)	1173.03 (6.04)
Oilseed	110.61 (0.95)	146.35 (1.01)	221.54 (1.14)
Vegetable	4465.55 (38.41)	3234.97 (22.39)	2894.97 (14.91)
Spices	1540.08 (13.25)	940.45 (6.51)	765.31 (3.94)
Fruit	36.21 (0.31)	56.82 (0.39)	283.33 (1.46)
Misc.	344.82 (2.96)	235.00 (1.63)	233.87 (1.20)
Total Bihar	11625.74 (100.00)	14446.61 (100.00)	19422.25 (100.00)

*Figures in parentheses indicate percentage

Due to decline in area, surplus pulses are much lower which varied from 1.82 percent on small farms, 1.23 percent medium farms to 6.04 percent on large farms. It was also clear that vegetable were grown for market but area and productivity could not show any significant increase due to poor market structure in Bihar which needed immediate attention. It was mostly grown on small farms on small piece of

land. But inspite of this about 30.41 percent of vegetables were found to be surplus on this category of farms. Medium farm households also produce about 22.39 percent of surplus vegetables and large farms had 14.91 percent of surplus vegetables. It was observed that spices were generally grown in Samastipur, Muzaffarpur and Begusarai districts. Small farms had surplus spices of 13.25 percent, followed by medium farms (6.51 percent) and large farms (3.94 percent). Due to low productivity of fruits, there is small quantum of surplus in Bihar but it could be increased by replacing old orchards and better maintenance of orchards. Horticulture mission launched in the state may have some positive impact on fruit production in Bihar.

6.3 Agril Credit and Constraints in development

It was found that agricultural credit was considered sine qua non for adoption of new farm technology. In Bihar, flow of agricultural credit is very weak due to almost collapse of co-operative credit system and non-co-operative attitude of commercial and RRB officials.

As per our survey, only 29 percent of sample farm households obtained institutional credit and only 6.33 percent availed non-institutional source. In Bihar, about 16% of farm households were provided with K. C. C. but half of them still could not get credit facility. There is a need to improve the agril credit flow for faster development of agriculture in Bihar. On the basis of data obtained from respondents it may be said that the marketing is the most important constraint for agril development in Bihar. Unavailability of good quality seeds at right time is the second important reason for poor agril growth in Bihar. Unreliable and costly irrigation is the third important reason for poor growth in agriculture in Bihar. Lack of knowledge, irregular power supply, low price and lack of storage facilities are important reasons for poor agril growth in Bihar. (Table 6.6).

The frequency of the problems faced by small farm holders (116) is way ahead than that of medium (88) and large farm holders (96). However it will be unfair to say that the problems being faced by medium and large farm holders are not worth pondering. If carefully studied, the table shows 3 phases which have almost similar

frequency. The phases are during *cultivation (marketing, difficulty in procuring HYV Seeds, problems related with irrigation) pre-harvest (irregular power supply, frequent attack of crop diseases and pests, lack of knowledge about the latest agricultural technology), and post harvesting (storage, low price for agricultural goods).*

Table 6.6 Problems faced by farmer in farming related activities in Bihar

Problems	Small (116)	Medium (88)	Large (96)	Total (300)
1. Marketing	116	88	96	300
2. Difficulty in procuring HYV Seeds	92	67	71	230
3. Related with irrigation	93	67	70	230
4. Irregular power supply	59	55	54	168
5. Frequent attack of crop diseases and pests	59	40	51	150
6. Lack of knowledge about the latest agricultural technology	52	35	37	114
7. Storage	29	17	28	74
8. Low price for agricultural goods	26	24	22	72
9. Timely unavailability of seed	56	49	53	158

*Note: Frequency indication of various problems being faced by farmers in commercial farming.

6.4 Summary

Not only farming method and technology has been a barrier in agriculture in Bihar, but also the initial investment and marketing of processed produce is a problem. Lack of support from the banking institutions in Bihar doesn't allow the farmers to take loans and increase their productivity or buy new tools. Even after so many years of invention of methods of transportation the farmers in Bihar State have to resort to obsolete mode of transport for marketing their goods. Farmers in Bihar still carry their produce on bullock carts, bicycle, on head etc. which is not only time consuming and tiring but also at times lead to spoiling of crops in rainy seasons. There has been no upgradation of knowledge of the farmers, which is almost nil in the case of farmers holding small and medium farms. The farmers are growing crops as per their own intuitions and on top of that they have no links with the market and latest technologies.

PROPOSED STRATEGIES AND OPERATING MECHANISM

7.0 Strategic Focus

An analytical interface with the existing agro-climatic, socio-economic and physical infrastructure of Bihar State as well as with the data, gathered in the course of the field study of three Zones of the State springs up a wide range of vision & profundity of insights. It has helped us to lay hands on and functional frame to promote rural industrialization in Bihar. The whole exercise of churning out a set of recommendations is the result of a team work, where the experiences, suggestions, and constructive criticism of a cross section of administrative functionaries of the State Government as well as economists, educationists & NGOs of the State have also been appropriately interwoven to help generate a good workable plan of action. This is, however, not to claim that the suggested plan or the plan of action has all the ingredients of its absolute perfection, since limitations too have their own imprints.

Proposed focus takes into account the multidimensional contours, integral to the central objective of promoting rural industrialisation in Bihar. Needless to mention that the entire canvas of the strategic focus stands on the situational variables. On the one hand the basic approach revolves around a judicious blend of both the extensive and intensive functional interventions together with aggressively developed market means for the rural producers to facilitate a paradigm shift from supply driven to demand driven rural economy. On the other, it looks for the sensitivity of proactive and responsive governance.

- *In view of the above it may not be out of the context to make a mention about the state Department of Industries which is heavily loaded with the complexities of bureaucratic systems and administrative procedures. Khadi and village as well as Handloom Directorates which are placed with in the Department of Industries are not appropriately empowered to coordinate with other functional heads to address even the pressing issues of rural industrialisation.*

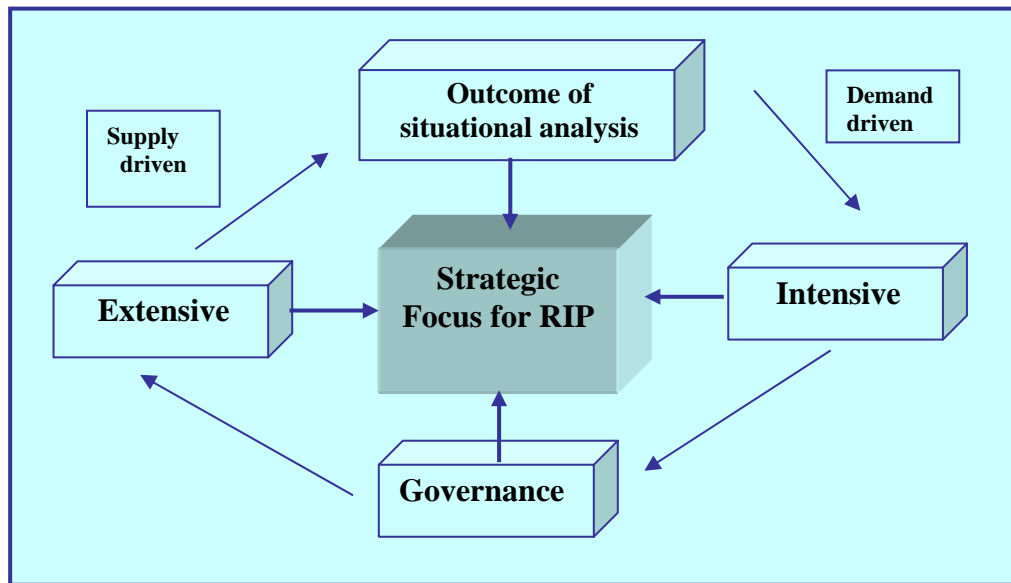


Exhibit 7.1 : Strategic Frame of RIP

- *In the past Directorates were reduced to such an extent of misplaced irrelevance for quite some time that they were even put together under a single administrative head, causing utter disarray at the ground level in administration supervision and monitoring⁹. This has made negative impact on their performance.*
- *The above observations are only the pointers to the need for an appropriate administrative revamp whereby all the administrative sub units are adequately empowered for decision taking process and smoothened for effective and efficient governance. This apart, the strategy of RIP focuses upon the critical roles the Panchayati Raj administrative mechanism that may play at the grass root level in planning, implementation, supervision and monitoring. However, what is really a*

⁹ Currently it has Handloom Directorate and cottage and village industries directorate with two separate heads Udyog Mitra is not fully equipped to meet the growing need of rural entrepreneurs as a single window support unit inspite it's new face lift. It needs further strengthening in terms of resource and greater autonomy to operate.

great challenge for the strategic focus is to encourage a paradigm shift from supply driven to demand driven rural enterprises.

- *This challenge may effectively be encountered by building proper marketing bridges. Currently state marketing emporium and local and national trade fair are common operating mechanism that builds linkage with rural entrepreneurs. Absence of proper regulated market and large chunk of unorganized informal sector poses serious challenge to rural economy.*

(a) Extensive Strategy

Extensive process is envisaged to take up mass scale intervention on clear and sound plan of action. For example, vocational skills training in order to abridge gap of skill workers with rural enterprises, that is in dismal state of being and poor institutional infrastructure (Industrial Training Institute) an extensive intervention is needed. In each district ITI needs to be set up .Since the government alone can not afford to set up the ITI so many centers, attempt should be made by private players to set up community polytechnics. NGOs and other social organization should be encouraged to have vocational and skill demonstration centers. New business house should be invited to set up such centers in selected areas in each agro –climatic zone.

Similarly zone wise intervention at institutional level, block level intervention through panchayats should form part of extensive strategy to expand the outreach on faster pace

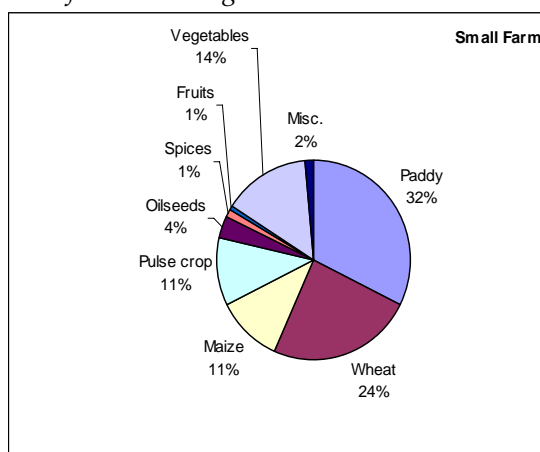
- *Another example that may be cited of an economic activation program that is currently on in the state under the aegis of World Bank (Livelihood Project) with the nodal role of Ministry of Finance. Social welfare department-women development center of the Government of Bihar, which can also be taken advantage for steering rural industrialisation towards the demand driven production phenomenon. But it has taken the lead to implement the projects by itself in many places. May be it would move further to explore partnership with other NGOs and private players to multiply their efforts.*

(b) Intensive Strategy

Intensive strategy is characteristic of exploring defined economic cluster on specific area approach for limited period. Later the successful implementation of the project would multiply its efforts in other areas. Demand driven model is proposed to have search of good role models, best practices in different areas and build strong market nexus.

(i) **Proposed strategic intervention** is closely associated with the characteristics of the state's operating mechanism for rural industrialization process. The intrinsic strength of the state's economy lies in its resource driven approach that has fitted into supply centric model for quite sometime. The huge Agriculture potentials of the state has not been fully tapped. The nexus of agriculture and industry has not been explored adequately at stated above. Neither of the sectors (agril and industry) has evolved strong rural extension network with a positive inter-sectoral linkages at any level. In fact , institutional infrastructure to support rural industries has completely collapsed over years . However, building vocational skills and creating their employability has become major challenge of the state. This would encourage gainful employment and soci0-economic equity amongst those marginalized rural poor. One may examine the options of initiating extensive¹⁰ or intensive strategic intervention in the given economy at different locations depending up on specific economic cluster potentials defined. Best role models need to be enhanced before extending outreach on a mass scale .Thus it is a blend of extensive and intensive approach that would fit in to current scenario of the state's economy.

(ii) Given the outcome of field analysis it is desirable to have a blend of the two, keeping in view the nature of product specific rural industrialization project.



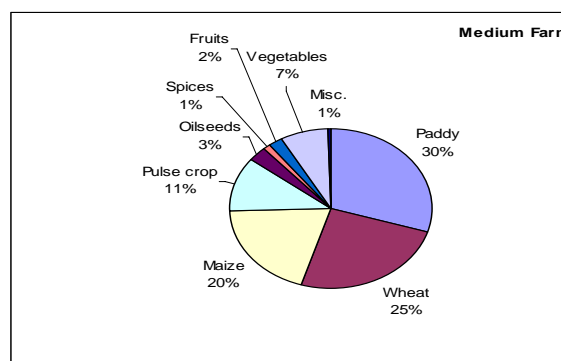
¹⁰ Extensive strategy characterizes the spread of activities based on defined locations on mass level to have wider awareness and concurrent impact on difficult geographic locations. The intensive strategy defines a focused area approach on a pilot basis, thereafter encourage the outcome of the project to multiply and replicate its success at different level over a period of time (Evaluation study by IDMAT Swashakti Project WB 2004).

For example, specific human skills are identified in particular economy, later they need to be mobilized and brought into a network relationship. One may discover that people have no skill, to enhance economy and earn their livelihood while encouraging innovative enterprises.

(iii) Strategy for Agri -industries Stimulating Agri -potential

Paddy has been found to be the most important crop in the state and it is grown in all parts of state. However, the scientific cultivation of paddy has started in some command area (Rohtas, Bhojpur, Aurangabad, Arwal and some part of Patna) and West Champaran district. Average productivity of rice in these districts was found higher than national average. But at state level, only 50 percent of rice production potential is exploited, indicating further scope of intensification in rice cultivation in Bihar.

Bihar has a significant position in pulses production in the country. Our average Arhar productivity is higher in the country and ranked second in productivity of other pulses¹¹. country and ranked second in productivity of other pulses¹².



