

**Bihar**  
**Approach to 11<sup>th</sup> Five Year Plan**  
**VISION FOR**  
**ACCELERATED INCLUSIVE GROWTH**



**Government of Bihar**  
**Planning & Development Department**  
**Patna**

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**BIHAR APPROACH TO 11<sup>th</sup> FIVE YEAR PLAN – VISION FOR  
ACCELERATED INCLUSIVE GROWTH**

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Back Cover : The famous 'Madhubani Painting' of Madhubani in which damsels enjoying a vibrant fanfare of colourful bangles, the symbol of consistent happiness.

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## Foreword

Development is always a complex matrix. In the case of Bihar, considering its low levels of development, this is doubly so. Simultaneous action is required on multiple fronts to pull the State from the morass of poverty and give the people of the State a life quality consistent with human dignity. This requires accelerated growth, creation of gainful employment opportunities, strengthening infrastructure and enhancing human resource development. After the bifurcation of Bihar, our comparative factor advantages lie in the young demographic profile, fertile soil conditions, abundant water resources and a growing market which can enable value added harnessing of the rich agro-processing potential of North Bihar. South Bihar requires an innovative approach to rejuvenate its water systems and harness newer technologies for more optimum water utilization and conservation. Over the next five years, we will strive to grow at 8.5% of GDP and also ensure that the fruits of development redress income inequities and confer benefits to the disadvantaged, particularly the Schedule Castes, Schedule Tribes and the Minorities.

The Approach Paper outlines our broad development strategy and the sectoral policies covering Agriculture, Industry, Infrastructure and the Social Sector. Redressal of poverty and inequities in multiple forms remains our principal objective. I do believe that the contours of our policy outlined in the Approach Paper and which will be reflected in the final 11<sup>th</sup> Five Year Plan for Bihar will be a milestone in rapidly improving our growth indices and making Bihar a constructive partner in national growth initiative.

  
(Nitish Kumar)

## Preface

Improving governance is inextricably linked with enhancing the reach and efficacy of public delivery system. Besides, accelerated growth must be Inclusive for enabling the benefits of development to be shared equitably by all segments of society. This would not be possible without qualitative improvement in human resource development by way of ensuring hundred percent enrolment for primary education, a sharp decline in dropout ratio, investing in teachers' training and creating additional and more diversified Secondary Vocational Education. Inculcation of skills based on emerging demands is necessary to make the educated employable. Similarly improvement in the health of the population, apart from welfare gains, has many virtuous circles and enhances productivity.

Strengthening infrastructure and making its cost more affordable and more reliable, particularly in roads and power, is central to any growth strategy. This is also critical in shaping perceptions and creating an attractive overall environment for investment as well as harness the scope for public-private partnership.

The strategy for 8.5 percent growth rate necessitates much higher levels of both public and private outlays as well as incentivising creative public-private partnership. This will enable the XI<sup>th</sup> Plan to build on Bihar's comparative factor-advantage in agriculture, value added agro processing, a young demography with falling age dependency ratio and a large growing market.

The Approach Paper outlines the strategy for achieving the aforesaid objectives and lays down the critical parameters which will make the targets monitorable. This will also improve accountability.

Bihar looks forward to a period where a developmental centric approach can make the State more prosperous and be a significant partner in emerging national prosperity.

*N. K. Singh . .*  
**(N. K. Singh)**

*Deputy Chairman*

Bihar State Planning Board, Patna

## Acknowledgements

The Approach Paper for the Eleventh Plan for the State of Bihar is an effort to lay down the broad macro framework of the State Government and give proper direction to the growth process on the basis of well conceived priorities and appropriate correction strategy to reverse the retarded growth trend of the economy of the State. The Approach Paper is the first scientific attempt made in Bihar to conduct simulation exercises for working out investment requirements for alternative scenarios of growth on the basis of Incremental Capital Output Ratio (ICOR) for different sectors. It also outlines the broad vision and strategy of the State Government and it is intended to serve as a guide for the preparation of the Eleventh Plan proposals of the State.

The Approach Paper has been prepared in tune with the policy framework and inspiration provided by the Hon'ble Chief Minister of Bihar, Mr Nitish Kumar, and has been formulated under the direction and design of the Deputy Chairman of the Bihar State Planning Board, Mr N. K. Singh. This Approach Paper would not have been possible but for his able guidance and constant monitoring.

I would especially like to thank Mr N. S. Madhavan, IAS, for the inception of the work of preparation of the Approach Paper. I am also indebted to Mr A. K. Choudhary, Chief Secretary, Bihar, Mr R. J. M. Pillai, Development Commissioner, Bihar and all the Departmental Secretaries who have contributed various sections of the Approach Paper or improved on the quality of the Approach Paper.

I am pleased to record my appreciation for the unstinting efforts of the officers and staff of the Planning and Development Department and the Bihar State Planning Board. Dr Arvind Kumar and his team for the Eleventh Plan deserve special mention for their immense organizational support and coordination work. Thanks are also due to Mr Nanda Dulal Ray, Research Officer, Bihar State Planning Board for his econometric exercises related to the formulation aspects of the Plan, Mr Bijay Pratap Singh, Director, Statistics and Evaluation, for his invaluable statistical groundwork for the Plan and to the Officers and Staff of the Computer Cell of the Planning and Development Department and the Directorate of Statistics for assistance in printing and publication.

  
**Chaitanya Prasad**

*Secretary,*

Planning and Development Department

# Overview

Bihar approaches the Eleventh Plan with optimism. Though the state is almost at the lowest rung of the developmental ladder, a process of gradual growth based on the state's tremendous potential has been set in motion during the last year. Thus the Eleventh Plan provides Bihar with a unique opportunity to restructure policies to achieve a new vision of growth that will be much more broad based and inclusive. With almost all its human development and economic indicators far below the national average, prioritizing Bihar's focus for the Eleventh Plan is a challenge; in reality, the state needs to focus attention on all fronts.

Many significant initiatives recently taken are beginning to yield results. The objective of the Eleventh Plan is to significantly raise the growth trajectory and improve the livelihood of its millions of poor people. At the same time we must avoid a period of jobless growth but rather foster policies which will increase growth

and also create avenues for meaningful employment for the young demographic profile of Bihar. By the end of the Eleventh Plan, Bihar believes it can redress its development deficits and join the national mainstream of the fast growing states. When a state of the demographic size of Bihar does so, it can easily propel growth elsewhere and Bihar could become the engine to propel India's economic growth in the Eleventh Plan.

## 1.1 Macro Overview of the State

### 1.1.1 Growth Trends

The trend in the growth rate of Bihar's Gross State Domestic Product (GSDP) during the Tenth Plan has been volatile, mainly because of the dominance of the agricultural sector in the state's economy (see Table 1.1). During this period, against an average growth rate of 7 percent for the Indian economy, Bihar's average annual growth rate was 4.01



**Table 1.1 : Trends in Bihar's Gross State Domestic Product  
(Ninth & Tenth Plans)**

Year	State Domestic Product (lakh Rs.)	Change over Previous Year (%)	Annual Average Growth Rate (constant 1993-94 prices) (%)
1997-1998	25,92,076	(-) 3.85	3.25
1998-1999	27,88,792	7.59	4.10
1999-2000	28,91,397	3.68	4.03
2000-2001	34,50,098	19.32	6.09
2001-2002	31,25,936	(-) 9.40	4.02
2002-2003	36,15,961	15.68	5.25
2003-2004 (P)	32,90,950	(-) 8.98	3.73
2004-2005 (Q)	36,88,196	12.07	4.46
2005-2006 (A)	36,19,819	(-) 1.85	3.92

(Note : P : Provisional, Q : Quick Estimate, A : Advanced Estimate)

percent.

During the Tenth Plan, Bihar's economy grew at a rate that was marginally

higher than its growth rate in the Ninth Plan period and even its per capita income just crept up. However, the state's growth rates

**Table 1.2 : Growth in Income and GSDP : Bihar vs. India  
(Ninth and Tenth Plans)**

	Ninth Plan		Tenth Plan		(Percent) According to Planning Commission CAGR 3 Years (2001-02 to 2004-05)	
	India	Bihar	India	Bihar	India	Bihar
Per capita GDP growth rate	4.00	1.00	5.50	2.00	NA	NA
Growth in GDP of which	5.50	2.90	7.00	4.01	6.45	5.67
(a) Agriculture	2.00	(-) 1.14	1.80	0.96	1.03	5.01
(b) Industry	4.60	7.53	8.00	9.80	6.96	10.58
(c) Services	8.10	6.37	8.90	5.08	8.64	5.12

have been low compared to the national average.

### 1.1.2 Structure of the Economy

Bihar's economy over the years has experienced little structural change and is not well diversified. It is a predominantly agrarian economy with a small manufacturing base. While the share of agriculture has declined, it remains very large, the share of industry has remained stagnant, and services sector has increased its share from 41 percent to nearly 50 percent of GSDP, which is in line with the national average (Figure 1.1).

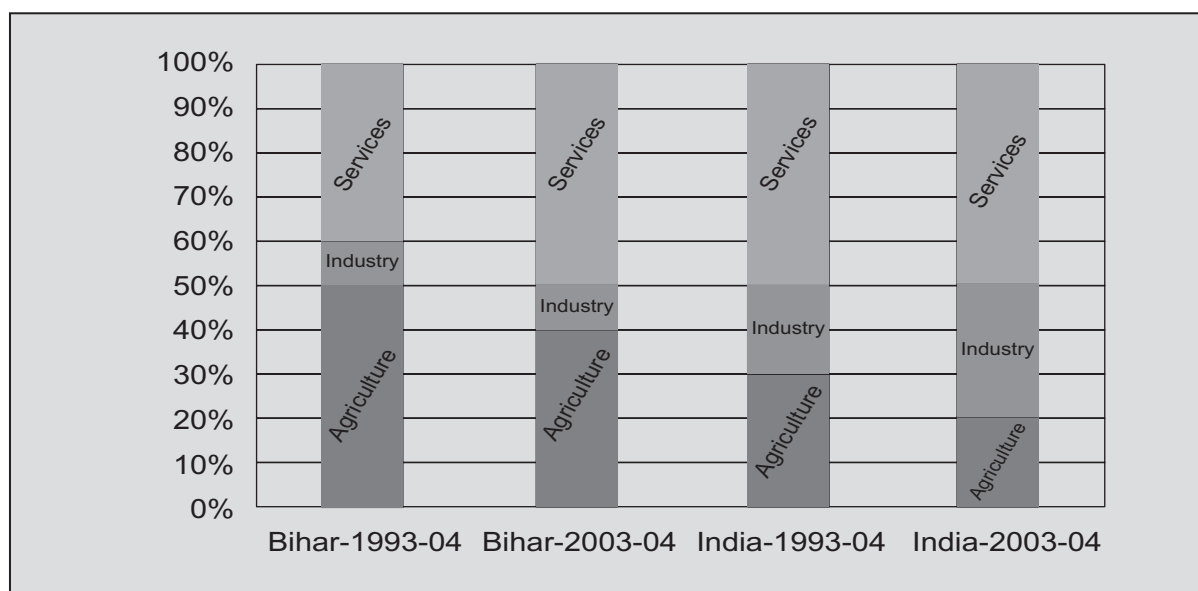
The share of the primary sector has been declining from 58.77 percent in 1980-81 to 50.6 percent in 1990-91 and further to 44 percent in 2000-2001. However, this is

still higher than the average contribution of agriculture at the national level which was 27 percent in 2000-01.