As regards the strategic intervention

it is worth taking note* that Asian Development Bank

(ADB) has proposed establishment of on farm Primary Processing Centers in production areas, establishment of Agri - business centre (ABC) on the periphery of mega food parks and terminal market sites and provision of basic infrastructure to improve physical connectivity through out the value chain (such as roads, power supply ,water supply and telecommunication) with a view to enhancing connectivity ,marketing efficiency and value addition in the State of Bihar.

2. Strategic intervention for rural industrialization is designed to address the increasing competitive agribusiness sector at national level in a new global increasing competitive agribusiness sector at national level in a new global economy. This will facilitate the development of competitive agribusiness sector in the state of Bihar to promote diversification and transformation of agriculture system to be able to raise incomes and reduce poverty. This will be achieved through improved business practices related to use of infrastructure, market intelligence, capacity building and value chain linkages.

¹¹ ¹¹However, area and production of pulses declined significantly during last 25 years. It may be due to slow pace in development of pulses technology in India in general and Bihar in particular. **Sattu** being the popular product from rural industries has to rely on pulse production of the state.

¹² ¹²However, area and production of pulses declined significantly during last 25 years. It may be due to slow pace in development of pulses technology in India in general and Bihar in particular. **Sattu** being the popular product from rural industries has to rely on pulse production of the state.

* Asian Development Bank Study Report Delhi (Agri Business Infrastructure development project 2000)

Exhibit 7.2 : Glimpse of Nexus Between Agriculture and Proposed Industries in Bihar

ZONE I		
District	Agriculture	Potential Rural Industries
<i>Sitamarhi</i>	<i>Wheat, Maize, Lentils..</i>	<i>Poultry feed+ Handloom</i>
<i>Siwan</i>	<i>Sorghum, Wheat, Sugar Cane..</i>	<i>Sugar Factories/Handloom</i>
<i>Vaishali</i>	<i>Banana, Vegetables, Wheat, Maize, Lentils.</i>	<i>Veg.+fruit processing unit/Timber based ind.</i>
<i>West Champaran (also known as Bettiah district)</i>	<i>Rich paddy fields, Sugar Cane.</i>	<i>Sugar Factories.Rice Mill</i>
<i>Samastipur</i>	<i>Paddy, Famous for Spices/ and Maize.Sugar cane</i>	<i>Vegetable/Fruit processing unit</i>
<i>Saran</i>	<i>Paddy, Wheat, Sugar Cane.Potato/Maize</i>	<i>Sugar Factories.</i>
<i>Madhubani</i>	<i>Paddy/Famous for Makhana/Fish</i>	<i>Handloom,</i>
<i>Muzaffarpur</i>	<i>Paddy, Maize, Wheat, Lentils. Famous for Litchis and Mango.</i>	<i>Veg processing unit +bidi ind.</i>
<i>Gopalganj</i>	<i>Paddy, Wheat, Maize. Sugar cane</i>	<i>Sugar Factory</i>
<i>Darbhanga</i>	<i>Paddy/Fish/Makhana</i>	<i>Fish /Makhana</i>
<i>Motihari</i>	<i>Rice Paddy (Home of Basmati rice), Sugar Cane, Jute, Lentils.</i>	<i>Sugar Factories,</i>
<i>Araria</i>	<i>Paddy, Maize, Jute</i>	<i>Jute Mills</i>
ZONE TWO		
<i>Katihar</i>	<i>Paddy/Jute/Fruits</i>	<i>Jute and Paper Mills.</i>
<i>Khagaria</i>	<i>Paddy, Wheat, Maize, Jute.</i>	<i>Starch ind.</i>
<i>Kishanganj</i>	<i>Fruit/Tea/Wheat, Maize, Jute</i>	<i>Jute Mill/Fruit Processing unit</i>
<i>Madhepura</i>	<i>Paddy, Jute/Fruit</i>	<i>Fruit Processing unit</i>
<i>Purnea</i>	<i>Jute/Fruit/Fish/Poultry</i>	<i>Jute & Fruit Processing unit</i>
<i>Saharsa</i>	<i>Paddy/Wheat/Banana/Maize</i>	
<i>Supaul</i>	<i>Paddy/ Fish</i>	<i>Fish culture</i>
ZONE III		
<i>Aurangabad</i>	<i>Paddy, Wheat, Lentils.</i>	<i>Carpet and Blanket Weaving</i>
<i>Banka</i>	<i>Paddy, Wheat, Maize, Lentil.</i>	
<i>Babhua</i>	<i>Paddy Fields, Wheat, Pulses</i>	<i>Rice mill</i>
<i>Bhagalpur</i>	<i>Paddy, Maize, Lentils.</i>	<i>Silk +Handloom ind.</i>
<i>Bhojpur</i>	<i>Rich Paddy Fields, Wheat, Maize/Pulses/Vegetables</i>	<i>Rice and Pulses/Vegetable Processing Unit.</i>
<i>Buxar</i>	<i>Rich Paddy Fields, Wheat, Maize, Sugar Cane.</i>	<i>Veg. processing unit</i>
<i>Gaya</i>	<i>Paddy, Wheat, Potato, Gram/Vegetables</i>	<i>PulsesMill &Vegetable processing unit.</i>
<i>Jamui</i>	<i>Paddy, Wheat, Maize/Fruits</i>	<i>Bamboo based Ind.</i>
<i>Jehanabad</i>	<i>Paddy, Wheat, Vegetables</i>	<i>Rice mill</i>
<i>Lakhisarai</i>	<i>Paddy, Wheat, Lentils,Fruit, Vegetables</i>	<i>Pulses based Ind.</i>
<i>Monghyr</i>	<i>Paddy,Fruits Wheat, Lentils.Arhar</i>	<i>Fruit Processing Unit</i>
<i>Biharsharif</i>	<i>Rich Paddy Fields, Potato, Onion, Vegetables</i>	<i>Handloom weaving.</i>
<i>Nawadah</i>	<i>Paddy.Arhar,Wheat,Fruits & Vegetables</i>	<i>Bidi Factories.</i>
<i>Patna</i>	<i>Rich Paddy fields, Potato, Onion, Vegetables.</i>	<i>Sugar, Fire-Works, Biscuit, Flour Mills, Light-bulb, Shoes and Wagon Factory.</i>
<i>Rohtas.</i>	<i>Rich Paddy Fields, Wheat,Pulses</i>	<i>Rice Mill & Flour Mill</i>
<i>Sheikhpura</i>	<i>Gram, Wheat, Lentils & Vegetables.</i>	<i>Pulses based Ind.</i>
<i>Arwal</i>	<i>Paddy, Maize, Wheat</i>	

7.1 Marketing Strategy

Rural markets constitute an important and critical segment of overall economy. This has to be specially looked into, particularly in respect of the intent to explore the potentials of promoting rural industrialization in Bihar. As per NCAER projection, the number of middle and high income households in rural India is expected to grow twice as fast as the urban. Bihar too is not to remain an isolated location. However the fact remains that as of now, the rural entrepreneurs do encounter an uphill task of marketing their products and services.

Exhibit : 7.3: Key Marketing Constraints of Rural Enterprise

Dimensions	% of enterprises vulnerable (N=300)
1.Lack of brand identity to the products	80%
2. Wrong selection of entrepreneurs, leading to product not being friendly to local market.	40%
3. Lack of salesmanship managerial skill to the entrepreneurs, particularly the women and the youth.	50%
4.Lack of observance of basic marketing strategies, including packaging, pricing, advertising, target consumers	60%
5. Lack of supporting market infrastructure.	45%
6.Competition with the existing similar branded products	55%
7.Inadequate government support to marketing venture of the rural enterprises	28%

Note: The sum total of Percentage figure would cross hundred since sample units fall in to more than one problem areas at a given point of time as per their own perception.

It has been found that marketing being the back bone of any income generating activities, has posed serious challenge to rural enterprises. Rural market support by the government is bound to set greater challenge to the new, small and upcoming entrepreneurs, particularly due to lack of resources and presence of stronger brands making their own impact in the market place. Most of the rural enterprises have limited brand image poor market infrastructure and unskilled market driven team . Of course, there is a vast scope to tame such potentials in rural areas in selected sectors like pharmaceutical, food and agro- based enterprises In view of this, following interventions are proposed to strengthen the marketing linkages:

Cluster driven service center approach: On several economic cluster the micro-entrepreneurs may set up necessary infrastructure for production. The consumers may come there with their own raw material, get it converted into finished products and take the products back after offering service charges to the centre. This approach may be good for selected food processing and packaging products. Emergence of products specific cluster has assumed significance. It may be in handloom fabric and bamboo based products as well in addition to food processing sector. Particularly technology design and packaging support may be centralized at a different points that need to be run and managed by the entrepreneurs themselves as cluster entity not by the government body.

Contract farming approach: The entrepreneur may produce products for an established supplier under appropriate buy back contractual agreement. For example, in the case of contract forming the entrepreneurs may produce crops of desired quality for the business house/ organization for onward processing and marketing. It has been established that improved intelligence dissemination of the market information assume critical significance rural market supportive network process.

- *Improved capacity to understand and use market intelligence for day-to-day business activities.*
- *Crop forecasting to convert market information into market intelligence*
- *To generate market intelligence reports.*

A distinctive feature of this component is a system of generation and dissemination of relevant market intelligence and information to farmers and entrepreneurs. Data collected by AGMARK-Net, NHB and Mandis will be processed and suitable intelligence reports disseminated for improving production and marketing decisions. The component would also include capacity strengthening of farmers to understand and use market intelligence and information and improving marketing skills

Brand and Service Support Mechanism: The entrepreneurs may produce goods, like jute bags, candles, agarbatti, pappad, pickles, spices, makhana etc. and market it aggressively in bigger market. This system would, however require a good distribution channel to compete with other established brands. There would be selected brand on different goods that would offer producers membership for taking brand loyalty.

Developing Business Service Center and Value Chain Network¹³: may be another approach to rural enterprises. It is also likely that in some locality, where big business houses/ industries are operating, these units may be in a need for various types of subsidiary services of petty nature. The small entrepreneurs may provide such services in those areas to have ready available market for their products and service in organized form. It is worthwhile to learn from subcontracting process that is quite common in construction and infrastructure sector elsewhere in the country. Either it is supply of manpower, raw material or tools and equipment the local small enterprises may bring added value and offer momentum to rural industrialisation process.

7.1.1 Training Potential Rural Entrepreneurs

For the successful operationalisation of rural industrialization in Bihar, the key lies in human resources development which should be more focussed and oriented to women and the young entrepreneurs. In this regard the following critical areas need to be revisited with renewed vigor and emphasis.

- (a) *the aspiring entrants in the field of rural industrialization should be provided with well managed entrepreneurship development programme with emphasis on,*
- *product identification & development*
 - *project selection*

¹³ **Current value chains** for the Fruits & Vegetables, specifically in Bihar, have large number of intermediaries ranging from local aggregators – Commission Agents – Wholesalers – Retailers etc, which is making value chain in-efficient. After repeal of the APMC Act in Bihar, market situation is in a total dilemma as there is no common place for market transactions and aggregation and farmers are at weak end as there is no competition in the market for their produces. However, installation of Panchayati raj system and likely creation of rural business hubs would add value to new industrial opportunities.(Study by Asian Development Bank on market system in Bihar 2007)

14.Ibid

- *project formulation*
- *Salesmanship & marketing management.*
- *Banking and financial management.*
- *Risk forecast indicators and remedial measures.*

(b) *Public or Private Business, like Builders & construction companies, Bharti Airtele etc, entering the state to promote their business may be advised to develop vocational training centre, related or even or unrelated to their field of activities.*

Study by ADB also support¹⁴ that the output of this component is higher benefits to farmers and entrepreneurs who have strengthened linkages in the selected value chains. The overall performance will be achieved through producers' companies, contract farming, women in agriculture and capacity of the farmers' organizations in the value chain management. The project will encourage and train stakeholders to introduce monitoring mechanism to ensure appropriate implementation mechanism.

7.1.2 Market Infrastructure Development

Development of marketing related infrastructure is very important to support market linkages. The following are source of the areas which need specific attention;

- *Grounding and planned development of marketing centre at Block Level to promote sales of the rural products.*
- *Establishing sales centre cum showroom at district level. It should be well connected to Block Level marketing centre and all details of block level marketing centre should be made available at the showroom*
- *It should be made mandatory for the large industries/large industrial and business houses, operating the state both in private and public sectors to open emporium at strategic centre within or outside the boundary of the state and Rural Service Centres in the state. These Rural Service Centres should display rural products and organize weekly Hat to sell them. Strategic centre Emporium should also exhibit and sale the rural products along with electronic display of price and key technical details of products.*

- *DRDA/DIC to open emporium/show room at district level .to show case rural products and to facilitate their sale. Events*
- *Available social infrastructure (like Self Help Group) may be effectively used for production, procurement and distribution.*
- *Agri-Producers Association may be promoted at Block Level, which may be linked to District Chamber of Industries.*

Brand Building:

Like the urban and elite consumers, rural consumers too are brand loyal and they can better identify themselves with brand symbols. In this connection the following aspects call for necessary attention for effective brand building:

- *Famous regional identification marks may be taken into perspective for branding a product, so that the consumers in general remember and relate themselves well with the products. This apart the same product can even be sold under different brand even with name/symbol to promote sales in distant locations outside the state boundary.*
- *Traditional as well as Electronic and print media may be used to promote brand image of the product.*
- *Help of appropriate organizations may be sought for quality control, brand and brand image building.*
- *Necessary financial provision may be inbuilt in the project cost to help sales promotion and brand building activities. State government may consider providing necessary assistance in this regard.*

7.1.3 Distribution of products

Development of distribution channel is another important element of marketing linkage which needs to be appropriately addressed. In this respect the following measures may be given a fair trial;

- Local distribution channel may be promoted and strengthened, at village level to promote the products. If there are a large number of small & micro productions units in surrounding cluster of villages. Alternatively, procurement centre/rural service centre may be established at Block Level. This will help the entrepreneurs

to sale their products faster with better price realization. Better if such centres cover all the linkages from village to district level. This system can be helpful in ensuring availability, affordability and acceptability as well as undertaking mid course correction to attain the objectives:

- The wholesale dealers of the region and the state could be roped in as partners to widen outreach of the products both inside and outside the State boundary, such that adequate demands is created both in the rural and urban areas. This may also help in generating brand image of the products. Eventually the producers network need to be strengthened and mobilized to address the strategic features of the proposed marketing strategy.