The bifurcation of the state in 2000 had an impact on the structure of the economy; the state of Jharkhand was created from the industrially advanced and mineral-rich southern-half of the state. While 46 percent of the land area was transferred to Jharkhand, 75 percent of population remained with Bihar, leading to an increase in population density in the latter. The contribution of the secondary sector, which was 15.39 percent in 1980-81, rose to 20.98 percent in 1990-91 and fell to 10.55 percent in 2000-01, less than half the share of the secondary sector nation-wide which is around 25 percent.

The tertiary sector has grown

**Figure 1.1 : Sectoral Distribution of GSDP, 1993-94 and 2003-04**



disproportionately and without concomitant growth in the secondary sector. Its contribution was 25.84 percent in 1980-81, but its high growth in the 1990s raised its contribution to 49.77 percent of SDP in 2000-01, which is at par with the country at large.

In the year 2004-05, the contribution of Agriculture, Industry and Services Sectors in GSDP at 1993-94 prices was 40, 12 and 48 percent respectively as against 20, 27 and 53 percent respectively at 1999-2000 prices for the country as a whole.

In spite of the efforts of planned development in the past several decades, the regional disparities have widened and several states like Bihar are at the lowest rung of the development indicators. Infrastructural developments like roads, power, health and sanitation and other socio-economic indicators are abnormally poor compared to developed States. The backwardness of Bihar is due to historical reasons - low per capita plan expenditure, inadequate central assistance, recurrence of floods and droughts, low C-D ratio, etc. The bifurcation of the State has added further miseries to it. With 46 percent of land transferred to Jharkhand, it has to sustain 75 percent of population of the undivided State, leading to an extremely high density

of population. The land area transferred to Jharkhand was very rich in mineral wealth, power plants, industrial units and human development institutions. The bifurcation of the State has had its impact on income and revenue raising capacity of the State and consequent fall in State Domestic Product has been of the order of 40 percent while revenue receipts have fallen by 33 percent. As a result of bifurcation, the State has become deficient in natural resources and minerals including coal which has impeded its industrial development. For a long term solution of this problem of energy deficiency, the State should be assigned mining blocks and not mere coal linkages. The National Plan should look into this problem in order to bring Bihar on the targeted industrial growth path.

### **1.2. Eleventh Plan Objectives**

Bihar has a lot of catching up to do, and it has to do this rapidly. If the economies of Bihar and the country continue to grow at their respective Tenth Plan rates during the Eleventh Plan period, the per capita income of Bihar in 2013-14 will be Rs 5,589 and India's would be Rs 23,209. In this scenario, at the end of the decade, India's per capita income will be 4.15 times Bihar's per capita income. Thus the gap has to be bridged by a significant

increase in the growth rate and a pattern of growth which can permeate its benefits to all sections of the society. In Bihar's context, the Eleventh Plan mantra is all-inclusive growth at an accelerated pace, accompanied by improved delivery of social services.

### 1.2.1 Inclusive Growth : Reducing the Poverty Headcount

Even after the formation of Jharkhand, Bihar remains the third most

populous state in the country with 83 million people. Around 40 percent of the population is below the poverty line, which is the highest in the country. As per Planning Commission figures of 1999-2000, rural poverty (44.3 percent) was substantially higher than urban (24.7 percent), but with 9 out of every 10 persons in Bihar living in villages, poverty in Bihar is significantly a rural phenomenon. The rural poor have limited access to land and livestock,

**Table 1.3 : Development and Demographic Indicators**

Indicators	Bihar	India
Total population (million)*	83.0	1,028.8
Population (rural) (%)*	89.6	72.2
Birth rate**	30	24
Child population (0-4 years) (million)*	11.0	110.4
Sex ratio (all)*	921	932
Sex ratio (0-6 years)*	942	927
Literacy rate (total) (%)*	46.96	64.59
Literacy rate (females) (%)*	33.12	53.67
Life expectancy at birth : male***	61.4	61.6
Life expectancy at birth : female***	59.5	63.3
Infant mortality rate**	61	58
Underweight children (below 3 years) (%)	54.4	47.0
Gross enrollment ratio(6–14 years, %)	47	65
Complete immunization (all) (before 24 months) (%)	12.8	56.6
Maternal mortality rate (MMR)	371	301

\*Census 2001

\*\* 2003--05, SRS

\*\*\*1998-02 (CSO)

education (80 percent of the bottom quintile household's heads have no education), health care, and well-paid jobs. Their main source of income is agricultural wages or casual non-farm jobs. A large percentage of them are landless or near-landless, the livestock they own is of poor stock, and they are often denied opportunities for social reasons, such as caste.

The state managed to reduce its poverty levels during the 1990s (1993-94 to 1999-2000) by about 7 percentage points, but this was far below the national average. Bihar's HDI rank among the states has remained unchanged at 15 since 1981, while its score increased marginally from 0.237 in 1981 to 0.308 in 1991 and then fell to 0.267 in 2001.

Rapid growth has to be an essential part of the strategy since it is only in a rapidly growing economy that incomes of the majority of the population will be raised sufficiently to bring about a general improvement in living conditions. Further, the country's own experience with growth throws up some lessons for Bihar. Accelerated GDP growth in India during the 1990s did not ensure a similar growth in employment. According to NSS (large

sample) data, the rate of rural unemployment (current daily status) increased from 5.6 percent in 1993-94 to 7.1 percent in 1999-2000 and from 7.4 percent to 7.7 percent in urban areas. Thus, along with faster and more equitable growth, sustained and gainful employment generation at a faster pace - to tackle the unemployment backlog - will be one of Bihar's key goals for the Eleventh Plan. Vigorous efforts will be needed to create an investment - friendly environment in labour-intensive sectors such as agriculture, animal husbandry, MSEs and the services sector.

### **1.2.2 Social Delivery : Access to Services for All**

Education and good health are essential to empower people to be productively employed in their future. The state's poor social indicators underline the importance of improving access to essential public services, especially education and health (Table 1.3). Educational indicators for Bihar are abysmally low compared to the national average, largely because of the lack of educational institutions and staff. Poor delivery of education has resulted in a high degree of migration from the state for education and employment, resulting in a large and continuous loss of human

potential. The situation is almost identical in health service delivery, where the shortages in medical personnel and physical infrastructure are far higher than the national norms. The entire social delivery system - covering *anganwadis*, ration shops, schools, hospitals, and so on - needs substantial inputs and improved efficiency to be rejuvenated and made purposive. A World Bank study indicates that at the present rate of progress, by 2015, Bihar will be able to achieve only two (reduction in child malnutrition and access to safe drinking water) of the eight Millennium Development Goals. These can only be accelerated if the social sectors receive substantial investment during the Eleventh Plan.

At the same time, social services will have to be well targeted and responsive to the community's needs. There is sufficient evidence to show that funds are not the binding constraint to improving the delivery of service; rather it is the implementation capacity of the delivering agencies and appropriate monitoring of outcomes.

### **1.3. Growth Potential in the Eleventh Plan**

The low growth of Bihar's GSDP compared to the national average can be

attributed to the low accumulation of physical capital and lack of efficiency in the use of capital. From 1999-2000 to 2003-04, the investment rate has been around 27 percent for the country, against which Bihar's average rate of investment was an abysmally low at 15 percent of GSDP (see Table 1.4). Of this, private investment as a percentage of total investment for the state was on average 59 percent.

The Planning Commission has projected an average growth rate close to 9.0 percent with acceleration through the plan period to end with a rate of around 10 percent during the Eleventh Plan. For Bihar, four rates of growth of SDP - at 7 percent, 8.5 percent, 9 percent and 10 percent - have been assumed for working out different investment scenarios in the Eleventh Plan. Table 1.5 presents an assessment of investment requirements in Bihar for these target growth rates, which will call for varying average rates of investment, public and private.

For Bihar, acceleration from 7 percent growth to 10 percent will require an increase in the total investment rate from 19.72 percent to 27.52 percent. The scale of the increased investment is substantial and will have to be financed by increased

**Table 1.4 : Trends in Rate of Investment**  
(Percent of GSDP)

Year	Public	Private	Total
1999-2000	6.72	8.97	15.69
2000-2001	5.28	8.79	14.07
2001-2002	5.68	8.58	14.26
2002-2003	4.70	8.94	15.64
2003-2004	8.55	9.86	18.41

**Table 1.5 : Alternative Investment Scenarios for the Eleventh Plan**

(Percent)

Target rate of growth	7	8.5	9	10
Average investment rate	19.72	23.65	24.95	27.52
Public investment as % of GSDP	6.90	8.28	8.73	9.63
Private investment as % of GSDP	12.82	15.37	16.22	17.89

**Table 1.6 : Projected Eleventh Plan SDP at Alternative Growth Rates**

(Rs. crore at 2006-07 prices)

Year	State Domestic Product			
	7% rate of growth	8.5% rate of growth	9% rate of growth	10% rate of growth
2007-08	70,784	71,776	72,107	72,769
2008-09	75,739	77,877	78,597	80,046
2009-10	81,041	84,497	85,671	88,050
2010-11	86,714	91,679	93,381	96,855
2011-12	92,784	99,472	1,01,785	1,06,541

domestic and government saving. These different growth scenarios give rise to alternatives estimates of GSDP for the state economy (Table 1.6)

### 1.3.1 The Incremental Capital Output Ratio

Based on data on capital formation in the state for the period 1999-00 to



2003-04 and data on SDP with a lag of two years, the incremental capital-output ratio (ICOR) for major sectors works out to 2.78 (Table 1.7).