While understanding the rural economy, its limitations and opportunities, task of evolving effective market strategies assume significance. Of course sensitization to the rural environment is absolutely vital, to ensure effective implementation of strategies, in the framework of new paradigms that are emerging, due to the transformations taking place in Bihar's economy¹⁵.

7.3. Challenge of Nexus between Agriculture and Industries

- The state ranks 3rd among vegetable growing states and 6th among fruit growing States. But due to lack of proper transport and storage facility 25-40% of fruits and vegetables get destroyed every year and because of this hardship, farmers are forced to sell fresh fruits and vegetables in the local market at much lesser price. Hardly 6% of vegetables and 4.2% of fruits reach APMC.

¹⁵ *The intervention aims to collect quality information, analysis and production and market advisories and its dissemination to enable the stakeholders in the value chain, to obtain optimum benefit from market dynamics. For this purpose, it is proposed to establish one Central Unit each in Bihar and Maharashtra, where the information would be gathered, processed and disseminated. These units will be linked to Market Information Centres (MICs) in the production areas and relevant markets in the two states interactively to cover all aspects of their information needs relating to market prices, production, varieties, crop husbandry, credit availability, regulatory aspects, testing and certification requirements, and other market information. The Central Unit will be manned by technical and professional staff. (Asian Development Bank op cit)*

- *The field study reveals that as against 69% of large farm households, only 56% of medium farm households and only 23% of small size farm house holds could experience gradual improvement in the rural economy.*
- *More than one- third of the respondent households had reported to have non-farming activities as the main occupation which included agricultural wage earning, petty shop keeping, small transport operation and non-farm wage earning.*
- *Only 29% of sample farm households could obtain institutional credit and around 6% of them availed credit from non-institutional sources. This apart, only 16% of the sample respondents were provided with Kisaan Credit Card (KCC). Despite this, 50% of these beneficiaries could not avail credit-through KCC.*
- *Main constraints for agricultural growth were identified by the respondents as (i) lack of marketing facility (ii) non-availability of good quality seeds on time. (iii) unreliable as well as high cost of irrigation (iv) lack of technical know- how, (v) irregular power supply, (vi) low price of farm produce & (viii) lack of storage facilities.*

Exhibit 7.4: Critical concerns, Resources and Strategic Intervention

Critical Concerns	Resource Variables	Strategic Intervention
<u>General</u>		
1. Huge unemployment	❖ Favorable agro-climatic conditions	❖ Extension system to be strengthened to maximize exploitation extent of yield potential of various crops.
2. High rural poverty	❖ Can grow varieties of field, aquatic and horticultural crops.	❖ Farm scientists to find way out for enhancing the keeping and processing quality of farm produce.
3. High population density	❖ Yield potentials of high yielding varieties of crops are yet to be fully exploited.	❖ Area under fruit-crops like litchi, banana mango, guava to be extended.
<u>Infrastructural</u>		
4. Poor road transport	❖ High irrigation potential.	❖ Production of Makhana, green vegetables, potato, spices to be increased.
5. Poor credit delivery	❖ Tremendous scope of increasing production of Rice, Wheat, winter Maize, pulses, vegetables, fruits, Makhana.	❖ Experiences of Sudha Dairy to be multiplied.
6. Less women participation in work force.	❖ Co-opertive dairy poultry & fisheries have excellent prospects.	❖ Near stagnation of poultry development to be given a boost.
7. Inadequate and unreliable power supply	❖ A majority of farmers feel positively about improvement in rural economy in times to come.	❖ Storage and transport facility to be made available.
<u>Agricultural</u>		
8. Lack of storage & marketing facility	❖ Agriculture and allied sectors have tremendous potential to provide raw material for promoting food processing industries in various parts of the State on a large scale.	❖ National Level initiative to be sought to reduce, the damage by flood.
9. Smaller farm holding	❖ Traditional industries like handlooms, powerlooms, leather goods, wooden furniture, metal utensils, silk weaving and printing, paintings etc have good base which can be strengthened.	❖ Irrigation and energy support to be scaled up.
10. High gap between actual & potential yield of crops.	❖ Though after bifurcation of state, hardly 1% of total mineral deposits of the undivided Bihar is available State can still exploit its own lime stone, pyrites, apart from importing mineral resources from neighboring Jharkhand State.	❖ Institutional farm credit support to be ensured by helping the banking system in recovery of loans.
11. High wastage of vegetables & fruits	❖ Existing base of DIC and KVIC can be made good use of.	❖ Efforts to be made to promote floriculture and off season vegetable crops in appropriate intercropping system.
12. Defunct agril extension services	❖ Unemployed youth and women can be converted into strength to promote rural industries.	❖ To begin with areas should be identified where any crop including fruits & vegetables are grown in very large area, and where its production is in surplus. Such adjoining areas to be clubbed together to form clusters. Local specific agro-industries to be promoted in or around such clusters.
13. Poor institutional credit support for farming.	❖ Bihar, adjoining States and Nepal can be good markets, though the sale of products can be tied up with well known brands to reach other city markets also.	❖ Some other such pockets also to be identified though cluster may not be possible for promotion of major agro-industries. These pockets should be developed to serve as feeders for other major agro-industries centers.
14. Non availability of quality inputs on time, lack of marketing facility etc.		❖ All necessary efforts should be made to increase production and to develop necessary infrastructure in areas under clusters and specially selected non-cluster pockets.
<u>Industrial</u>		
15. Poor training exposure to entrepreneurs		
16. In appropriate training to entrepreneurs		
17. Poor training orientation of entrepreneurs.		
18. Lower functional motivation & expertise of district level officials.		
19. Poor vocational training outfit.		
20. Lower productivity & profitability of industrial units.		
21. Lack of power supply.		
22. Lack of adequate credit facility		
23. Lack of proper transport & communication.		

7.4. Operating Mechanism and Missing Links

There are already in existence, a network of operating mechanisms in the state, which need to be sensitized coordinated, dovetailed and activated to help promote rural industrialization in Bihar. The existing network of the operating mechanism are as follows.

- *Network of administrative setup of the state government right from state head quarter level to village level, like Ministries, Udyog Mitra, DIC, DRDA, Village Panchayat etc to initiate, coordinate, and promote employment creation and rural industrialization.*
- *Good presence of financial institutions, right from government floated financial corporations, cooperative Banks, Commercial Banks, to NABARD, SIDBI etc to support rural industrialization.*
- *Industrial Training Institutes (ITIs) and Community Organisation based on self help group mode.*
- *Consultancy arms of the state government, which provide help to entrepreneurs by preparing technically feasible and economically viable project report, which could be submitted to Banks for credit support.*
- *Non government and private partners of independent nature getting associated with state government*

Missing Links: Promoting rural industrialization in Bihar has a great potential to create a large extent of employment opportunities. Bihar government's concerns and recent initiatives in the regard are laudable as the results will open altogether a new chapter in rural economic elevation. But the going is not likely to be smooth because of various missing links. The strategic and critical missing linkages, needing due consideration are illustrated hereunder;

Institutional:

- *Inadequate research and development support for technology up-gradation,*
- *Lack of initiative and support for market development*
- *Absence of extension services at Block and village level to promote rural industries,*
- *Lack of a proper nexus between agriculture and industries.*

- *Absence of inter departmental coordination; say for example between industries and agriculture departments.*

Infrastructural

- *Lack of adequate roads-network and communication services.*
- *Urban rural road connectivity poor and slow maintenance*
- *Shortage of power in towns and rural areas yet not equipped with power infrastructure*
- *Highly inadequate availability of institutional credit,*
- *Unorganized marketing of rural products,*

Human Resource

- *Absence of training exposure to the staff members, entrusted with the responsibility of promoting industries.*
- *Inadequate training facilities for women and youth in entrepreneurship development*
- *Lack of vocational training outfits.*

7.4.1 Foundation of Action Plan

This foundation is however, envisioned primarily based on the facets revealed by situational analysis and duly entrenched in strategic interventions for stoking up rural industrialization. As such it is not unlikely that – the issues interwoven in the frame of action plan might induce some semblance of repetition. But for all practical purposes they form the basis of deductions to help scaffold a structure of action plan which needs to be examined in new of the current operational practices.

It may not be out of place to mention that from a pure planning perspective, the state has an elaborate planning mechanism to prepare district plans. But the mechanism appears to have been hollowed by the termites of complacency. Interventions are routinely undertaken under the plans to achieve the targets. But more often than not, the targets are hardly achieved for a number of reasons that mainly relate to implementation difficulties due to inadequate infrastructural support and faulty processes, devoid of useful mechanisms for mid-course corrections.

1. There is a need to initiate coordinated action at accelerated pace to build supporting infrastructure to facilitate a smooth transition from underdeveloped agrarian to industrialized rural economy. This transition will greatly depend on availability of systems and services to impart quality and focused vocational and entrepreneurship development training on a large scale to both the educated and uneducated men and women. While the vocational education should be integrated with the course curriculum at school level. The uneducated and the women need to be specially targeted. This will call for instructional restructuring as well as more of technical and professional institutions like Polytechnics; it is etc. with or without private partnership. Along side, committed action should be put in place to foster market development, power supply, road and transport connectivity, as well as consultancy services at District and Block levels for speedy implementation of rural industrialization programme. Private initiative for community technical/vocational training centers should be encouraged at the district or zonal level to foster appropriate skills amongst youth and women.
2. For the present, however, to give immediate thrust and fillip to implementation of the industrialization programme. There is an urgent need to push the idea by creating mass awareness among the rural people about the possibilities and socio-economic advantages undertaking various types of small and micro rural industries. This should be undertaken intensively and repeatedly, since their awareness has the propensity to arouse interest in the subject, which in turn will motivate them to seek further information for realization interest. This process can be initiated and sustained with the involvement of technicians of Polytechnics, ITIs, DICs, DRDAs in partnership with PRIs, School teachers, Farmer's clubs, SHGs etc. State's partnership with independent bodies /NGO s etc would hasten the process of delivery.
3. The process of adoption of an innovation gets speeded up if the new idea relates closely to one's existing perceived boundary of knowledge, skill and culture. Because, in such a situation the resistance to change is minimal. Therefore, it would augur well to exploit locational advantage of operating skill and existing corridors of specific agricultural produce while advocating

promotion of industries in any particular area or while suggesting one to any individual for striking a chord with the present or the prospective entrepreneurs, rather comfortably.

For example, rural industries based on makhana, potato, banana, maize sugarcane, rice can be easily promoted in their respective, corridors of production. Similarly, promotion/modernization, of industries, such as, silk weaving/printing, metal/wood products/ handicrafts and so on can go well in the area having pool of concerned basic skills.

4. Adequate dispensation of institutional credit - is a must for successful implementation of the programme. But the present trend of institutional credit delivery is quite to the contrary. Though, the financial institutions are the sufferers due to callous attitude of the borrowers towards loan repayment, continuance of going unannounced credit crunch would prove simply suicidal for the promotion of rural industrialization. Therefore, it would be desirable for the state government to engage the banking institutions and work out a mutually supportive administrative frame whereby credit delivery goes a positive swing for encouraging rural industrialization.
5. Being primarily an agrarian economy, Bihar grows a variety of agricultural crops which can be profitably used as raw material for rural industrialization. It is desirable therefore that both agricultural and industries department goes out of traditional box to plan their strategy and explore potential source for promoting rural industries. This approach needs a radical change. Both these departments must develop a strong nexus with each other so that plan for modernization in agriculture gets dovetailed with the plan for rural industrialization. Thus, both these departments together can make immense contribution in accelerating.
6. As of now the extension system of both the agriculture and industries department is abysmally deficient in structure spirit and sensitivity. Agricultural research too lacks proper orientation so as to be instrumental in rural industrialization. In view of this there is a need to strengthen extension and research wings to develops upgrade and promote appropriate technologies for supporting the process of rural industrialization.

7. There are numerous government sponsored schemes at central level, like IWEP, NPEG, IWDP, PMGSY, SGSY, SGRY etc aimed at bringing about prosperity in rural areas. All these schemes have inbuilt investment commitments of the government in different forms and styles. Government of India programmes from Ministry of textile, Rural development, Food process industry, Women and Child, Department of Agri and Rural industries have several such supportive schemes to be taken off at the ground level. State government must make sure that such schemes are used extensively and adequate good proposals are recommended to central government by local partners. Most often recommendations do not reach in time to the center nor the concerned state department take serious view on that. Therefore allocations to states implementing agencies are found on very low ebb. The possibility of linking the implementation of all these schemes with promotion of rural industries in the area may be seriously examined, both from the point of view of prioritization and release of fund. Local PRIs may be appropriately involved in reorienting the process of the implementation.
8. Youth in particular and women in general constitute a large majority of the population. Therefore, these segments of the rural population should be consciously involved in the planning and execution of the process of implementation of various development activities including promotion of rural industrialization. This would not only widen the scope but also hasten the process (See Annexure Schemes of government of India)

RECOMMENDATION AND CONCLUSION

It has strongly been felt that compatible policies and institutional frame of the state government need to be geared towards rural industrialization process. The work climate, of course, has moved to a positive mindset, however inadequate institutional infrastructure needs more impetus than what it appears to be.

8.0 Policies and Institutional Frame

Creation of Rural Business hubs through Panchayat Raj institutions and removal of Agri- Produce Marketing Act has minimized the blocks and hurdles in the free movement agri produce from village to haats. However, the business hubs creations would take its course of action that needs institutional infrastructure for development strategies and rural industries management. Currently the State does not have any such training agency to build the capacity of such extension team work force.

1. As regards cooperative institutions Sudha, a dairy co-operative, is a shining exception in Bihar and one of the most successful exercises of its kind in India. Launched in 1993, the co-operative's revenues from a range of milk and milk products has raised manifold today. The co-operative has 6,000 outlets covering 84 towns in the state. More than 260,000 milk farmers in the state are members of the co-operative, and a private bank has even launched a pension scheme for them.. Sudha has begun extending its market linkage to other Indian states like Uttar Pradesh, West Bengal, Jharkhand. However institutional development strategy of such organization needs attention for sustained growth in the extensive strategy approach for RIP.

2. The project 'Bihar Green' is being launched by the state govt, Department of Agriculture, that is aimed at helping vegetable farmers and vendors, particularly women, by opening vegetable outlets for them. The project is one of the several moves by the Govt. to promote agro-based businesses and empower women. The government has decided to form self-help groups of women involved in vegetable farming and selling the produce on the lines of successful milk cooperative "Sudha Dairy". "To begin with, the small vegetable outlets are proposed to be set up near the existing Sudha Dairy booths in Patna and later in Darbhanga, Muzaffarpur, Purnia, Gaya and Bhagalpur districts," The women will be provided assistance in setting up their shops to run on minimum profit so as to compete with big business houses like Reliance. Woman vegetable vendors are proposed to be trained to improve their communication skills. They will also be taught the importance of hygiene and how to keep vegetables fresh. These women would no longer sell surplus vegetables at slashed prices. The women vendors will fix their own prices daily at the vegetable outlets.
3. As stated above the absence of institutional frame to cater to the learning needs of rural industrial extension work force has posed serious constraints to rural industrialization programme. As the situation stands, the available training machinery of the State is neither enough in number nor are they well equipped to support needed entrepreneurship development and rural enterprise creation, commensurate with the objective behind the concept of promoting rural industrialization in the State. The State Government would do better to improve and upgrade the training machinery and its working efficiency. If need be, the State Government can even seek partnership with competent NGOs which can take up the challenge and can produce results.
4. Though 'Udyog Mitra' concept in recent past has taken off the ground under Single Window Scheme, The outfit of the District Industries Centers at District level is functioning much below expectation. The knowledge, enthusiasm, motivation, performance expectation, goal orientation of the

functionaries are to be rekindled and rejuvenated at intervals through training for better performance. But 90% of the officers of DIC did not attend any such training program almost for more than a decade. This has to have its telling impact. In-fact, these functionaries should even be given advance training to help them become competent trainers for the rural unemployed youth. They should be eventually made to use their expertise and ability to develop aspiration and will in the youth to go for self employment by undertaking rural industries. This apart, they should also function as friend, philosopher and guide for the entrepreneurs. This concept should be revisited, problems analysed and capacity built by equipping them with all the support systems to make them move with a sense of strong determination for making the rural industrialization programme a resounding success in the State.

5. State department of Industries has taken total responsibilities of coordinating rural traditional and modern industries of the state with limited and poorly trained manpower. Heavy and small industries are interlinked under one administrative head being looked after by single industrial development commissioner. He is supported by *Director of Industries and Director Technical Development*. The former is generally caught up in administrative load of the department coordinating udyog mitra functions as well. Whereas *director technical development* has massive task to pay attention on large and medium industries promotion. Small and rural enterprises are left under *Director handloom* or *Director Khadi and Village* industries who have inadequate extension network. There is urgent need to strengthen the capacity of the department and modernize their support system at every level withy strong information support system. Large number central government schemes from ministry of food process GOI and department.
6. Intensive and extensive promotion of rural industries in Bihar will be a challenging task. The entire range of small scale industries, village and cottage industries would come under the domain of this exercise with all

their problems and prospects. The promotional efforts will call for

- *Strengthening credit and delivery system through training, sensitization and Governments' commitment supporting the recovery process of institutional credit*
 - *Strengthening the process of rural entrepreneurship development by training of master craftsmen, capacity building of supporting training institutions, implementing rural industrialization projects, arranging training programmes by master craftsmen, vocational training by master craftsmen*
 - *Technology transfer and technology development through technology upgradation cum production centers, technology demonstration centres, district Industries Centers, networking with technology oriented centers etc.*
 - *Sub-sector development & promotional interventions for handlooms, powerlooms, silk weaving/sericulture, handicraft, leather products etc.*
 - *Stimulating agricultural growth to produce enough surpluses of food crops, fruits, vegetables and cash crops to promote processing/agro-industries. Networking with large industrial units for promoting ancillary industries etc.*
7. Capacity strengthening need to address the knowledge and skills development of small and marginalized farmers as well as women to enable maximum realization of their harvest across supply chain.

Producers need to be sensitized to maintain quality and food safety through proper handling and storage of produce after harvesting. They would be trained to understand and appreciate the process of supply chain and how they can contribute in this process for mutual benefits. Producers will be mobilized to formulate the 'Commodity Specific Interest Group (CSIG)' federate at different level and develop understanding on organizational aspects in terms of legal, functional and managerial dimensions. The office bearers of commodity specific interest group will be trained to develop entrepreneurial capabilities, aptitude for decision-making, enhance marketing knowledge and skills. This will enable them to become effective change agent in the rural economy and set standards of excellence in their economic venture through establishing linkages with professionals.

8. Asian Development Bank study group¹⁶ (2007) suggested “In Bihar, training infrastructure especially for horticulture crop is not suitable to support the training requirement under the fast changing context of horticulture development. At present, horticulture department does not possess any training infrastructure and adequate trained manpower to pursue any training programme at district level. Also existing training facilities at Rajendra Agricultural University, Samastipur, would not be sufficient to cater the training need of the state. So, additional training infrastructure facilities need to be created in consonance with proposed 29 Agri-Business Centres (ABC) under the project plan”.
9. Though ‘Udyog Mitra’ concept in recent past has taken off the ground under Single Window Scheme, The outfit of the District Industries Centers at District level is functioning much below expectation. The knowledge, enthusiasm, motivation, performance expectation, goal orientation of the functionaries are to be rekindled and rejuvenated at intervals through training for better performance. But 90% of the officers of DIC did not attend any such training program almost for more than a decade. This has to have its telling impact. In fact, these functionaries should even be given advance training to help them become competent trainers for the rural unemployed youth. They should be eventually made to use their expertise and ability to develop aspiration and will in the youth to go for self employment by undertaking rural industries. This apart, they should also function as friend, philosopher and guide for the entrepreneurs. This concept should be revisited, problems analysed and capacity built by equipping them with all the support systems to make them move with a sense of strong determination for making the rural industrialization programme a resounding success in the State.

¹⁶ *Op cit*

10 Identification of industrial growth clusters is definitely useful. This should continue and intensive infrastructural support should be built up in and around these clusters by the State Government. That has been dismal at the moment. But it would be better to help the entrepreneurs organize themselves to shoulder the responsibility of promoting their own economic interest in the market driven economy. These beneficiaries can be made to organize themselves into a mutually helpful coherent group to manage all their affairs without looking to government involvement at every stage. They should be an asset to the State Government and to the people at large and not a liability. Intensive and extensive promotion of rural industries in Bihar will be a challenging task. The entire range of small scale industries, village and cottage industries would come under the domain of this exercise.

The foregoing initiatives are only indicatives as there are many more important functional aspects which have not been included for the sake of brevity. But it goes to show that the task of promoting rural industries is very challenging and onerous in the context of inherent complexities of the sector, eg., wide dispersal, enormous range of products, infrastructural constraints, lack of standards and standardizations, disparity in technology employed and scale of production, marketing/managerial bottlenecks etc.

11. As regards Governance, it was felt by all stake holders¹⁷ that the cost of governance need not be added. However, there is an urgent need to have a semi-autonomous unit with the leadership of secretary industry GOB to supervise, coordinate and promote the RIP.

¹⁷ Outcome of stake holders consultative meeting held at Patna 22nd July 2007 led by Deptt of planning Development & Industrial Deptt. GOB.

Exhibit 8.1 Proposed Pockets of Farm & Non-farm enterprises

S. No.	Product Range	Locations
1	Jute Product (Carry Bags, School bags eco-friendly user bags, carpet and ropes etc.)	Kotihar Purnea Madhepura Saharsa Kishanganj
2	Spices and vegetable like tomato pulp/purie, potato chips, chilli Powder, pickles of different varieties, food processed items, Bel/Aonla, Mango produce,	Bhojpur Rohtas Buxar.
3	Bamboo products	Kotihar Bhojpur
4	Fruits Guava, Litchi juice Banana chips and powder, lemon cordial	Muzzafarpur Hazipur Darbhanga
5	Fish Latcheries and processing/packaging	Muzzafarpur Darbhanga Motihari
Non Farm		
6	Makhana Maize product Vegetable products-processing/packaging	Fatuah, Begusarai Patna
7	Handloom cluster Embroidery, Knitting, stitching garments	Banka, Bhagalpur Nalanda Gaya.
8	Bamboo products	Gaya, Zahanabad, Bhojpur
9	Metal Based (Bronje & Alloy metal)	Buxer Pareo (Bihita)
10	Honey bee cluster	Bhojpur Muzzafarpur Begusarai
11	Solar Technology & allied products	Nalanda Myngher Bihita

Considering the magnitude and complexities, the State Government may consider establishing a specially dedicated Directorate of Rural and village industries (RVI) under a senior administrative officer with a State Steering Council, chaired by the Chief Minister or by the Dy chief Minister and co-chaired by the Industrial Development Minister with the representation of the heads of all the cross functional departments, expected to coordinate with the directorate of RVI for creating necessary infrastructural support and resource building as well as reasonable representation from functional clusters to facilitate implementation of the rural

industrialization program in the State Departments like those of agriculture rural development, social welfare, planning panchayate Raj enclosing the coordinational head of the SLBC & national financial institution should necessarily be on the council. Secretary Industries Development would act as a nodal departmental head. The function of the council is to integrate all the concerned departments.

- *Alongside, Rural & village Industrialization Coordination Committee should also be constituted at District level under the chairmanship of District administrative head for ensuring proper grass root level coordination in planning and implementation of the program, that integrates all the departments.*
- *To begin with, the State Government should consider popularizing the use of Solar Photo Voltaic Technology extensively in Bihar, particularly in rural areas to meet their immediate power need for light, fan, electrical or electronic gadgets. It will provide them pollution free energy. Thus, their children can study at night in better and healthy environment, the traders/ shop keepers/ artisans will get light for extending the hours of their gainful activities at night, radios television can be used for information & entertainment, people will have better family & social interaction at night. There may be solar street light, telephone booth etc in the villages and so on.*
- *Panchayati Raj Institution can take up this responsibility of promoting standard quality of stand alone Solar Home lighting systems, street lights in the villages.*
- *However, temptation of giving subsidy on a large scale for this purpose should be avoided as far as possible. It can at best be linked with village /cottage industries, or any income generating activities in villages. However, State Government should arrange to conduct free demonstrations of photo voltaic technology/ Solar Home Lighting System, free training to develop chains of supply and after sale services in the villages with the help of NGOs, and manufacturers of solar home lighting systems (SHLS). It will create additional self employment opportunities also. Financial institutions may be roped in to provide credit facilities for installation of SHLS. It has already started happening in other States, including Bihar.*

8.1 Conclusions

1. Depending on availability of raw material industries like : mine rice hulling plants, churwa/poha (flat rice) making plants, wheat flour mill, Dalia/bread and biscuit-making, maize cornflakes making, dal milling, besan/badi making, oil extraction, potato/potato starch extraction, green vegetables dehydration, tomato ketchup/powder puree/juice/pulp making Khandsari/gur making, grinding & processing of spices, pickles/juice/jam making makhana processing, as well as jute based industries to produce carry bags, carpets, ropes etc together with this industries may be promoted to produce mango juice, mango pickles, green mango drinks/juice, guava juice/jelly, lemon cordials, Amla Murrabba/pickles, litchi juice, banana powder/chips etc.
 2. Expansion of dairy, poultry and fisheries industries has a good future for frozen products of poultry/fisheries as well as milk powder, butter, ghee, bottled scented milk etc.
 3. State may go for promoting metal product industries, drugs & pharmaceutical industries, electronic as well as electrical goods industry along with traditional industries like handlooms, powerlooms, knitting, embroidery, and other industries such as lime based industries, stone chips industries, silk weaving/printing industries, glass ware industries etc.
- *Power supply needs to be augmented. In this process use of photovoltaic technology by way of promoting stand alone Solar. Home Lighting System should be promoted on large scale. This way, rural houses & village streets can get assured and reliable power supply. This will be helpful in motivating for artisans, students, entertainment, entrepreneurs and for entertainment as well as social interactions even at night. Subsidy should be avoided as far as possible for this & Banks should be requested to grant loans for solar equipments.*
 - *Adequate number of ITIs, vocational training institutions needs to be opened. The training skills of the trainers including DIC officials should be developed. Reputed & reliable agencies may be roped in to train trainers and entrepreneurs, at different level.*

6. Similarly, such pockets may also be identified in the State, though such pockets may not be in a position to be clubbed. Apart from upcoming opportunities for promoting rural industries there, these pockets may also serve as feeders for other major agro-industries centers. All necessary infrastructural development like, rural extension set up for technology transfer, timely supply of quality inputs, storage, road & transport, power supply, irrigation system etc should be undertaken intensively in and around such clusters to increase and sustain agricultural modernization. Like wise such infrastructure build up should also be made available in and around the specially identified pockets to demonstrate the impact of undertaking commercial farming.
- *Similarly a variety of fruits, such as litchi, guava, mango, jack fruit, lemon, bael, pine apple, banana etc. is grown in Bihar. Appropriate extension programmes should be initiated for their rejuvenation and area expansion to provide enough raw material for promoting appropriate agro-industries to produce amchur, mango juice, mango pickles, green mango drinks/juice, guava juice/ jelly, lemon juice, lemon pickles, lemon-cordials amla murabba, Amla pickles, banana chips, banana powder, litchi juice etc. North Bihar offers great potentials in this regard.*
 - *In certain pockets of Bihar, such as in the districts of Katihar, Purnea, Madhepura, Saharsa, Kishanganj etc. jute is grown extensively. It may be used to promote jute based industries to produce carry bags, carpets, ropes etc.*
 - *Expansion of dairy, poultry and fisheries can be very good in Bihar. Bihar and adjoining states, including Nepal can be good market for fresh or frozen products of fisheries/poultry as well as for milk powder, butter, ghee, bottled scented milk, icecream etc. Hence, it will be desirable to put appropriate emphasis on their large scale promotion along with creation of appropriate infrastructure to support such industries.*
7. DIC should be provided with facilities to undertake extension work to promote rural industries and to ensure success of the endeavour. Promoting rural industries require a lot of planned activities and effective monitoring. For this State Government may consider establishing an especially dedicated Directorate of Rural & village Industries under an enthusiastic and senior administrative

officer. In order to give a boost to the process and also to meet the above objective, Apex body may be set up as State RIP Council' chaired by the chief Minister to have a sense overall impetus and to give directions to concerned departmental heads.