In the Eleventh Plan for Bihar the ICOR can be realistically be assumed to be higher than the ICOR for 1999-2004, at 3.0 as the state will be incurring vastly higher

capital expenditures on developing infrastructure projects in roads, bridges, power, irrigation and flood control.

Based on this postulated ICOR, proposed outlays for the Eleventh Plan for the alternative rates of growth have been estimated (Table 1.8). Although private investment is currently 59 percent of total

**Table 1.7 : ICOR by Broad Sector (1999-2004)**

	<b>Sector</b>	<b>ICOR</b>
1	Agriculture & allied activities	3.36
2	Industry	4.66
2.1	Mining, manufacturing and construction	4.54
2.2	Power, water supply and gas	5.04
3	Services	2.18
3.1	Transport and communications	5.99
3.2	Others, including social services	1.02
	<b>All sectors</b>	<b>2.78</b>

**Table 1.8 : Projected Eleventh Plan Outlays at Alternate Growth Rates**

(Rs crore)

<b>Rate of growth (Percent)</b>	<b>Proposed Outlay</b>		
	<b>Public</b>	<b>Private</b>	<b>Total</b>
7.0	46,600	86,551	1,33,151
8.5	58,310	1,08,283	1,66,593
9.0	62,355	1,15,804	1,78,159
10.0	70,680	1,31,257	2,01,937



investment, with the recent encouraging spurt in private investment, a moderately higher proportion of 65 percent has been assumed for the Eleventh Plan. It may be recalled that the Planning Commission has assumed the share of the private sector in total investment in the country to be 70 percent. The projected outlay for the Eleventh Plan estimated at Rs 58,310 crore would enable the state to grow at 8.5 percent (see Annexure 1). The loan component of this outlay is calculated and pegged in conformity with the physical correction path under the FRBM Act. While the Planning Commission projects a growth rate of 7.6 percent, we believe that 8.5 percent growth rate is feasible for the reasons explained below.

### **1.3.2 Feasibility of 8.5 Percent Growth**

The question arises as to whether an 8.5 percent growth rate is feasible for Bihar, given its present growth trends. The answer is in the affirmative, considering that the country has managed to make the transition from 5.5 percent growth during the Ninth Plan to 7 percent in the Tenth Plan. Recent initiatives in institutional and policy reforms are yielding results, with private capital beginning to enter Bihar. The investment projections do not include direct investment

by the central government. Such investments in strategic areas such as power, flood control, construction of roads and bridges, and so on, will further enhance the attractiveness of Bihar as an investment destination. Growth in the state will be based on the efficient use of existing potential and tapping into hitherto hidden potentials, especially in the primary sector.

The scope for increasing efficiency in certain sectors is very high, as many public sector projects are functioning far below capacity. Areas in which efficiency level can be increased have been identified: for example, power policies, on the anvil, for improving efficiency, will benefit not only the public sector but also the private sector. There is enough evidence to believe that a large stock of existing capital assets in publicly funded infrastructure like power, roads and irrigation have been lying idle for years. Priority will be given to completing and upgrading such projects, as this would be more cost-effective than undertaking new projects.

### **1.3.3 Sectoral Growth Rates**

The sectoral growth rates consistent with an 8.5 percent growth rate of GSDP during the Eleventh Plan Period have been

projected at 5% for Agriculture, 11% for Industry and 10% for Services. It has been mentioned earlier that we expect agricultural growth to be around 5% (even though Planning Commission expects this to be 7%, which is not unlikely). But unlike the Planning Commission's Projection of 8% growth in industrial sector, we expect 11% growth in Industry, given the new surge of private investment. Agriculture has shown a decelerating trend after the '90s. The average annual growth rate of Agriculture in the Ninth Plan was negative and that in the Tenth Plan has been less than 1 percent. The deceleration in Agriculture has been mainly due to supply side constraints like irrigation, power supply, seeds, fertilizer use, etc., along with certain institutional factors. The Eleventh Plan will endeavour to remove these supply side constraints and also create adequate demand for agricultural products by increasing the real income of the rural and urban poor and setting up agro-based industries. Security of tenure of small, marginal farmers and landless labourers will be ensured by the implementation of effective land reform measures. The performance of the Industry sector has been on the whole satisfactory during the Ninth and the Tenth Plans. The trend rate

of growth of Industry during 1994-2006 has been of the order of 5.26 percent. With proper infrastructural development and implementation of the new industrial policy, increased private investment in the industries sector is expected. With proper emphasis on the agriculture and the industry sectors, services sector will get an automatic boost which has hitherto shown a trend rate of growth of around 6 percent.

#### **1.3.4 Pattern of Investment**

The declining trend in the share of the primary sector in the state's economy can be expected to continue. But public investment needs to be directed so that this trend is accompanied by an increase in the share of the secondary sector. This, however, does not mean that the agricultural sector will be neglected. The Eleventh Plan will raise the growth rate in agriculture by promoting measures to improve productivity through increased access to basic inputs like irrigation, power, seeds, improved technology and marketing linkages which can incentivise value added agriculture activity, etc.

Sectoral programmes and policies need to be comprehensively restructured for faster and more inclusive growth. New

initiatives are to be taken up and individual sectoral strategy devised to enable the state to achieve its targeted growth rate.

Public sector outlay in the Eleventh Plan is proposed to be double the actual expenditure of the Tenth Plan. Much of this outlay will be allocated to the infrastructural sectors: about 18 to 20 percent of the total outlay to be allocated to the power sector, about 15 percent to irrigation and flood control and 23 percent to transport and communication. Social infrastructure such as education, health, sanitation, will also receive adequate outlay.

The private sector is expected to play a greater role in the Eleventh Plan, with its participation expected to rise from 59 percent to 65 percent of the total investment on the basis of the postulated ICOR of 3.0. The state has unexploited potential for the setting up of industries based on agricultural products, food, leather, handlooms, etc., and private entrepreneurs will face a vastly improved climate coupled with investment in social sectors and will be given incentives to invest in these areas. The role of the Public sector in this sector will be facilitative and the public sector outlay for industries will increase substantially over the outlay in past

plan periods to enable the public sector to play this role.

The real breakthrough in the Eleventh Plan would therefore lies in success in attracting a large share of private investment and foreign direct investment; this can be brought about through infrastructure development, and investments in social sectors such as education, health and nutrition. Bihar's ambitious plans to raise the state from its 'least-developed' ranking to an engine of growth for the rest of the economy will call for urgent attention to some of the major challenges and impediments to inclusive growth during the Eleventh Plan.

### **1.3.5 The Public-Private Investment Mix: A Critical Role for Both**

One of the most serious impediments to the state's growth has been the shortage of investment flows from public sources, which in turn has impeded private capital formation. This has constrained other sectors of the economy, such as agriculture and industry.

#### **a. Public Investment**

The Eleventh Plan period targets will rely on stepping up public investment, doubling the Tenth Plan levels, to about an average of between 8-9 percentage points

of GSDP, while emphasizing improved utilization of existing assets. Increased public savings and utilization of central government funds for Bihar's development are crucial for financing the increased public investment and better utilization of existing assets, as well as improving social services. Accordingly, a well-planned fiscal adjustment path and strategy to mobilize resources and savings is a core component of Bihar's development strategy. This will call for strong budgetary discipline in

government expenditure. Efforts to increase tax revenues will need to be combined with restrictions on the growth of current expenditure (especially subsidies) and a reduction in the losses of public sector undertakings. The state government has recently begun to take serious steps towards fiscal reform (see Box).

#### **b. Private Investment**

While improving private investment rates will be enabled by more and better

#### **State Government Initiatives in Improving Fiscal Management**

The State Government has recently begun the process of fiscal reform. It has

- Enacted the Bihar Fiscal Responsibility and Budget Management Act 2006 (FRBM) which aims to: eliminate the revenue deficit by 2008-09 and contain the fiscal deficit at 3 percent of GSDP from 2008-09 onwards; pursue policies to raise non-tax revenue with due regard to cost recovery and equity; prescribe norms for prioritization of capital expenditure; and pursue expenditure policies that would provide an impetus for economic growth, poverty reduction and improvement in human welfare.
- Presented the State's first Medium-Term Policy Statement consistent with the FRBM.
- Passed a full budget before March 31, so that the government could begin spending by April. In the past, the state's budget used to be passed in two stages: in March through a vote on account for four months, and in June/July for the full year. As a result, funds were allotted in instalments to Directorates and Districts, implementing agencies were kept waiting for the receipt of the funds, and this shortened the time frame for implementation of projects.
- Decentralized financial powers: Departments can now sanction schemes up to Rs 20 crore (compared to Rs 25 lakh earlier) for schemes sanctioned in the Budget.
- Presented the Finance Bill for the first time in 15 years (with the exception of 2001); and the outcomes budget for the first time.
- Introduced the VAT system instead of the sales tax.
- Introduced the defined contributory pension scheme for all new employees from September 1, 2005.
- Begun the process of unbundling state electricity services, to improve the functioning of the SEB and attract private companies into distribution.

public investment in core public services, specific sectoral policies and improved governance and public administration will help lay the foundations for accelerated private investment that is essential if the state is to meet targeted growth rates and social objectives.

The sectoral sections that follow detail many areas for active participation by private investment, either directly or through partnerships with public agencies. Private entrepreneurs will be given incentives to invest capital in these areas, such as agro industries, infrastructure, technical training and educational institutes, health services, etc. The state government has already introduced several measures aimed at improving the climate for private investment. The New Industrial Policy incorporates several incentives for private business, the state has established a single-window clearance system by enacting the Single Window Act, 2006, which is decentralized to district level, and signed contracts with IDFC to provide technical and other assistance for fast-track PPP proposals.

Agri-business, an important area for private investment, will be encouraged by the several recent agricultural reforms such

as setting up of the Land Reforms Commission and Agriculture Commission, and repealing the Agricultural Produce Market Act. Several new reforms (protection abolished, policing priorities established, Arms Act implemented to shorten court procedures and reduce prosecution delays, conviction rate increased and court cases proceeding in anti-corruption activities intensified) have meant a marked change in the law and order scenario improving the level of confidence and new investment proposals have begun entering the state.