8. To begin with, those specific areas should be identified where any crop, including fruits and vegetables are grown in a very large area and where their production is in surplus. Such adjoining areas should be clubbed together to form clusters. For example, such clusters may be formed in Rohtas, Bhojpur, Aurangabad, Arwal, and some parts of Patna districts for paddy, and wheat, in Begusarai, khagaria and Samastipur districts for winter maize, in Patna, Nalanda, Aurangabad, Jahanabad and other such districts for Potato & green vegetables, in the districts of Muzaffarpur, Samastipur, Darbhanga and Bhagalpur for fruits and spices, in districts like, Sitamadhi, Darbhanga, Madhubani, Supaul, Saharsa, Purnea, and Katihar for makhana and so on.
9. Similarly, such pockets may also be identified in the State, though such pockets may not be in a position to be clubbed. Apart from opening up opportunities for promoting rural industries there, these pockets may also serve as feeders for other major agro-industries centers.
10. All necessary infrastructural development like, agricultural extension set up for technology transfer, timely supply of quality inputs, storage, road & transport, power supply, irrigation system etc should be undertaken intensively in and around such clusters to increase and sustain agricultural modernization. Like wise such infrastructure build up should also be made available in and around the specially identified pockets to demonstrate the impact of undertaking commercial farming.
11. Rice and wheat are the main crops in all the zones of the State. Hence, timely supply of quality inputs as well as proper extension activities with supervised application of technology should be put in place to exploit their full production potential. Since scented basmati rice may have good domestic and international market, large and medium farmers in particular may be motivated to cultivate it. Bihar Basmati brand may be developed like that of Dehradun and others rice growing western Indian region.

12. Special emphasis should be given to those high yielding varieties, which may be suitable for processing industries and growing off season vegetable crops in appropriate intercropping systems to enhance per unit area production. Vegetables alone could be used for producing a variety of products, such as potato chips, tomato powder/puree/juice/pulp/sauce, chilly powder/sauce/pickle, apart from dried canned and frozen cauliflower, peas, cowpea, carrot, etc. This would open a great avenue for packaged food industries.
13. In certain pockets of Bihar, such as in the districts of Katihar, Purnea, Madhepura, Saharsa, Kishanganj etc. jute is grown extensively. It may be used to promote jute based industries to produce carry bags, carpets, ropes etc.
14. Expansion of dairy, poultry and fisheries can be very good in Bihar. Bihar and adjoining states, including Nepal can be good market for fresh or frozen products of fisheries/poultry as well as for milk powder, butter, ghee, bottled scented milk, icecream etc. Hence, it will be desirable to put appropriate emphasis on their large scale promotion along with creation of appropriate infrastructure to support such industries.
15. Apart from agro-based industries, Bihar has the potential to promote metal product industries, drugs and pharmaceutical industries, leather industries, electronic as well as electrical goods industries, traditional industries, like handlooms, powerlooms, knitting, embroidery, painting, as well as small scale industries, such as lime based industries, stone chips industries silk weaving and printing industries, glassware industries etc. The respective clusters should be given due infrastructural support for their expansion, technological upgradation, and attractive appreciation in the economic return on investment.
16. Bihar is power deficit State. Power shortage is adversely affecting not only the business and the industries, but also the living standard of the people in general and rural masses in particular. Hence, all possible efforts need to be made to get more energy for the people, at the earliest. Otherwise it will have adverse impact on the process of promoting rural industries.
17. To begin with, the State Government should consider popularizing the use of Solar Photo Voltaic Technology extensively in Bihar, particularly in rural areas to

meet their immediate power need for light, fan, electrical or electronic gadgets. It will provide them pollution free energy. Thus, their children can study at night in better and healthy environment, the traders/ shop keepers/ artisans will get light for extending the hours of their gainful activities at night, radios television can be used for information & entertainment, people will have better family & social interaction at night. There may be solar street light, telephone booth etc in the villages and so on. Panchayati Raj Institution can take up this responsibility of promoting standard quality of stand alone Solar Home lighting systems, street lights in the villages. However, temptation of giving subsidy on a large scale for this purpose should be avoided as far as possible. It can at best be linked with village /cottage industries, or any income generating activities in villages. However, State Government should arrange to conduct free demonstrations of photo voltaic technology/ Solar Home Lighting System, free training to develop chains of supply and after sale services in the villages with the help of NGOs, and manufacturers of solar home lighting systems (SHLS). It will create additional self employment opportunities also. Financial institutions may be roped in to provide credit facilities for installation of SHLS. It has already started happening in other States, including Bihar.

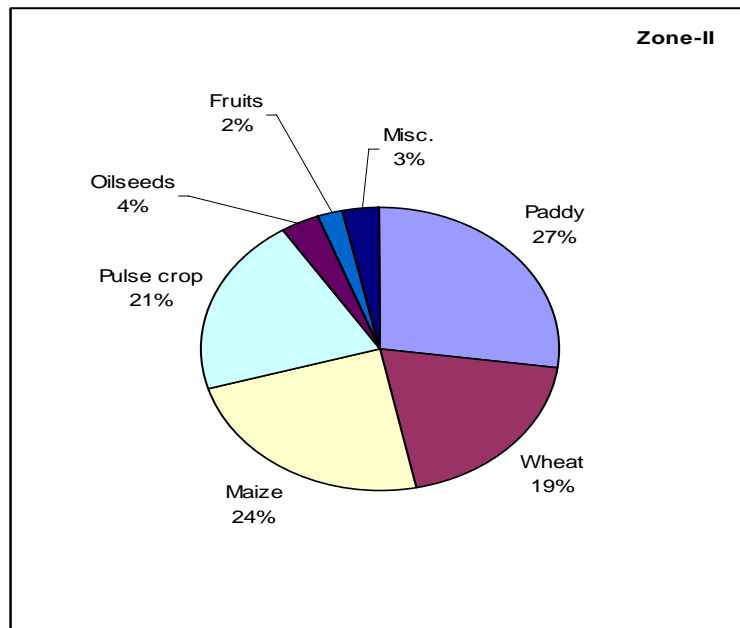
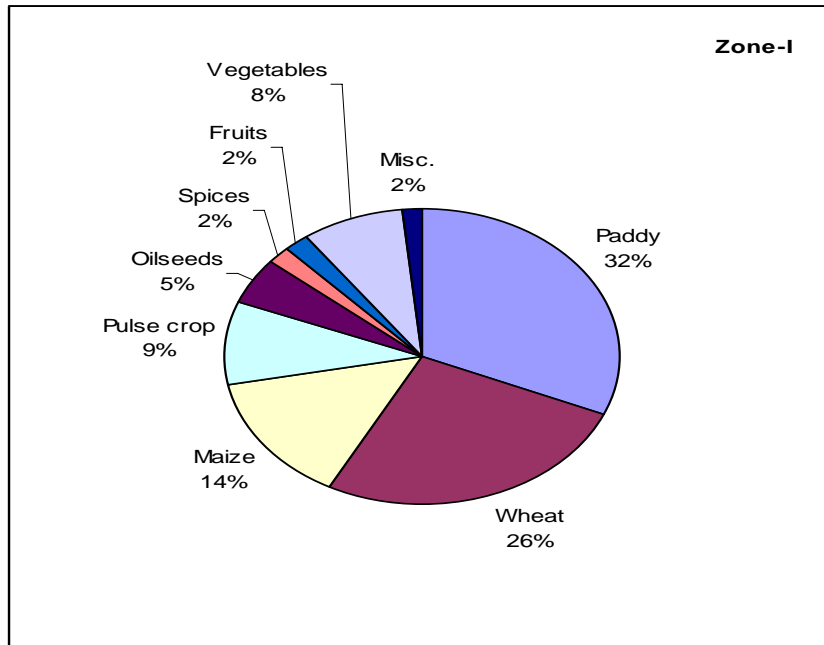
18. Bihar has unsatisfactory performance of financial sector. Deposits have increased in the commercial and cooperative banks but the credit deposit ratio situation is dismal. This is affecting economic growth of the State as a whole. But this is more because of extremely poor bank loan repayment habits of the people. Lawlessness and willful default have made cooperative structure very weak and the bankers in general are forced to take risk aversion route. The situation, if allowed to continue will stifle the growth prospect of the State. For this the State Government will have to take initiative and introduce strict administrative measures to support and strengthen the banking institutions operating in the State in the recovery of loans. Bank loan recovery support measures of the Government should be demonstratively reassuring. Otherwise, it will be too naïve to assume that commercial banks will be willing to lend in full swing for promoting rural industrialization in Bihar.

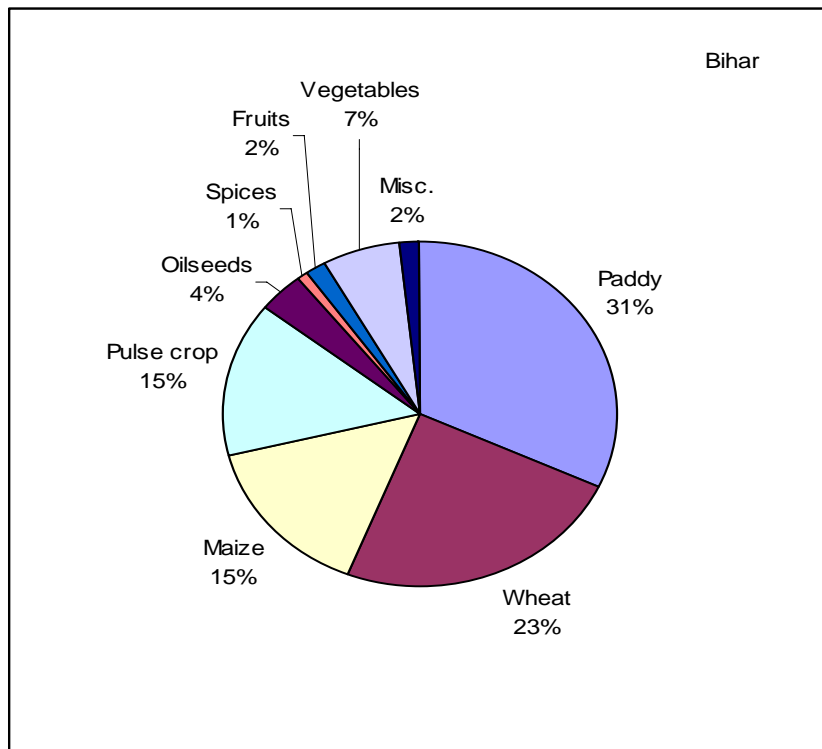
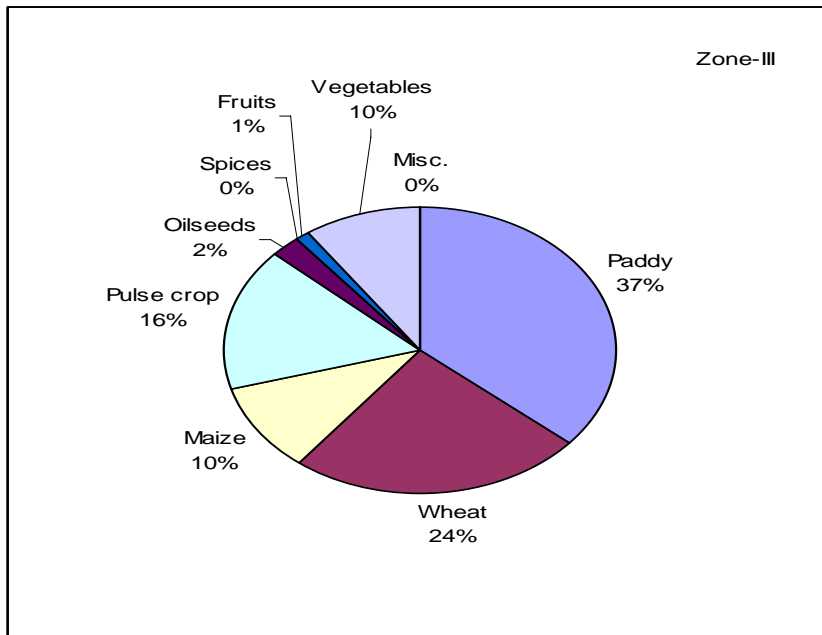
19. As the situation stands, the available training machinery of the State is neither enough in number nor are they well equipped to support needed entrepreneurship development and rural enterprise creation, commensurate with the objective behind the concept of promoting rural industrialization in the State. The State Government would do better to improve and upgrade the training machinery and its working efficiency. If need be, the State Government can even seek partnership with competent NGOs which can take up the challenge and can produce results.