### **1.4. Cross-Cutting Issues: Meeting the Major Challenges**

#### **1.4.1 Infrastructure: For an Improved Investment Climate and Quality of Life**

The task of rebuilding Bihar depends on setting up good infrastructure through investment in new projects and upgradation of existing ones. This is vital for growth in key sectors such as agriculture, for an improvement in the quality of life, and to attract much-needed private investment into the state. A major reason why Bihar attracted very little private investment in the last decade was the state

of its infrastructure. Per capita power consumption in Bihar is only 76 units against the national average of 612 units; National Highways per lakh of population is about 33 percent less than the national average; of 57.26 lakh hectares of net sown area, only 34.62 hectares is irrigated (net).

This large-scale requirement of funds will place a heavy burden on the public sector, and PPPs will be actively promoted in projects and services in which they are feasible. The state has already begun to explore and introduce these options in some sectors, and is planning to expand these initiatives. It will also actively encourage direct private investment in large infrastructure projects in power, road projects, and so on. Major institutional reforms have been undertaken and more have been proposed to increase transparency and reduce the time taken to clear investment proposals, which have begun to yield good results.

#### **1.4.2 Focus on Agriculture and Allied Sectors: Core Competence**

Agriculture is the core competence of the state. In the 1980s, Bihar's agricultural growth rate of 4.6 percent was above the national average, but this plummeted between 1991-92 and 1995-96

to - 2 percent. While growth rates have revived somewhat in recent years, agricultural productivity remains below its potential. Given the high proportion of workforce engaged in agriculture, its large share in the GSDP, and the high incidence of rural poverty, the Eleventh Plan's emphasis will need to be on agriculture and allied services to effectively reduce rural poverty and fuel growth in the other sectors.

Bihar has enough potential in agriculture to address the short-term concerns over food security of the country. To realize this potential, the Eleventh Plan will place greater emphasis on agricultural extension, crop diversification, increased yields from rainfed agriculture (which accounts for 62 percent of cultivable land), and narrowing the demand-supply gap in animal products. Sustained agricultural growth will be based on a rapidly expanding food-processing industry, rejuvenation of irrigation infrastructure, a network of farm roads, better marketing of farm products and flow of agricultural credit. Also issues that impede agricultural growth like land reforms and tenancy relations need to be addressed. Therefore the Eleventh Plan will be based on a holistic model for agricultural development, at the end of which the state will transit from a self-sufficient state in food grains.



### 1.4.3 Public Administration and Governance:

#### A Caring Government

Public and social services have deteriorated in the past few decades. Bihar used to have a sound administrative structure and the State, though poor, was reasonably well-governed. However, in recent years, this structure has crumbled under relentless pressures of bad governance, dysfunctional politics, massive corruption and the near absence of law and order. The outcome is that Bihar is lagging far behind other states in development. There has been a steep deterioration in the system's capacity and delivery of public services, especially for the poor. This deterioration in capability has come at a time when the demands on the system have increased manifold, with greater awareness and the introduction of new concepts and approaches in development which require greater inputs from the field machinery.

The poor service delivery and implementation of programs and projects result from a variety of issues such as poor human resource management, planning and monitoring (the lack of robust baselines and systems) to underutilization of funds, duplication and poor coordination and

convergence between departments and complicated systems of checks and balances that led to paralysis amongst decision makers. A symptom of the system's decline is the large number of vacancies in key field posts, for example, 188 out of 534 blocks have no Block Development Officers. There are large shortages in Assistant Project Officers in District Rural Development Agencies, Extension Officers in blocks and Panchayat Sevaks and other village functionaries in the panchayats.

Corruption flourished even in rural development and relief schemes for the poor and distressed. Politicisation of transfers and postings led to loyalty to political power brokers and not to government policies and programmes. This had its effects on other sectors: private investors were reluctant to invest in infrastructure or industry in Bihar because of the general perception of a lack of governance and a lethargic and non-transparent administrative machinery. Some institutions and individuals continued to perform outstandingly even in these adverse circumstances. But there was almost complete stagnation in the implementation of programmes and schemes, which are mainly financed through central schemes.

However, in the past, a large share of resources allocated were not being released, which had a deleterious effect on poverty and adversely affected the delivery of social and basic services.

President's Rule in the state addressed several administrative bottlenecks, and procedural simplifications initiated at that time have been consolidated over the last twelve months of the present government. However, changes at the top have yet to fully permeate down to field and grass-roots functionaries. The work culture needs a radical overhaul; the increasing pace of development calls for fast communication with field offices, and technological cost-effective solutions need to be implemented.

The Eleventh Plan proposes to strengthen service delivery through a multidimensional approach. Administrative reforms have been initiated and will be followed up to build capacity and strengthen institutions for skill upgradation, which will equip projects to avail funds from the Central Government and other sources. At the same time, the effectiveness of the service delivery systems will need to be improved by preventing leakages and improving expenditure efficiency. The approach targets an overall improvement in

education and health outcomes through combined inputs from private, public and non-governmental organizations. This is especially important in rural areas where the quality and access to services have been weakest and the indicators poorest.

### **1.5. The Role of Local Bodies**

An important dimension of the approach to improving public administration and governance in the Eleventh Plan will be increased accountability both at the level of the state and within sectoral service delivery units. The lack of public accountability has increased corruption. Inclusive growth will call for the government to become more accountable to the people by strengthening institutions that enforce accountability such as local bodies.

People's participation in programmes through community-based organizations and Panchayati Raj Institutions is thus extremely necessary for ensuring accountability. One way is to devolve responsibilities to local government bodies that can plan and implement programmes with the participation of civil society. PRIs will play a definitive role in formulation and implementation of the Eleventh Plan objectives. The state has already made



progress in devolution to the third tier as Panchayati Raj Institutions' (PRI) elections have been held; against 50 percent reservation for women, 58 percent were actually elected.

Bihar's extensive network of women's self-help groups is another avenue for collaboration. Using such resources to further effective service delivery will also empower local people.

### Overall: Action Points

- Focus on improving physical infrastructure especially in key sectors such as agriculture and industry.
- Focus on increasing productivity in agriculture and allied sectors through better implementation of schemes, by building related infrastructure, and strengthening marketing and distribution networks.
- Undertake fiscal reforms to mobilise public resources and savings vital to finance the state's ambitious development strategy.
- Undertake administrative reforms, capacity building and institutional strengthening to improve delivery of services to the poor.
- Improve governance through increased transparency, instituting the Right to Information, and more intensive use of information technology to increase the participation of citizens and non-governmental organisations in developmental programmes.
- Strengthen programmes and schemes by monitoring outcomes rather than outlays.
- Adopt a multi-dimensional approach to improving educational and health outcomes with participation from private, public and non-governmental organisations.
- Increase community participation in service delivery by promoting PRIs and women's SHGs.
- Facilitate an enhanced role for private investment in key areas such as power, agri-business, technical training and educational institutes, ancillary health services, etc.

## Accelerating Growth

### 2.1 Agriculture

Agriculture is the mainstay of Bihar's economy, contributing 35 percent to state GDP and employing 77 percent of the work force. The state has the ideal natural resources : fertile flat land, plenty of water, both surface and underground, and agro-climatic conditions suitable for cultivating a variety of crops to make agriculture its core competence.

#### 2.1.1 Issues and Constraints

In Bihar, agriculture has not benefited from the Green Revolution that ushered in a significant increase in productivity in several states in the country. The growth of food grain production at less than 1 percent over the last decade has been far below potential; food grain production has increased from an average of 106.38 lakh MT in the mid-1990s (1993-94 to 1995-96) to 113.23 lakh MT in

recent years (2000-01 to 2003-04). Low crop productivity, poor connectivity between farms and markets, and weak distribution and marketing links have meant that much of the vast demand from Bihar's local market is met by produce from outside the state, such as fish from Andhra Pradesh and milk powder from Gujarat. Even the local feed producers buy their maize from Andhra Pradesh, while Bihar's maize producers have to resort to distress sales to get rid of their produce.

Cereals dominate the cropping pattern. The rice-wheat cropping system occupies more than 70 percent of the gross cropped area, but productivity has remained low despite very favourable soil, water and climatic conditions. Many reasons, technological, managerial and situational are attributable to the low productivity of crops in the state (see Box).

### Bihar: Main Reasons for Low Crop Productivity

#### Poor Quality and Supply of Inputs

- | The lack of an assured, timely supply of quality seeds for high-yielding varieties, and hybrid varieties. Seeds of high yielding varieties have been critical in increasing crop production. Dwarf gene of rice and wheat did wonders in the 1960s as these varieties were short-statured and could respond well to fertilisers, irrigation and other management practices. Development of hybrid varieties in many crops opened yet another opportunity to further increase crop production and productivity.
- | Low and regionally unbalanced fertiliser use : The present level of fertiliser application in the state is 98 kg/ha whereas it is more than 175 kg/ha in Punjab.
- | Lack of access to credit (this has hindered, among other things, the adoption of technology; as an example, for 104 lakh farm holdings in the state, there are only 20 lakh kisan credit cards).

#### Agricultural Practices

- | Lack of mechanisation: Farm techniques remain archaic. For example, Bihar has 17 tractors per 1,000 hectares against Punjab's 68 tractors per 1,000 hectares.
- | Small, fragmented holdings: Small and marginal farmers account for more than 90 percent of all holdings. These small holdings work against economies of scale and deter the adoption of modern technology.
- | Diesel-based irrigation: Irrigation is largely dependent on diesel-operated tubewells, the cost of running which has risen with recent increases in diesel prices.

#### Technology Transfer

- | Weak Agricultural Extension System: The system for transfer of technology is very weak structurally and in its capacity to absorb and disseminate modern technology. In fact, several extension systems exist simultaneously, and these need to be rationalised.
- | Flood and drought risks: Recurrent floods in North Bihar districts and the paucity of rainfall in the South have hampered technology adoption.

#### Weak Marketing and Distribution Chain

- | The lack of procurement has meant that farmers in Bihar often have to resort to distress sales in a season of plenty.
- | Inadequate storage and processing capacity: An estimated 25 lakh MT storage capacity is required by the state, against an existing capacity of only 12 lakh MT. Proper storage infrastructure is also lacking at the primary level, and this has led to losses amounting at times to 50 percent.

### 2.1.2 Vision for the Eleventh Plan

The mantra for the Eleventh Plan for the State can be stated in a few words: To maximise the use of vast untapped potential and natural endowments of the State, thereby ensuring food and nutritional security and better farm incomes, through environmentally sustainable agronomic practices.