Annexures

Annexure I

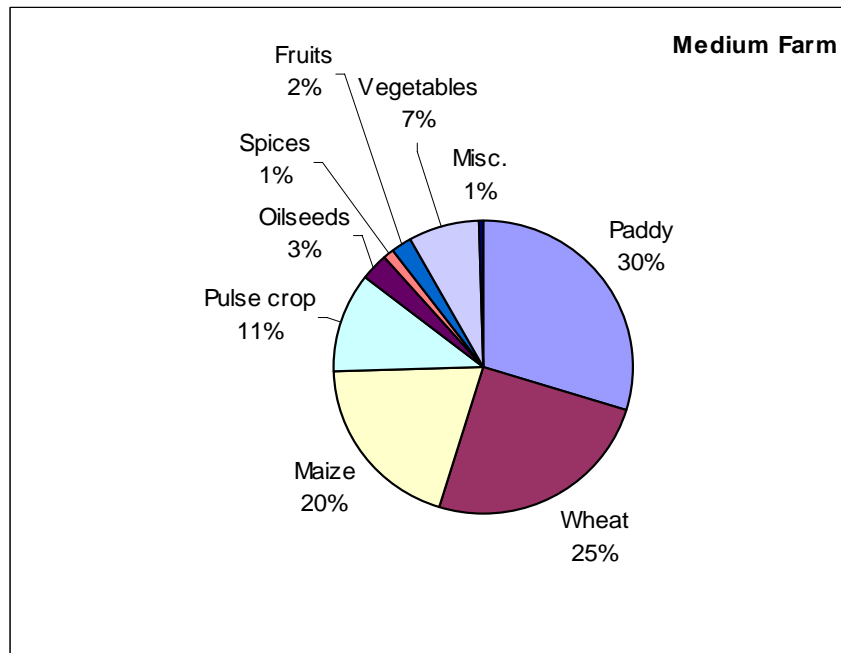
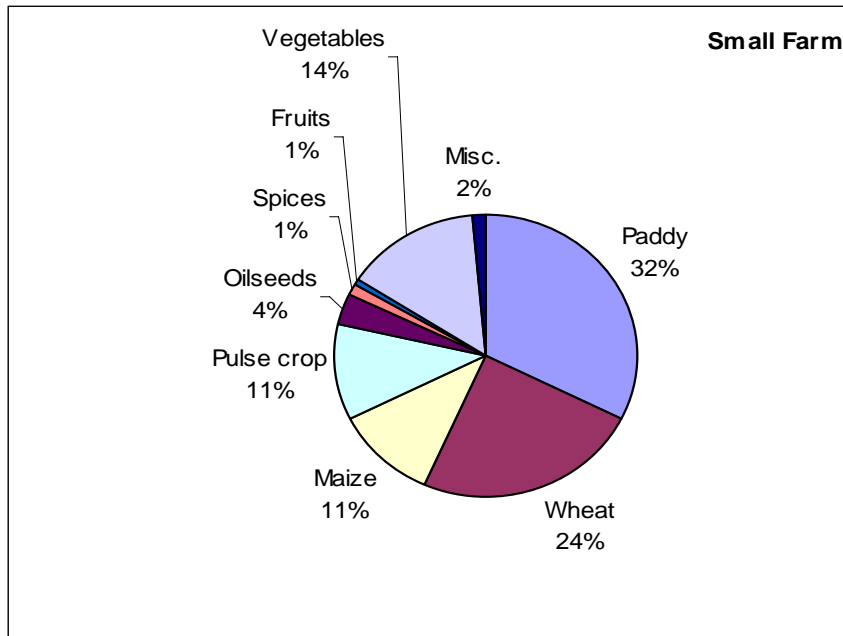
Cropping pattern of different Agro climatic zones in Bihar

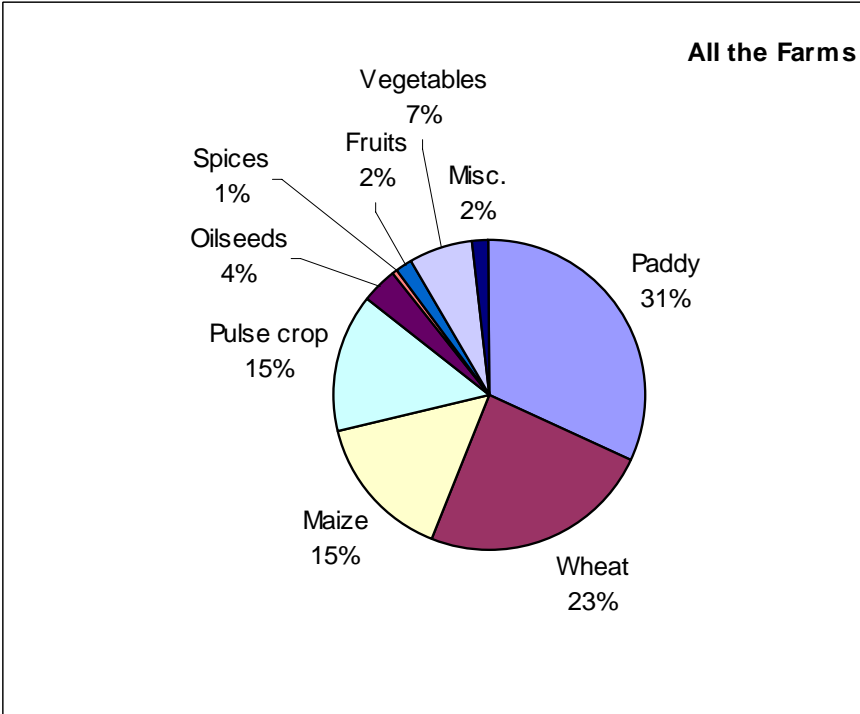
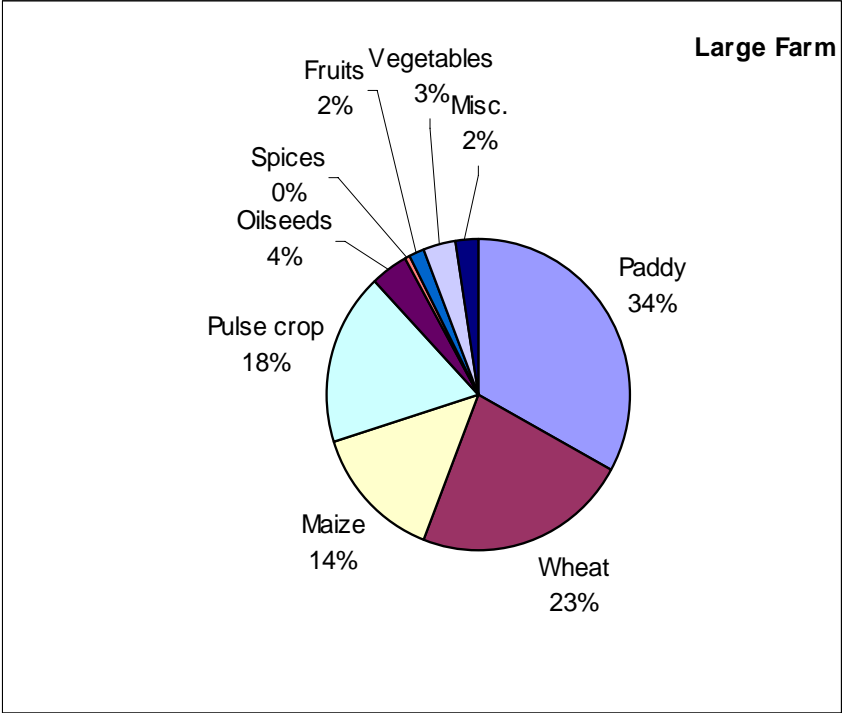




Annexure II

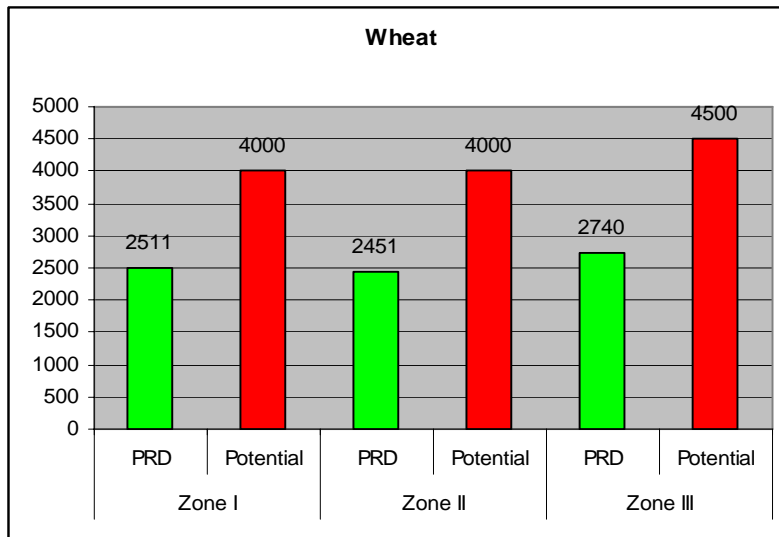
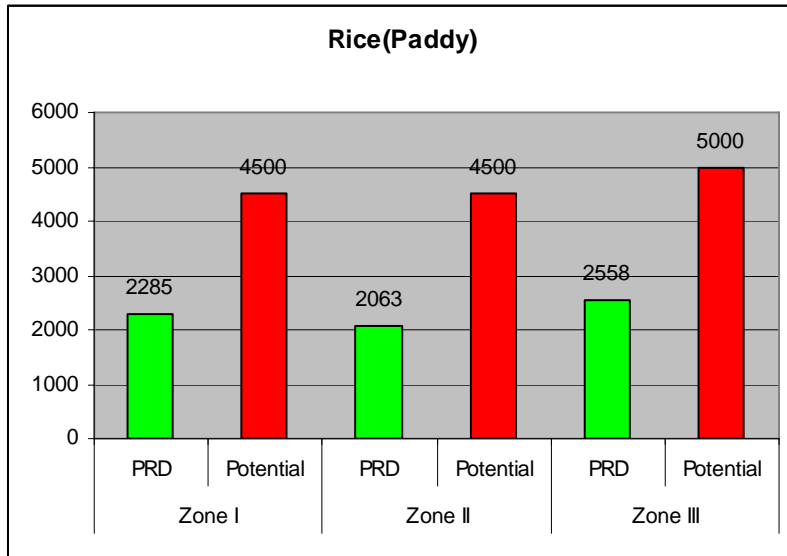
Cropping pattern of different size of farms in Bihar

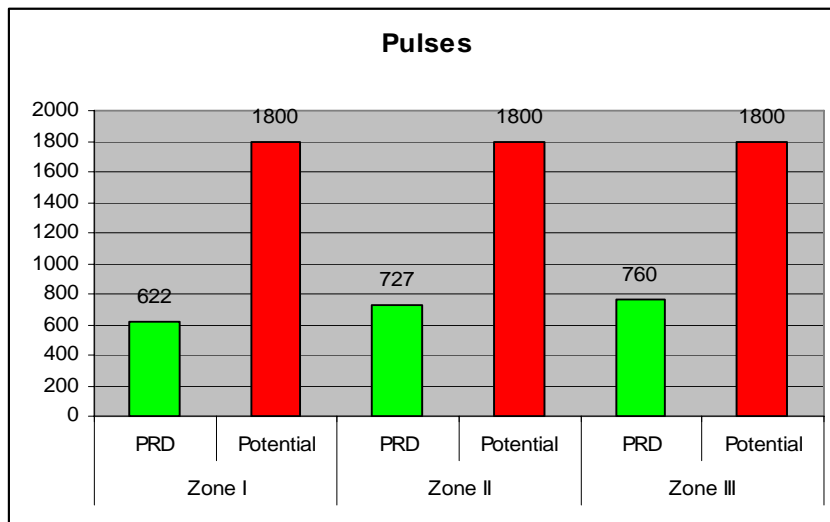
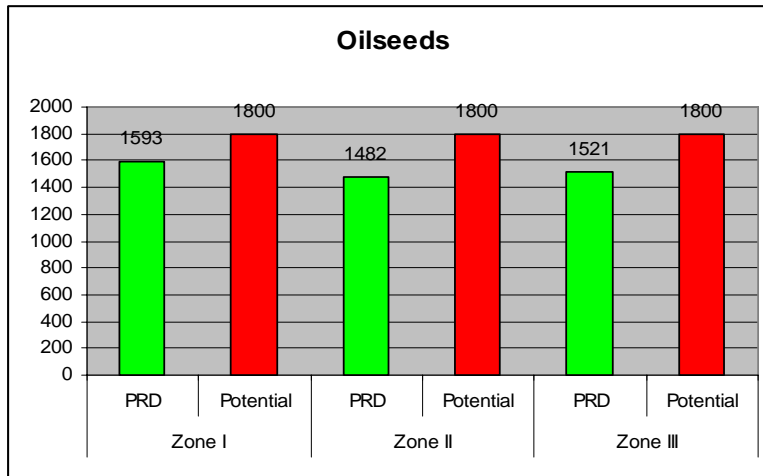
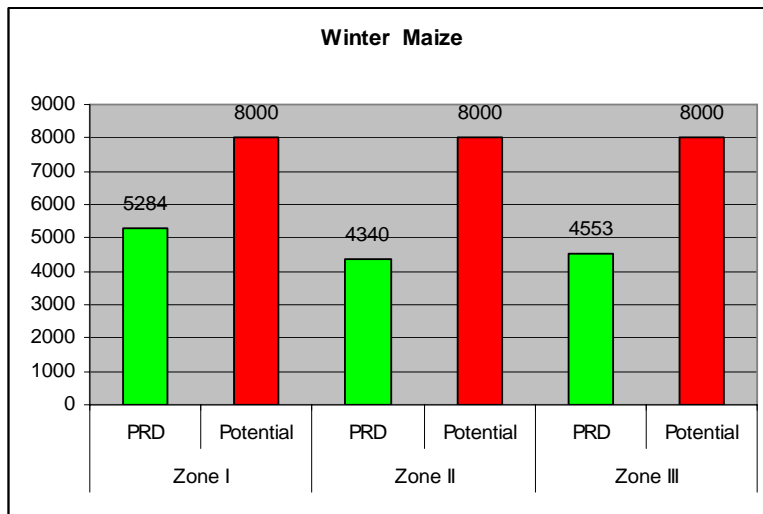




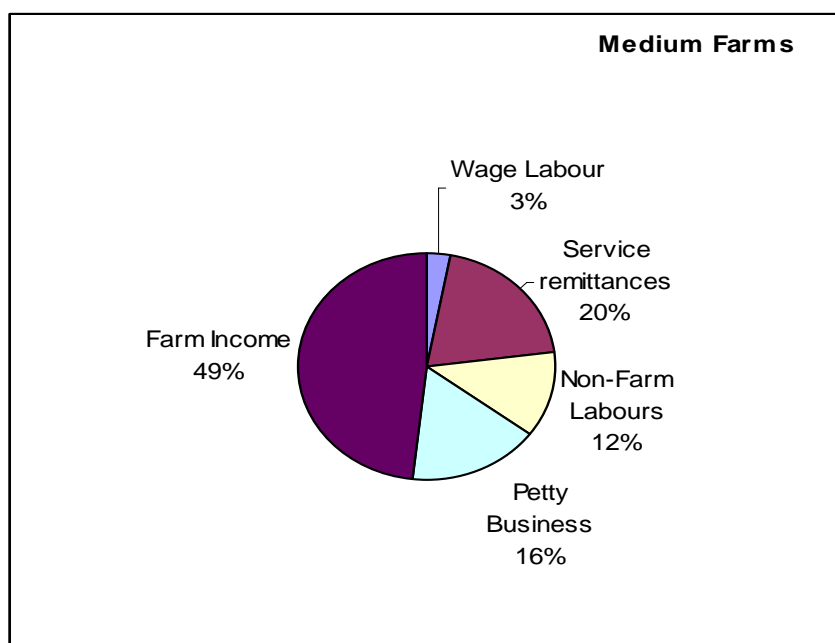
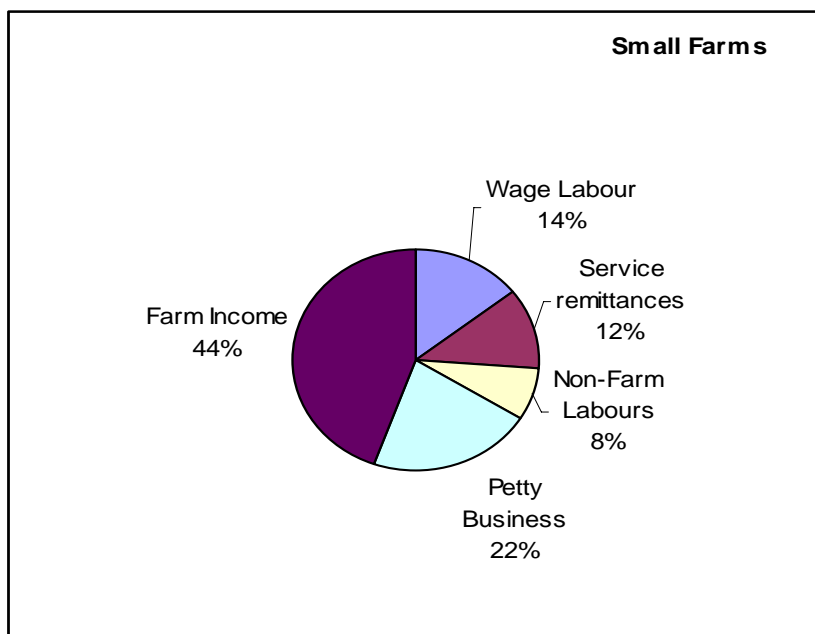
Annexure III

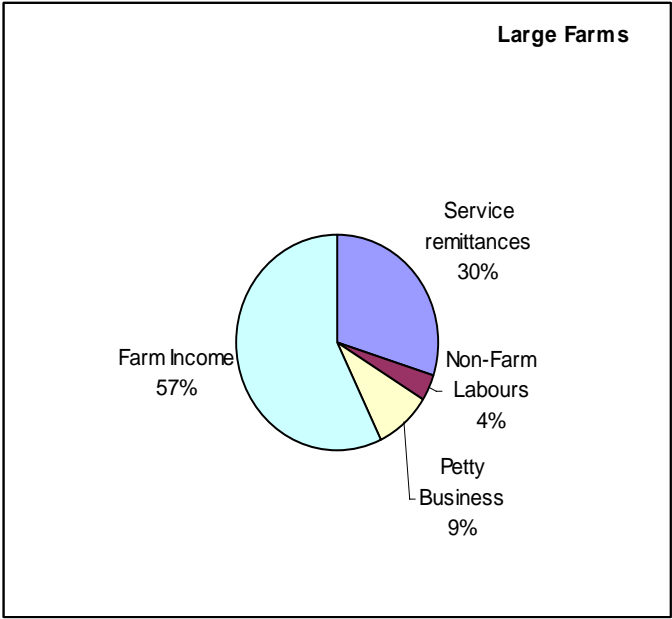
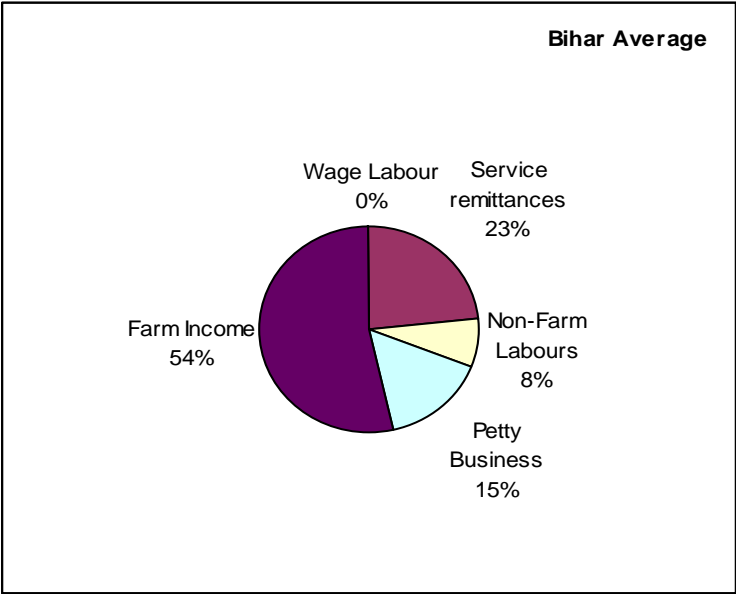
Potential and production of principal crops in different agro climatic zones of Bihar



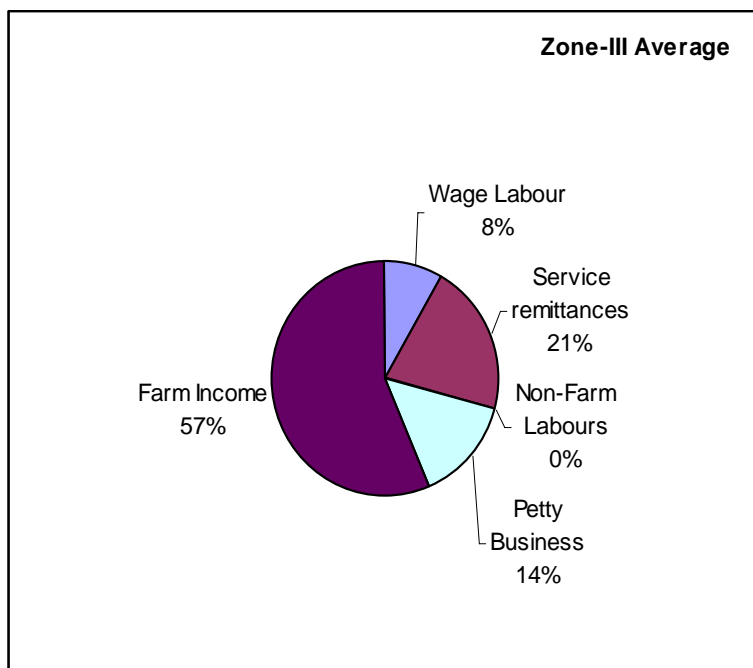
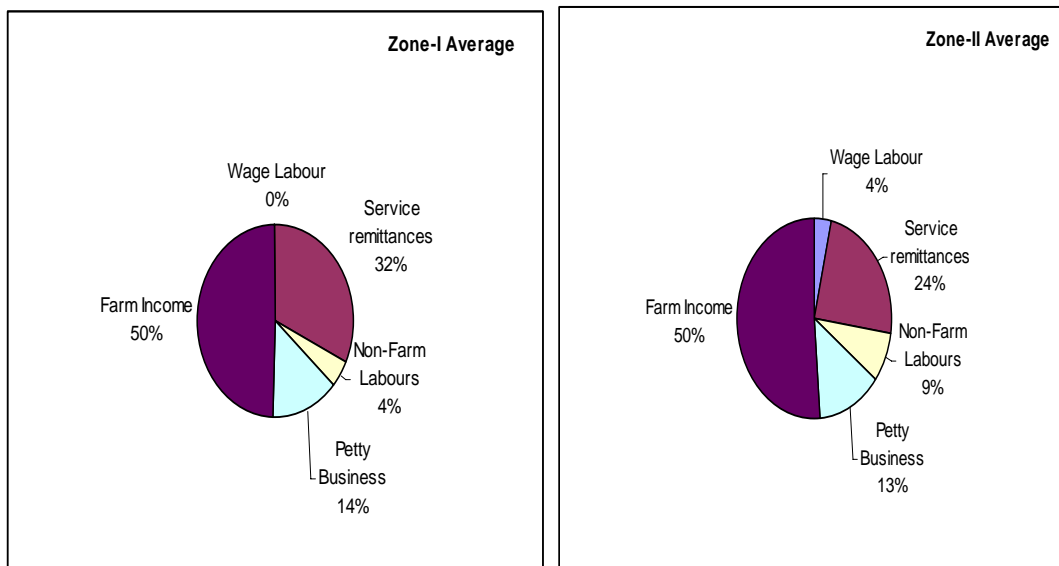


Income through different sources on different size of farms in Bihar





Zone wise income through different sources in Bihar



Centrally Sponsored Schemes from Government of India

1. State Schemes of Ministry of Women and Child Development GOI

Support to training and employment programme for women. (STEP)

2. Swayamsidha (IWEP) Central / State Schemes

- *An integrated scheme for women's empowerment based on the formation of women into Self-Help Groups (SHGs)*
- *Aims at the holistic empowerment of women through awareness generation, economic empowerment and convergence of various schemes*
- *To develop empowered women who will demand their rights from family, community and government*

3. Establishment of self-reliant women's Self-Help Groups (SHGs); (State Schemes)

Women will be encouraged to form groups according to their socio-economic status and felt-needs, after which they will network with other groups. In addition to empowering SHG members per se, by federating and networking strong pressure groups for women's empowerment/rights will be formed.

4. Integrated Child Development Services (ICDS) Scheme (Central & State Schemes)

Launched on 2nd October 1975 in 33 Community Development Blocks, ICDS today represents one of the world's largest programmes for early childhood development. ICDS is the foremost symbol of India's commitment to her children – India's response to the challenge of providing pre-school education on one hand and breaking the vicious cycle of malnutrition, morbidity, reduced learning capacity and mortality, on the other.

5. Schemes of Ministry of Labour and Employment

a. Self-Employment Promotion Programme, (State Schemes)

In view of the increasing unemployment in the country the Promotion of Self-Employment and decentralized manpower planning have been adopted during the sixth Five Year Plan as the main plans of its policy to tackle the unemployment problem in the coming years by putting special emphasis on promotion of Self-Employment. To substantiate the needs of the job-seekers under a centrally

sponsored scheme 28 District Employment Exchanges were strengthened by establishing Self-Employment Promotion Cells with the main objectives listed below:

- *To create awareness among job seekers about the employment market situation and job opportunities.*
- *To motivate the job seekers to take-up self-employment ventures.*
- *To assist them in obtaining necessary inputs required for setting of self-employment ventures from different sources.*
- *To maintain co-ordination with various agencies for promotion of Self-Employment.*
- *To provide necessary follow-up assistance to the Self-Employment Youth for sustaining them in their market.*

6. Schemes of Department of Science & Technology (Central Schemes)

- *The National Science & Technology Entrepreneurship Development Board (NSTEDB), established in 1982 by the Government of India under the aegis of Department of Science & Technology, is an institutional mechanism to help promote knowledge based and technology driven enterprises. The Board, having representations from socio-economic and scientific Departments and Institutions aims to convert “job-seekers” into “job-generators” through Science & Technology (S&T) interventions*

7. Schemes of NABARD (National Bank for Agriculture and Rural Development)

a. SHG – Bank Linkage Programme (Central Schemes)

NABARD has been instrumental in facilitating the formation and nurturing of societal groups as SHG's by involving partners like NGO's/ Banks/ MFIs/ FCs, etc. In and Endeavour to achieve the same, NABARD provides grant assistance to the agencies acting as Self Help Promoting Institutions (SHPIs) such as NGOs, Co-operative Banks, RRBs, Farmer Clubs, Individual Rural Volunteers.

b. Financing Joint Liability Groups (JLGs) (Central / State Schemes)

A model scheme was formulated for financing JLGs of tenant farmers, oral lessees etc. The scheme is being implemented by commercial banks and RRBs. The mechanism of JLG will enable banks to extend credit on the basis of mutual guarantee provided by the members of JLG

c. MEDP for matured SHGs (Central / State Schemes)

A separate, specific and focused skill building programme, Micro- Enterprise Development Programme (MEDP) has been formulated for the matured SHGs. The programme aims at enhancing technical, entrepreneurial and managerial skills of members of matured SHGs to enable to develop micro-enterprises.

b. Capital/ Equity support to MFIs from MFDEF (State / Central Schemes)

NABARD provides capital/ equity support to MFIs to enable them to leverage capital/ equity for accessing commercial and other funds from banks, for providing financial services at an affordable cost to the poor.

c. Training related Activities (State Schemes)

NABARD is extending support for scaling-up SHG – Bank Linkage Programmes by capacity building and other training related activities for different stakeholders of micro – finance like NGOs, Banks, Government functionaries, local bodies farmer clubs, rural volunteers and SHG members. The training related interventions also include meets, exposure visits, seminars, workshops, printing, publications, audio visual training materials etc.

d. Scheme for providing technology support to NGOs for strengthening MIS of SHG promotion and nurturing, (Central / State Schemes)

To facilitate proper maintenance of database and effective implementation of SHG – Bank Linkage Programme, NABARD provides grant assistance for purchase of personal computer to partner NGOs which are not financially strong enough to set up computerization their own.