### 2.1.3 Strategy

The above objectives can be achieved through interventions that increase crop productivity, maintain soil health, enhance produce quality and strengthen the existing marketing chain.

### 2.1.4 Growth Rate Projections

On a cautious estimate, the State has projected a 5% rate of growth although the Planning Commission believes that 7% rate of growth is feasible. The average use of fertilizer per hectare still continues to be low and also agricultural prices mechanism needs to be stabilised. Based on both these, it is possible to achieve the projected growth indicated by the Planning Commission in their State level disaggregated data.

A slew of initiatives taken during the final year of the Tenth Five Year plan is

expected to yield perceptibly good results in this sector during the Eleventh Plan. Three major factors that impact agricultural production, viz., prices, fertilizer consumption and rainfall are expected to follow much more favourable trajectories during the Eleventh Plan. These are briefly discussed below :

**v Agricultural Prices :** Massive road construction programme, started in 2006-2007, would continue in full steam during the next plan too. This would be opening up huge markets, something that Bihar farmers were always deprived of. Strengthening of cooperative institutions and other focused actions have yielded impressive results in procurement of foodgrains against MSP.

**v Fertiliser Consumption :** The trend of fertilizer consumption in Bihar may apparently look good, since the figures are above the national averages. But, as per Statewise consumption of fertilizer during 2001-02 and 2002-03 (for these years figures are available), per hectare consumption of fertilizer in Bihar during 2002-03 (87.15 kg/ha) is much lower than Andhra (128.44), Tamil Nadu (114.00) Haryana (152.79), Punjab (174.99), UP (126.51) and West Bengal (122.33).

## Strategy for Major Food Grains

### Rice

- | Propagation of rice intensification (SRI) technology, hybrid varieties, boro rice supported by a strong seed programme, and fine and scented varieties to increase incomes
- | Replacement of long-duration varieties with short and medium duration varieties
- | Upgradation and strengthening of milling facilities, a strong procurement and MSP.
- | In the terminal year of the Eleventh Plan, the targets for rice are as follows :  
Area-33.98 lakh hectares; Production- 72.72 lakh M.T.; Productivity - 21.43 q/hectare

### Maize

- | Popularisation of hybrid varieties supported by strong seed programme ;
- | Encouraging the cultivation of rabi maize, and baby corn, sweet corn and quality protein maize varieties for raising income, particularly in diara areas ;
- | Proper storage (including drying) and procurement and MSP ;
- | Promotion of a maize-based processing industry (animal feed, corn oil, starch, ethanol, etc.) ;
- | Popularisation of maize as food for people.
- | In the terminal year of the Eleventh Plan, the targets for maize are as follows :  
Area-7.65 lakh hectares; Production- 28.61 lakh M.T.; Productivity - 37.41 q/hectare

### Wheat

- | Timely sowing and harvesting ;
- | Development of short- and medium-duration varieties ;
- | Mechanisation (combine harvesting and zero-tillage sowing)
- | In the terminal year of the Eleventh Plan, the targets for wheat are as follows :  
Area-20.85 lakh hectares; Production- 48.06 lakh M.T.; Productivity - 20.05 q/hectare

### **Pulses**

- | Expansion of area (particularly of lentils, moong, and gram) ;
- | Popularisation of high-yielding varieties supported by a strong seed programme ;
- | Rehabilitation of gram in agro-climatic Zone I after the harvest of medium and late rice ;
- | Use of bio-fertiliser including Rhizobium ;
- | Improvement in farm drainage to reduce water logging.
- | In the terminal year of the Eleventh Plan, the targets for pulses are as follows :  
Area-8.50 lakh hectares; Production - 10.12 lakh M.T.; Productivity - 11.94 q/hectare

### **Oilseeds**

- | Area expansion ;
- | Replacing lathyrus and low-yielding wheat with rai, sarson, sunflower ;
- | Popularisation of high-yielding varieties supported by a strong seed programme ;
- | Popularisation of paira and intercropping of mustard :
- | Use of sulphorous fertilisers.
- | In the terminal year of the Eleventh Plan, the targets for oilseeds are as follows :  
Area-1.77 lakh hectares; Production- 1.73 lakh M.T.; Productivity - 9.76 q/hectare

### **Fruits and Vegetables**

- | Rejuvenation of old orchards :
- | Area expansion ;
- | Assured supply of quality planting material ;
- | High density planting ;
- | Irrigation with drip and micro-sprinkler ;
- | Mechanisation of harvesting, grading and packing ;
- | Processing and cold chain.
- | In the terminal year of the Eleventh Plan, the targets for fruits and vegetables are as follows :  
Area-6.75 lakh hectares; Production- 112.65 lakh M.T.; Productivity - 16.70 q/hectare

However, recent trend in consumption of fertilizer in Bihar shows an upward trend and this would have a positive impact on growth rate.

v **Rainfall :** Nearly 60% of area under cultivation in Bihar is rainfed. Any projections regarding growth rate would have to take into account this crucial variable.

## 2.1.5 Crop Diversification

The cropping pattern in the state is dominated by rice and wheat, which cover more than 70 per cent of the gross cropped area. Efforts will be made to increase the production of maize from 1.5 MT to 4.5 MT by year-round cultivation, and raise its productivity above the national average. While cereals will continue to dominate the cropping pattern, the strategy will promote crop diversification during the next Plan so as to improve people's nutritional balance and generate higher incomes for farmers.

Cultivation of fruits and vegetables has been an age-old practice in the state, but has not been oriented towards the market or exploited the potential available in the state.

It may be mentioned that while fruits and vegetables occupy only 10 per cent of the gross cropped area, they account for 50 per cent of the income from farming. An

annual growth rate of 10 per cent for fruits has been targeted for the next decade, which should favourably impact on growers' incomes and livelihoods. This will be done mainly by increasing the area under litchi, mango, banana, guava and makhana cultivation by first identifying appropriate fruits for cultivation for each geographic area. For vegetables, a moderate annual growth rate of 6 percent has been targeted for the next decade. Vegetable cultivation will be promoted in areas with an assured source of irrigation.

## 2.1.6 Agricultural Programmes: Laying the Framework

Achieving the Eleventh Plan objectives of increasing productivity and crop diversification will require the government to take a very pro-active role in laying the framework which will include: strengthening the agricultural extension system, research and education, improving access to inputs such as quality seeds, fertiliser, and improvements in the marketing chain.

## 2.1.7 Inputs: Improving Quality and Reducing Costs

### v **Appropriate Fertiliser Use**

Balanced and integrated fertiliser use will be promoted to achieve higher



production on sustained basis. Soil testing infrastructure will be extended to the block level, and agro-clinics will be encouraged to bring soil testing services to the farmers. Every farmer will receive a farm plan card within five years. Efforts will be made to strengthen and create facilities for fertiliser and micro-nutrient testing, and fertiliser companies will be encouraged to spread their network to the village level.

#### **v Integrated Pest Management Approach**

Chemical pesticides will be replaced by vigorous promotion of the Integrated Pest Management (IPM) approach, in which chemical pesticides are used only as the last resort. IPM technology will be carried to every farmer within the plan period.

#### **v Organic Farming**

Protocols for organic certification will be standardised and institutional arrangements for organic certification will be set up to enable producers to avail of these. For products with a comparative advantage in marketing and export, quality consciousness about sanitary and phyto-sanitary standards will be strengthened. In areas with high dependence on chemical fertilisers, inputs of these will be discouraged to reduce cultivation costs, protect the

environment, and increase the export market acceptance of farmers produce. Crop straw and other agro-wastes can be substituted; vermiculture has been identified as a thrust activity, and during this plan period, vermiculture technology will reach every farmer, and every farm will have a vermi-compost.

#### **v Mechanisation and Conservation**

Given that the timely completion of agronomic practices has enormous benefits for productivity and output, agricultural mechanisation will be promoted for timely sowing, harvesting and post-harvest handling of crops. Priority will be given to zero-tillage machines, raised-bed planters, small combine-harvesters, mobile harvesting units for orchards, graders, winnowers, small tractors/power tillers and other new and innovative machines. Training and demonstration of these machines will be encouraged, and incentives provided for their adoption.

#### **v Strengthening Education and Research**

Despite the prominence of agriculture in the state's economy, there has



been very little attention given to agriculture education; this will be rectified as new agricultural colleges will be set up in agro-ecological Zones II and III. Horticulture research and education will be given greater impetus with the opening of a state of the art horticulture college at Nalanda. Rajendra Agriculture University will be developed along world-class lines to become a hub for agricultural knowledge, spreading information on new technologies to farmers, extension workers and entrepreneurs. It will develop protocols for pre- and post-harvest technologies, exports and organic certification, and will introduce courses in agri-business management and biotechnology, and on cutting-edge technologies, such as genetically modified crops and precision farming.

## **2.1.8 Strengthening Technology Transfer**

### **v Rationalising Extension Systems**

Agriculture in the state functions under several co-existing, overlapping extension systems resulting in inefficient utilisation of resources. A new integrated system will be created borrowing from the strengths of prior systems.

The Agriculture Department will be

reorganised to better meet the needs of farmers. Greater responsibility and accountability will be introduced. Infrastructure for training extension functionaries will be strengthened. Extension functionaries will receive technical training twice a year, and post-training performance assessment will be linked to career advancement.

### **v Wider Role for Agri-clinics**

Agri-clinics will be used to disseminate inputs, and technical information. For this, they will be given priority in the allocation of seeds, fertiliser shops, outsourcing of block-level soil labs, etc. Through the extension system, these clinics will carry public programs to the farmers, and their expertise will be used in training and demonstration, and they will be used as a convergence point for all programmes.

### **v Extensive Quality Seed Supply Programme**

The current rice and wheat seed replacement rate of less than 10 percent cannot sustain higher productivity. Given the criticality of seeds in modern agriculture, and its paucity in the state, investment in the public and private

sectors needs to be increased. The objective of the seed production programme would include increasing the seed replacement rate, and promoting hybrid seeds and new crop varieties, adapted to the agro-climatic conditions of the state.

The public sector approach will encourage government farms to revive seed production; the Pusa Seed Society to improve the supply of quality seeds and the Bihar Rajya Beej Nigam to undertake seed multiplication and to make recent public sector varieties available on time to farmers at a reasonable price. However, the cornerstone of the Eleventh Plan strategy will be seed production through farmers' direct participation under the seed-village programme. The Bihar Rajya Beej Nigam and Pusa Seed Society will be encouraged to buy back seeds produced under the seed-village programme and to provide processing and marketing support to farmers. Private seed companies will be encouraged to make the most recent technology available to farmers and by providing competition to the public seed companies, benefitting farmers through lower prices.

#### v **Support for Krishi Vigyan Kendras**

Given their utility in spreading agricultural knowledge among the rural population, the Krishi Vigyan Kendras

(KVKs) will continue to receive support; they will also be encouraged to cater to the post-harvest handling of the agricultural products and the development of entrepreneurial skills among the rural youth. The KVKs will focus on five missions: honeybees, seed production including seed villages, conservation of agriculture, integrated farming and vermi-compost.

#### v **Role of Agriculture Technology Management Agencies (ATMAs)**

Agriculture Technology Management Agencies (ATMAs) will be set up in all districts to support the extension efforts of the government, and to promote convergence of farming systems, the group extension approach and increased use of ICT in agricultural extension. The overall aim will be to bring every farmer into the ambit of agriculture technology training within a five-year period. These agencies will explore sustainability and encourage public-private partnerships in agriculture extension.

#### v **Farmers in Extension**

Progressive farmers will be used in extension efforts through a scheme to recognise and reward such farmers.

Farmers will receive awards based not only on productivity, but on their efforts in processing and marketing, and on their success in disseminating methods and technologies to fellow farmers.

### **v Information and Communication Technology**

The focus here will be on developing application software that will provide useful farmer services, and it will be used to transfer information, technology and services to farmers as rapidly as possible.

#### **2.1.9 Improved Marketing and Processing**

The state has a genuine comparative advantage in some crops at the farm level, but loses this advantage at the wholesale level, for a number of reasons, including wastage, transportation costs, and lack of marketing outlets. A recent study shows that the quality and quantity of marketing outlets in Bihar is among the worst in the country. Furthermore, a World Bank analysis of some commodity supply chains has shown that up to 40 percent of the margins along the value chains are lost to wastage and transportation costs.

Crop diversification, especially into the relatively more perishable fruits and vegetables, will increase the need for effective marketing linkages supported by modern marketing practices, including introduction of grading, post-harvest management, cold chains, etc. Modern agricultural markets will need to be developed, and the state has taken initial steps for this by repealing the Agricultural Produce Market Act (APMC) which allows the introduction of private and co-operative markets, of contract farming and enables direct purchases to be made from farmers.

Several initiatives are planned to bring the farmers closer to the markets. Farmers will be organised along enterprise-lines to establish economy of scale and to provide a collective voice to safeguard their interest. This will include excursions into processing and marketing centres of excellence in the country, formation of farmers' interest groups and federating them at the various levels. Co-operative marketing of fruits and vegetables will be encouraged along the lines of milk and dairy producers.

Information on market demand and agricultural prices will be widely

disseminated to farmers so that crop planning can become more market oriented. Market yards and rural hats will be rented to farmer groups to make marketing more organised. The private sector will be encouraged to develop modern and speciality markets, and terminal market will be established in strategic locations.

#### **2.1.10 Private Investment**

Private investment will be promoted to help develop a marketing infrastructure, as well as in contract farming, export of fresh and processed fruits, processing of ethanol, corn oil, in the feed and starch industry, export of baby corn, and to make litchi honey.

#### **2.1.11 Natural Resource Management**

In South Bihar, where rainfall is sparse and agriculture is mostly rain-fed, watersheds will be adopted as developmental units. Activities and programmes will be

converged, so that appropriate technology for watershed management can be used to recharge the groundwater table. Vegetation will be the preferred method for conserving the soil, and dry land plantation and horticulture will be used for soil and water conservation.

#### **2.1.12 Risk Management**

Risks from natural disasters will be minimised through appropriate crop technology and the extension of crop insurance to all farmers. Insurance cover will be extended to horticultural and cash crops, a seed bank will be developed to allow quick supply of seed materials and human resources will be developed to respond quickly to restore normalcy in case of a natural disaster. It is envisaged that after taking the above measures the risk will be minimized to a great extent and natural disasters can be fought successfully.

### **AGRICULTURE: ACTION POINTS**

- | Increase crop productivity
- | Promote crop diversification through increased maize production and the promotion of fruit and vegetable cultivation
- | Improve technology transfer by strengthening the agricultural extension system to improve the quality and timeliness of inputs supply
- | Improve education and research into state-specific issues and varieties
- | Strengthen the existing marketing, processing and distribution chain
- | Promote micro-irrigation programmes to enhance water-use efficiency

## 2.2 Animal Husbandry and Fisheries

Animal husbandry and its allied activities, such as poultry farming, fisheries and so on, if developed appropriately, have the potential to significantly enhance the rural economy. Even at the present slow pace of development and underutilisation, animal husbandry contributes 16 percent to the GSDP (despite its low share of 0.75 per cent of total state budgetary allocation), a situation which is mirrored in the fisheries and dairy sectors. Despite this contribution, the state is still not self-sufficient in milk, meat, eggs and fish production. These sectors have the capacity to provide opportunities for livelihood to people at the place where and in the situation in which they presently reside.

Bihar has abundant water resources such as ponds and tanks (covering approximately 65,000 hectares) and major flowing rivers (around 2,700 km in length), which are fertile breeding grounds for pisciculture. North Bihar also has captive fisheries resources like chauris (low-lying depressions filled with water) and ox-bow lakes. Converting these capture fisheries to culture fisheries could make them important sources of income and employment for fishing communities, apart from being an

excellent source of cheap protein for people.

### 2.2.1 Vision for the Eleventh Plan

Given the potential these sectors have to impact on rural poverty, incomes and livelihoods, animal husbandry, fisheries and the dairy sector will be promoted so that the state becomes self-sufficient in these products. As major inputs for agro processing, dairy and fisheries produce can become an important source for value addition within the state itself, which in turn opens up income and employment opportunities.

### 2.2.2 Animal Husbandry : Approach to the Eleventh Plan

#### 2.2.2.1 Animal Healthcare

v Upgrading veterinary healthcare services by opening new veterinary hospitals, dispensaries and polyclinics, so that the state eventually meets the norm of one veterinary hospital for every 5,000 livestock (at present there is one hospital for every 20,000 livestock). The target is to set up 1,000 new hospitals so as to narrow the gap to at least one hospital for every 10,000 livestock.

- v Modernising and strengthening the Institute of Animal Health and Production, Patna to improve the quality of bacterial and viral vaccines produced, set up facilities for producing new vaccines, implement national immunisation programmes and provide comprehensive disease diagnostic, and disease infertility control programme support.
- v Establishing a veterinary public health service to regulate and monitor the production, processing, storage, transport, marketing and quality control of animal protein and animal feed.
- v Establishing the newly constituted Bihar Livestock Development Agency.
- v Developing human resources by strengthening facilities in the Bihar Veterinary College and upgrading the skills of government veterinarians.
- v Improving the health of small ruminants (sheep and goats).
- v Promoting small units in poultry (with 20 birds per family), piggery (8 piglets per family) and dairy (2 cows per family) for rural families below the poverty line.
- v Increasing interactions between the Animal Husbandry Department and national level veterinary research institutions like IVRI, NDRI and other institutions for research on cattle, buffalo, equines, goat, sheep, wild and zoo animals.
- v Building and developing infrastructure for the Animal Husbandry extension network.
- v Establishing infrastructure for mastitis control and training farmers for milk production with a lower somatic cells count and low residual antibiotics levels in keeping with international standards.
- v Setting up systems for monitoring and evaluating animal husbandry programmes.
- v Implementing the activities of the Assistance for Control of Animal Diseases (ACAD) scheme; and the Animal Diseases Monitoring and Surveillance (ADMAS) scheme as well as zone-wise surveillance to assess the situation of animal diseases.

### **2.2.2.2 Dairy Production**

Making dairying a more lucrative and income generating occupation for farmers will require an increase in the productivity of milch animals and reduction in the cost of production of milk. This will be done by providing better



breeding, animal health and feeding inputs to milk producers. The overall strategy will be to increase the production of clean milk, strengthen the cooperatives, enhance the skills of milk producers for better management of stock, increase the capacity to process milk and set up a marketing chain for the output.

### 2.2.2.3 The Eleventh Plan will focus on :

**v Increasing milk production :** Through improved breeds, and better health care and management of milch animals. This will reduce operating costs for milk producers, thereby increasing income levels. So far, milch animals have been procured from surplus, neighbouring states and distributed to the farmers, but little effort has been made to become self-sufficient in good crossbreeds for distribution. The Government will provide inputs and subsidies to farmers to set up breeding units in milk-sheds. Institutional finance will play a crucial role in this.

**v Improving animal feed :** Around 80 percent of the cost of milk production depends upon the cost of feeding the animals besides the labour and management costs. The state has three cattle-feed plants in the cooperative sector with total installed capacity of 260 MTs per day. The plant at Patna is working at almost full capacity, so

would need to be expanded to meet the growing demand of balanced cattle feed and protein-enriched feed. The capacity of this plant is proposed to be augmented from 100 to 200 MTs per day.

**v Building skills of milk producers:** To improve feeding and stock management.

**v Expanding the cooperatives network to cover more farmers :** The dairy cooperative societies (DCS) which at present cover 6,750 villages in 28 districts will be expanded to cover more districts. The dairy sector in the state is presently being served by 5,123 dairy co-operative societies with 2.54 lakh farmer members, the largest among the eastern states. The thrust on dairy development in the state during the Eleventh Plan will leverage the existing co-operative network, as well as focus on expanding and strengthening its coverage in terms of area and processing infrastructure.

**v Conducting milk production and demand surveys :** Data on milk production, local consumption and marketable surplus for all villages and districts is not available. This information is important for dairy development in the



state.

### **v Promoting clean milk production :**

At the village level, as the quality of finished products depends on the quality of raw materials, apart from processing, packing and handling. Quality with cost control will be the key challenges for the dairy plants in the next plan. Farmers will be encouraged to produce clean milk by maintaining hygiene at their doorsteps. Incentives will be given to them through dairy cooperatives for hygienically better quality milk.