8. Schemes of Textile Industries

a. Technology Up gradation Fund Scheme (TUFS), (Central Scheme) :

The Government of India had launched a Technology Up gradation Fund Scheme for Textile & Jute Industries for a period of 5 years under which 5% interest incentive is given to the industry for modernization and technology up gradation.

b. Export zone and technology parks Scheme (Central Scheme) :

Two Government schemes, Apparel Parks for Exports (APE) and the Textile Centers Infrastructure Development Scheme (TCIDS), now provide firms with incentives to establish themselves in apparel export zones. Economies can be achieved in these zones with the formation of geographic clusters of textile firms specializing in the various aspects of production. To encourage development of export parks, the Government exempts firms from some labor regulations and provides them with concessions on land purchase, credit, and taxes.

c. EPCG Scheme (Central Scheme):

Additional flexibility for fulfillment of export obligation under EPCG scheme in order to reduce difficulties of exporters of goods and services. Technological upgradation under EPCG scheme has been facilitated and incentivised and Transfer of capital goods to group companies and managed hotels now permitted under.

d. Free Trade and Warehousing Zone Schemes (Central Scheme):

Free Trade and Warehousing Zone has been introduced to create trade – related infrastructure to facilitate the import and export of goods and services with freedom to carry out trade transactions in free currency. This is aimed at making India into a global trading-hub and FDI would be permitted up to 100% in the development and establishment of the zones and their infrastructural facilities. Each zone would have minimum outlay of Rs.100 crore and five lakh sq.mts. built up area.

e. Single window Schemes (Central Scheme) :

The Scheme envisages sanction and disbursement of working capital and term loan together from a single agency. It is applicable to projects with cost upto Rs. 50 lakhs. The Scheme is operated both by banks and financial institutions. State Financial Corporations under Single Window Scheme provide working capital loan along with the term loan to new tiny and small scale sector units so as to overcome the initial difficulties and delays faced by them to start production expeditiously.

f. Industrial Estate (Central Scheme) :

The programme started in 1952 when the first such estate was established at Hadapsar in Maharashtra. The main objective of the programme is to encourage and support the creation, expansion and organizing of SSI through provision of factory accommodation, common service facilities and assistance and servicing throughout, all stages of establishment and operation and developing sub-contracting relationships within the small scale and large scale industries and specialized manufacturing activities.

9. Schemes of GOI (MINISTRY OF RD)

a. Swarnjayanti Gram Swarozgar Yojana (SGSY) (Sate Scheme):

The objective of the Swarnjayanti Gram Swarozgar Yojana (SGSY) is to bring the assisted poor families (Swarozgaris) above the Poverty Line by ensuring appreciable sustained level of income over a period of time. This objective is to be achieved by inter alia organizing the rural poor into Self Help Groups (SHGs) through the process of social mobilization, their training and capacity building and provision of income generating assets. The SHG approach helps the poor to build their self-confidence through community action. Interactions in group meetings and collective decision making enable them in identification and prioritization of their needs and resources. This process would ultimately lead to the strengthening and socio-economic empowerment of the rural poor as well as improve their collective bargaining power.

b. Group Life Insurance Scheme (State Scheme):

A group life insurance scheme for Swarozgaris aged not less than 18 years and not more than 60 years was introduced w. e. f. 1.4.1988. This scheme is operative from the date on which the asset is disbursed to the Swarozgari till the Swarozgari completes the age of 60 years or a period of 5 years from the date of commencement of the cover, whichever is earlier. A sum of

Rs.5000 shall become payable by LIC to the nominee of the deceased in case of natural death. In the event of death due to accident a sum of Rs.10,000 shall become payable by LIC.

c. Sampoorna Grameen Rozgar Yojana (SGRY) (Central Scheme)

The primary objective of the Scheme is to provide additional and supplementary wage employment and thereby provide food security and improve nutritional levels in all rural areas. The secondary objective is the creation of durable community, social and economic assets and infrastructural development in rural areas.

The programme will be implemented as a centrally sponsored scheme on cost sharing basis between the Centre and the States in the ratio of 75:25 of the cash component of the Programme. In the case of Uts the Centre would provide entire (100%) funds under the Scheme. Food grains will be provided to the States/Uts free of cost.

d. National Social Assistance Programme (NSAP) (State Scheme)

The Directive Principles of State Policy in the Constitution of India enjoin upon the State to undertake within its means a number of welfare measures. These are intended to secure for the citizens adequate means of livelihood, raise the standard of living, improve public health, provide free and compulsory education for children etc. In particular, Article 41 of the Constitution of India directs the State to provide public assistance to its citizens in case of unemployment, old age, sickness and disablement and in other cases of undeserved want within the limit of its economic capacity and development.

e. Jawahar Gram Samridhi Yojana (State Scheme):

With a view to further strengthen the infrastructure availability in rural areas, it was decided to restructure and streamline Jawahar Rozgar Yojana to provide demand-driven rural infrastructure at the village level. The restructured programme is implemented only at the village level and has therefore, been renamed as Jawahar Gram Samridhi Yojana (JGSY).

f. Employment Assurance Scheme (Central Scheme)

The primary objective of the Scheme is to create additional wage employment opportunities during the period of acute shortage of wage employment through manual work for the rural poor living below the poverty line. The secondary objective is the creation of durable community, social and economic assets for sustainable development.

10. Scheme for technology Upgradation/Establishment/Modernization of food processing industries. This scheme will cover the following activity:

Setting up/expansion/modernization of food processing industries covering all segments viz fruits & vegetables, milk products, meat, poultry, fishery, oil seeds and such other agri-horticultural sectors leading to value addition and shelf life enhancement including food flavors and colors, oleoresins, spices, coconut, mushroom, hops etc. Increase the level of processing, reduction of wastage, value addition, enhance the income of farmers as well as

increase exports thereby resulting in overall economic development. Scheme for human Resource development This Scheme will cover the following components

a. Setting up of food & Training Centre (FPTC)

b. Certification for infrastructure facilities for running Degree/Diploma Courses and Training Programmes for food processing.

d. Entrepreneurship Development Programme: *Enabling the potential entrepreneurs in taking food processing projects.*

11. Scheme for Quality Assurance, Codex Standards and Research & Development

a) Promotion of Quality Assurance/Safety Concept

b) Setting Up/Upgradation of Quality Control Laboratory

- ▶ To ensure compliance with National food standards.
- ▶ To assist industries in the food sector to develop and implement quality management system such as ISO9000, HACCP etc.
- ▶ To analyze the samples received from food processing industries, and other stakeholders.

c) Research and Development in Processed Food Sector

- ▶ Update processing packaging and storage technologies for all major processed food products so that they meet International Standards.
- ▶ Standardization of various factors such as bacteriological standards, preservation standards, additives, pesticide residue etc. of meat and meat products, development of value added products of commercial importance.
- ▶ Fortification of cereals/cereal products for enhancing the nutritional level of out population, especially women and children; and
- ▶ Traditional foods of various regions of the country.

12. Scheme for Strengthening of Nodal Agencies

Strengthen the State level Agencies for food processing industries, designated by the State Government, by providing financial support for installation of basic office hardware including computer system and internet for collection of detailed field information, preparation of data base, monitoring of assisted projects, coordination of agro food business etc.

(i) Scheme for Backward and Forward Integration and other Promotional Activities

a) Generic Advertisement

The objective of Generic Advertisement is to build awareness among the consumers about the advantages of processed food is nutritious, convenient, offers variety, is available round the year, saves time on cooking etc. this would also seek to encourage marketing promotion campaign for new products mix and brand name support.

Seminar/Workshop/Symposium: to focus attention on the development of Food Processing Industries. Pattern of Assistance: 50% of cost subject to maximum of Rs. 1 lack. When the Ministry sponsors/co-sponsors such events, the would be no ceiling to financial assistance provided.

Studies/Survey/Feasibility Reports

- *For assessment of potential and other relevant aspect of Food Processing Industries on sectoral and regional basis.*
- *Pattern of assistance: 50% of cost subject to maximum of Rs. 3 lakhs. When the Ministry commissions such studies/surveys/feasibility reports, there would be no ceiling to the financial assistance provided.*

b) Strengthening of Industry Associations

c) Performance Award

(ii) Scheme for Infrastructure Development

a) **Food Park** Infrastructure and common facilities for use by small and medium enterprise which enhance valued addition. Common processing, packing, marketing intelligence platform facilitated by large industry and utilized by small and medium industry and farmers;

b) **Packaging Centre:** Cost of packaging material and packaging technology is the largest component of the cost of packaged food. Lack of access to superior packaging technology, which enhances shelf life, protects food, is internationally acceptable and has no deleterious effect on environment and health has been and inhibiting factor in the growth of food processing industry. The objectives of this scheme are:

c) Integrated Cold Chain Facilities

12. Schemes of KVIC

Programme for promotion of V.I Cluster- Rural Industry Service Centre (RISC) for Khadi and V.I. activity.

- ◆ *Provide backward forward linkages to Khadi & V.I. activities in a cluster.*
- ◆ *To provide services like raw material support, skill up-gradation, training, Quality Control, Testing facilities, marketing promotion, design & product development in order to strengthen the rural clusters.*
- ◆ **a. Schemes Under Polymer & Chemical Based Industry**

The village industries viz. Leather, Soap, Agarbatti, Match, Plastic are grouped under Polymer & Chemical Based Industry. The industry wise schemes being implemented under this Directorate are furnished below.

Sl. No.	Name of the Industry	Scheme
1.	<i>Non Edible Oils & Soap</i>	<ul style="list-style-type: none"> • <i>Seed Collection & Oil Processing</i> • <i>Toilet Soap Base and Toilet Soap</i> • <i>Laundry Soap</i> • <i>Detergent Powder & Cake</i> • <i>Detergent Cleaning Powder</i> • <i>Shampoo</i> • <i>Liquid Soap</i> • <i>Phenyl</i>
2.	<i>Agarbatti</i>	<ul style="list-style-type: none"> • <i>Scented Agarbathi</i> • <i>Masala Agarbathi</i> • <i>Dhoop Agarbathi</i>
3.	<i>Cottage Match</i>	<ul style="list-style-type: none"> • <i>Card Board / Wooden match boxes</i> • <i>Wax vesta match</i>
4.	<i>Village Leather</i>	<ul style="list-style-type: none"> • <i>Intensive Flaying Centre</i> • <i>Bone Crushing Unit</i> • <i>Vegetable Tanning Unit</i> • <i>Wet Blue Unit</i> • <i>Footwear Manufacturing & Leather Goods</i>
5.	<i>Plastic</i>	<ul style="list-style-type: none"> • <i>Injection moulding</i> • <i>Extrusion</i> • <i>Blow moulding</i> • <i>Thermoforming</i> • <i>Rotational moulding</i>

12. Scheme of Ministry of Agro and Rural Industries

a) Prime Minister's Rozgar Yojana (PMRY)

b) Rural Employment Generation Programme (REGP) On the basis of recommendation of the High Power Committee report, submitted in May 1994, headed by the then Prime Minister of India, the KVIC launched Rural Employment Generation Programme (REGP) with effect from 1st April, 1995 for generation of two million jobs under the KVI sector in the rural areas of the country. The term rural area has been defined under the KVIC Act, 1956 as under:

c) Scheme of Fund for Regeneration of Traditional Industries (SFURTI)

Government has recently launched the Scheme of Fund for Regeneration of Traditional Industries (SFURTI) under which 100 traditional industry clusters (of khadi, village industry and coir) would be taken up for comprehensive development over 5 year. The KVIC and the Coir Board are the nodal agencies for the Scheme, which will be the first comprehensive initiative for regeneration of the khadi and village industries sector, based on the cluster development methodology

d) Schemes implemented under ABFPI

S. No.	Industry/ Activity	Products/Schemes
1.	Fruit and Vegetable Processing Industry	Manufacturing of Jam, Jelly, Pickles, Preserves/murabba, squashes, juices, marmalade, Synthetic fruit beverages, RTS beverages, sun-dried mango papad, kismis/resin, canned/tinned products, tomato puree, sauces, ketchup, petha, potato wafers/chips of potato/banana/ jackfruit/tapioca, etc. different types of pickles like sweet pickles, mixed pickles, etc. bottled/canned fresh fruits/vegetables, Awla murabba, mushroom products, Cashewnut processing and its products, tamarind processing, tamarind paste manufacturing, etc.
2.	Milk Based Industry	Manufacturing of Ghee, Curd/Yogurt, Butter-milk, Milk sweets, Toned-milk, Cheese, Panneer, Ice-Cream, etc.
3.	Processing of Cereals and Pulses Industry	Processing of Rice, Wheat, Pulses, Cereals, Poha/beaten rice, Murmura, Bakery products, Papad, Masala, Daliya, Noodles, Popcorn, Organic food, etc.
4.	Village Oil Industry	Various edible oils like Groundnut oil, Ginglee oil, Sunflower oil, Mustard Oil, Palm oil, Oil cake, Menthol, etc.
5.	Palm Gur Industry	Neera, Palm Candy/Palm Chocolate, Palm Sugar, Palm products like, Palm brush, Broom, Fancy articles, etc
6.	Gur and Khandsari Industry	Manufacturing of Gur and Khandsari, Chikki making, Raswanthi, Indian Sweets, Cane Juice.