### **v Creating adequate plant capacity :**

By expanding the capacities of existing plants and setting up new plants at strategic locations. Existing plant capacities will be increased from 650 thousand litres per day (TLPD) to 1,250 (TLPD) to process the increased milk supply to dairy cooperatives by milk producers. Four new dairy plants with 2 lakh litres capacities will be set up at Biharsharif, Purnia, Chhapra and Mohania. The plant capacities will finally depend upon the field survey and DPRs prepared by NDDDB.

### **v Additional processing capacities :**

Also proposed are a 30 MT per day powder plant, ultra-heat treatment (URT) plant with aseptic packaging facilities to conserve the

surplus milk solids during flush seasons for use when milk is low. The aim is also to supply packaged milk to milk deficit areas like Madhubani and Darbhanga within the state and the north-eastern states.

**v Marketing :** This will be another thrust area during the coming Plan. With increased production and processing of milk in the state, avenues for evacuation of this output (forward linkages) are needed. Unlike other states, towns in Bihar are small and there is no metro city, so there is little or very limited infrastructure for marketing.

**v Private investment :** This will be required to supplement government efforts in achieving the Eleventh Plan goals. Private parties will be encouraged to invest in dairy equipment and fodder-block making units, and to set up processing infrastructure (for milk powder, packaging material), and marketing infrastructure.

### **2.2.3 Fisheries : Background**

Bihar is one of the few states with large inland fisheries and aquaculture resources. The paradox of fisheries development in Bihar is that while it has large, untapped water resources for aquaculture, it depends on states like

Andhra Pradesh for the supply of about half of its annual fish demand. The annual consumption of fish within the state is nearly 4.5 lakh tonnes, against the present annual production of around 2.25-2.50 lakh tonnes. The underutilisation of aquaculture resources, unscientific management of water bodies and lack of entrepreneurship are some of the most obvious reasons for the gap between demand and supply. The major challenge, therefore, is to develop aquaculture resources for productive, sustainable fisheries to meet the local demand and enhance the nutritive and livelihood security to farmers as well as consumers.

### **2.2.3.1 Approach in the Eleventh Plan**

The goal for fisheries development during the Eleventh Plan is for the state to expand production and increase productivity to national levels through the development of ponds and adoption of technically sound pisciculture practices. In addition, the establishment of hygienic storage conditions, rapid transportation systems and an efficient marketing network for fish will also help to increase socio-economic security in fishing communities.

For fish production to reach self-

sufficiency levels, annual production levels would need to rise from the current 2.8 lakh tons to about 6 lakh tons. These calculations are based upon the average annual growth rate of 4 percent in the fishery sector at the national level which could easily be increased to 10 per cent and 15 percent in Bihar, because vertical and horizontal expansion of aquaculture is possible in the state.

### **2.2.3.2 Strategy for the Eleventh Plan**

Output will be expanded through the creation of new water areas and renovation of the old ones, by bringing open water areas like ox-bow lakes, chauras and command area flood plains under culture-based fisheries, and renovating ponds to increase cultivable water areas.

The quality of output will be upgraded by providing regular training to fisher folk, supplying quality fish seeds, setting up private and government carp-seed hatcheries; gradual and scientific conversion of capture fisheries resources into culture fisheries resources. National welfare programmes will be introduced to improve the livelihoods of fishing communities.

### **2.2.3.3 Culture Fisheries**

The major portion of fish production in Bihar is from ponds and tanks, but the share of culture fisheries in gross fish production can be increased threefold. Only 30 percent of the ponds and tanks are scientifically managed, the rest need renovation and deepening. Farmers will need to be given proper technical training and incentives for composite fish culture. Private ponds and tanks will be developed through the cluster approach through bank financing coupled with subsidies. Funding from centrally sponsored schemes like NREGP (National Rural Empliment Guarantee Programme) for renovation of government tanks will need to be increased.

### 2.2.3.4 Capture Fisheries

With improved management, catches from open-water bodies in Bihar can increase many-fold, as can overall sustainability and

the quality of output. More than one lakh hectares of water area are still untapped, used only to catch fish which have entered the waters during floods. If open-water fishery is to remain a major contributor to overall inland fish production, some parallel processes to intensify yield have to be instituted. Several new techniques have been developed which could be appropriate for application in these areas. With this, output per hectare annually should rise to 600 kg of fish. The proposed Eleventh Plan targets of Fisheries are at Table No. 2.1

### 2.2.3.5 Timely Supply of Quality Seeds

The overall quality seed requirement to stock water-bodies annually has been estimated at 600 million. If we include open-water areas of riverine command into culture-based fisheries, the additional annual demand would be

**Table No. 2.1 Fisheries : Proposed Eleventh Plan Targets**

Growth Indicators Physical Targets	2007-08	2008-09	2009-10	2010-11	2011-12
Fish production (lakh metric tons)	340	350	360	370	380
Fish seed production (million)	450	470	490	520	550
Farmers' training (no)	4000	4000	4000	4000	4000
Housing & other civil amenities for fisher folk (no.)	400	400	400	400	400
Construction of seed hatcheries (no.)	4	4	4	4	4

around 200 million fry. For self-sufficiency in the timely supply of quality seeds we have to ensure at least one carp hatchery in each district along with availability of seeds, in each block headquarter. The construction of fish seed hatcheries and renovation of government seed farms are also necessities. Farmers also need to be sensitised to avoid the use of weak and unhealthy seeds.

### **Other**

The Central Government has recently constituted National Fisheries Development Board (NFDB) which can help to substantially increase fish production

through effective planning and implementation. The State government shall utilise the schemes of NFDB fully. In order to fully exploit the water resources for qualitative and quantitative sustained development of fisheries sector, a substantial increase in outlay will be required.

Fish feed production will be enhanced by private production; private investors will also be given incentives to invest in a cold chain and other marketing infrastructure as well as in aqua-tech and amusement parks.

## **ANIMAL HUSBANDRY: ACTION POINTS**

### **Animal Husbandry**

- | Improve the health of livestock by
  - v Establishing 1,000 new veterinary hospitals
  - v Modernising and strengthening the Institute of Animal Health and Production in Patna
  - v Establishing a veterinary public health service to regulate and monitor various functions
  - v Establishing the newly constituted Bihar Livestock Development Agency
  - v Enhancing the skills of government veterinarians
- | Improve the stock of small ruminants (sheep and goats)

- | Promote backyard poultry, piggery and small dairy units
- | Establish infrastructure for mastitis control and training

### **Dairy**

- | Increase milk production
  - v Through improved breeds, proper health care and management of milch animals
  - v Building skills of milk producers in proper feeding methods and better management of stock
- | Strengthen milk co-operatives and increase mopping up of surplus milk
- | Popularise clean milk production
- | Expand the coverage of milk co-operatives to include more areas and villages
- | Create additional processing capacities by expanding existing plants and setting up new ones
- | Promote production with Total Quality Management, ISO and HACCP certification and better dairy plant management for cost control
- | Enhance capacities of enriched feed production plants

### **Fisheries**

- | Restore and renovate traditional water bodies
- | Popularise fish seed production (the state produces only half its fish seed requirement)
- | Bring ox-bow lakes under culture-based fisheries
- | Develop water-logged areas into aquaculture estates
- | Optimise fish yield from reservoirs
- | Popularise integrated fish farming
- | Establish a network that links farms to retail outlets
- | Provide insurance coverage for houses, drinking water, community centres, health and family welfare facility for fish farmers

## 2.3. Water Management and Irrigation

### 2.3.1 Vision for the Eleventh Plan

Irrigation is a key enabler for agriculture-based growth. Through improved technical, financial and economic use of water resources, the sector's contribution to the agriculture development plan would be crucial. Other objectives will be to enhance sustainability of growth through proper management and upkeep of water resources systems, improve equity through better targeting of development programs to the rural poor, and increased use of IT for real time-monitoring for flood forecasting and in managing overall water resources.

### 2.3.2 Strategy

Achieving the growth rate proposed

for the Eleventh Plan will require the creation of 13.86 lakh hectares of additional potential (see table 2.2).

There will be an emphasis on rainwater harvesting and propagating rain-fed agriculture, especially as large areas in the South Bihar are devoid of assured irrigation due to various factors. There is increasing acceptance that proper maintenance of the conveyance requires management by the beneficiaries. The State Government has made significant progress in this area by transferring the operation, maintenance and upkeep of 32 distributaries aggregating a total command of 1,10,549 hectares to water users associations (WUAs) (see Table 2.3).

In keeping with the overall strategy to decentralise delivery systems, the Department proposes to hand over

**Table 2.2 : Irrigation : Additional Potential During the Eleventh Plan**

(lakh ha.)

Schemes	Creation of Additional Irrigation Potential	Restoration of Lost Irrigation Potential
On-going schemes	3.19	-
ERM schemes	-	1.87
New schemes	8.80	-
Total	11.99	1.87
<b>Grand Total</b>	<b>13.86 L Ha.</b>	

operation, maintenance and upkeep of all the conveyance systems to WUAs by the end of Plan period.

Attention will be given to environmental sustainability through mitigation of land degradation owing to salinity resulting from a rising water table especially in North Bihar. The Government is taking measures to decrease water logging, and to promote rain-fed agriculture, for which the command area development program may be utilized. However, environmental clearances and interstate matters remain a major impediment in the timely execution of irrigation projects.

Recurring floods damage agricultural production as much as it plays havoc to various infrastructure. An innovative disaster management system which deals with flood management needs to be put in place. This requires concerted

action both at national and international level. At international level, we need to impress upon the Central Government to initiate a dialogue with Nepal for reforestation in the upper catchment area as well as creating irrigation structures upstream both for harnessing benefits of irrigation as well as enormous hydroelectric potential. In addition to this, a strategy needs to be evolved which can anticipate and contain the enormous damage due to periodic floods both to crops as well as the vital infrastructure. This requires an integrated plan to be prepared in close partnership with the Government of India.

### 2.3.3 Interlinking of Rivers

The scheme of interlinking of rivers has been identified as an important initiative for ameliorating the endemic problems of floods in North Bihar and recurrent droughts in South Bihar. An expert Committee formed by the State

**Table 2.3 : Progress on Transfer of Maintenance to WUAs**

Number of systems transferred to WUA	32
Number of farmers societies registered.	07
Number of societies who have applied for registration	38
Number of societies whose applications are being formalised	15
Number of societies in the process of being formed	518
<b>Total</b>	<b>610</b>



Government has recommended that rather than inter-state linking of rivers, it is important for the State to formulate and implement schemes of intra-state linking of rivers. The Committee has held that the objective of interlinking of rivers should not be limited to transferring water from water surplus to water scarce basins but should also address the entire gamut of issues related to water management. The scheme of interlinking of rivers, while addressing the problems of floods and droughts in different basins, should also provide for augmenting the ever depleting lean season flow of the river Ganges, especially in the part flowing through Bihar. A general consensus has emerged among experts, public representatives and other interest groups in the State on the requirement of intra-state linking of rivers.

In light of the recommendations of the Expert Committee, 4 schemes have been identified in the Flood Sector and 9 schemes in the Irrigation Sector by the State Government and more are in the process of identification. The State Government plans to get the Feasibility Studies for the identified schemes of intra-state linking of rivers completed in the first half of the Eleventh Plan period and after prioritization, commence implementation of the schemes as an important component

of the Eleventh Plan. It is anticipated that these schemes would spill over into the 12th Plan. Support of the Central Government would be solicited and expected for the implementation of these schemes.

#### **2.3.4 Minor Irrigation**

Minor irrigation includes all irrigation schemes, surface and groundwater, covering a cultivable command area up to 2,000 hectares, and include minor surface water-flow irrigation schemes, surface water-lift irrigation schemes, and groundwater utilisation schemes through open wells, shallow tube wells and deep tube wells.

##### **2.3.4.1 Strategy for the Eleventh Plan**

To meet the irrigation needs of the state, the strategy during the Eleventh Plan will be the speedy development of potential, improving the utilisation of developed potential, expanding irrigation benefits to unirrigated land, increasing the supply of private electric-based tube wells, increasing subsidies for tube wells and pumps; and increasing sustainability by strengthening water users associations.

##### **2.3.4.2 Surface Irrigation: Creating and Restoring Irrigation Potential**

About 1,65,000 hectares of additional potential will be created and

4,00,000 hectares of lost potential restored through surface irrigation schemes mainly through restoration and renovation of Ahars and Pynes (Traditional water bodies).

V The State Government will add minor irrigation potential of 80,000 hectares by completing surface schemes under RIDF Phase XII, through the repair, renovation and restoration of water bodies under the Bharat Nirman Programme for the first two year of the Eleventh Plan. The same rate of creation of additional minor irrigation potential will be maintained for the last three years of the Plan by creating additional 85,000 hectares of potential under these schemes.

V The State Government will also undertake the repair, renovation and restoration of traditional water bodies like Ahars and Pynes. Under the RSVY, about 8,000 Ahars and Pynes will be repaired and renovated, which will restore about 4,00,000 hectares of lost potential. Other schemes under RIDF will include wier, sluice gate and check dams on small streams and rivers.

### 2.3.5 Groundwater Resources

The ultimate potential of annually replenishable ground water resources reserved for irrigation is 48.57 lakh hectares. Potential of about 30 lakh hectares will be created by 2006-07. This leaves about 18.57

lakh hectares of unexploited irrigation potential from ground water to be developed during the Eleventh Plan. There is no immediate threat of over-exploitation of ground water resources as ground water depletion is on average 50 to 55 percent of the annual replenishable resources.

About 14.4 lakh hectares of additional irrigation potential can be created by exploiting the ground water resources through various schemes: extending the private shallow tube well programme under the RSVY; schemes to build 3,000 medium-duty deep tube wells under the NABARD's RIDF Phase-XI and 6000 medium-duty-deep tubewells under RIDF subsequent phases. About 2.10 lakh hectare of lost potential of state tubewells will be restored by renovation of 4500 old state tubewells which have completed their useful life for which a scheme will be posed to NABARD under RIDF phase XII.

The life of ground water irrigation structures like tube wells and pump sets is approximately 20 years, so on average 5 percent of ground water structures go out of service every year. To maintain the level of created potential, about 25,000 shallow private tubewells and 1,000 state deep tubewells need to be replaced every year beyond the Tenth Plan period.

#### 2.3.5.1 Groundwater Recharging

Table 2.4 : Minor Irrigation Potential Created and Utilised

<b>Minor Irrigation Potential in Bihar</b>	<b>Area (lakh hectares)</b>
Surface schemes including traditional ahar and pynes	15.44
Groundwater utilisation schemes of open wells, shallow tube wells, deep tube wells	48.57
<b>Total</b>	<b>64.01</b>
<b>Minor Irrigation Potential Created</b>	
Groundwater schemes	28.99
Surface water schemes	7.27
<b>Total</b>	<b>36.26</b>
<b>Irrigation Potential Utilised in 2005-06</b>	
Surface water including lift and barge schemes	0.49
Surface water ahar, pynes and traditional systems	3.32
State Tubewells	0.25
Private tubewells and irrigation wells	27.64
<b>Total</b>	<b>31.70</b>

Groundwater recharge is required in the drought-prone south Bihar districts. Given the current exploitation levels, direct groundwater recharge is not required, and the government encourages indirect recharge through the percolation of water stored in ponds, ahars, chauras and other water bodies. In some stressed areas, direct ground water recharge will be resorted to. The State Government is formulating the Bihar State Ground Water (Regulation &

Control for Management) Act, which will help in notifying areas where ground water exploitation has become critical.

### 2.3.6 Subsidies for Tubewells

The State Government does not give free or subsidised power for tube wells, and in fact, tubewells function sub-optimally due to non-availability of adequate electric power. Subsidies for private shallow tubewell schemes for general, small, marginal and SC/ST farmers for private

shallow tubewell schemes need to be increased from the present 30 percent, 40 percent and 50 percent to 70-80 percent as the farmers are not in a position to take the burden of about Rs. 20000 to Rs. 30000 as per the present subsidy level. The average depth of shallow tubewells in the state is 45 M. At current allowed rates, the average cost of installation of one unit of shallow tubewell with pumpset comes to about Rs 40,000. The subsidy at the present rate of 30 to 50 percent will be Rs 12,000 to Rs 20,000 and the farmer will have to bear burden of Rs 20,000 to Rs 30,000 by way of bank loan and his own contribution. The farmers, specially of weaker SC/ST, small & marginal section are not in a position to take this burden. Hence the scheme is unattractive for weaker categories of farmers who will be the main beneficiaries of this schemes in future as big and middle farmers are expected to have already taken benefit of the schemes. In this context, to make the scheme attractive for weaker categories of farmers, the subsidy needs to be increased to 70-80% level as allowed in earlier such programmes before Million Shallow Tubewell Programme (MSTP). For boosting the agricultural production and productivity of the state, the scheme of private tubewells has to be continued in the Eleventh Plan period and a liberal view is to be taken for increasing the subsidy for

achieving the proposed agricultural growth.

### **2.3.7 Involvement of Local Bodies**

All new schemes will be executed in a participatory format, after the formation of Water Users Associations (WUAs), which are allowed to collect irrigation revenue at state government rates. WUAs will deposit 10 percent of the revenue accrued in the government revenue account, and use 90 percent of the collected revenue to meet operation and maintenance costs. These WUAs will be supported by Panchayat Raj Institutions at village, block and district level. The State Government proposes to hand over operation, maintenance and upkeep of all the conveyance systems to WUAs by the end of the Eleventh Plan period through Panchayats.

### **2.3.8 Enhancing Efficiency of Water Use:**

The Command Area Development Programme will implement the following schemes during the Eleventh Plan to increase efficient water use:

#### **v Construction of field channels:**

Properly planned, aligned and designed field channels are to be constructed from the

canal outlet to connect every field through channels.

**v Construction of field, intermediate and link drains :** For draining excess water from the field.

**v Enforcement of Warabandi** (deciding the day and time of delivery of water). Area-wise warabandi schedules will be drawn up and implemented.

**v Correction of system deficiencies :** The capacity of the canals up to 150 cusec discharge are to be restored by re-sectioning and de-silting which will increase irrigation efficiency.

**v Training :** Training programme for farmers and CAD personnel will be conducted through the ICAR, Patna, WALMI, Patna and other organisations through continuing education programmes to impart the latest knowledge on land and water management.

### Operational and Financial Goals for Irrigation

Scheme	No.	Operational (lakh ha.)	Financial (Rs Crore)
Execution of new surface & lift minor irrigation schemes under NABAD RIDF	2250	1.650	310.00
Renovation and restoration of ahar and pyne	8000	4.000	1200
Execution of state electric-based tubewells	6000	2.4	390
Restoration of old state tubewells and lift irrigation schemes	4500	2.1	270
Execution of private shallow tubewells including replacement of old tubewells	600000	12.0	1500
Plan establishment			
<b>Total</b>		<b>22.15</b>	<b>3670</b>

## IRRIGATION: ACTION POINTS

- | Create irrigation potential in 22.15 lakh hectares
- | Restore *ahars* and *pynes*
- | Restore state tubewell and lift irrigation schemes
- | Incentivise execution of private shallow tubewell schemes, including replacement of old tube wells
- | Monitor project outcomes rather than outlays
- | Propagate rain-fed agriculture, giving priority to rain water harvesting; and groundwater recharge
- | Capacity building for WUAs (Water Users Associations)-essential social factors to be looked into

## 2.4 Industry

Industrial growth in the state was abysmally low during the Tenth Plan at only 0.38 percent against the national average of 7.8 percent, mainly because of the lack of any quality infrastructure, finance and credit facilities, poor availability of power, and the absence of entrepreneurship. With the bifurcation of the state, most of its industries and related infrastructure were transferred to Jharkhand.

The national goal during the Eleventh Plan is to raise the growth rate of the industrial sector to 10 percent and manufacturing to 12 per cent. If Bihar is to contribute to achieving these growth rates, it has to aim at a far higher growth in industry: the objective should be to raise its industrial growth rate to at least 15 percent.

If appropriately developed, expansion of Bihar's industrial sector can help stem the high current rate of out-migration of skilled and unskilled labour by creating local employment opportunities. It could also provide a much-needed boost to the rural economy through backward linkages, as well as help generate additional resources which can be ploughed into poverty alleviation programmes.

### 2.4.1 Vision

The Eleventh Plan goals will require intensive efforts to promote industrial growth in areas in which the state has a comparative advantage, such as agro-processing, leather, drugs and pharmaceuticals, textiles etc. At the same time, the marketing and design interventions for handlooms and handicrafts have to be strengthened. Together, these will promote industrial growth that is balanced and integrated, and will create employment opportunities and generate much-needed public resources that can be invested in augmenting social infrastructure.

### 2.4.2 Policy on Public Sector Units

Public Sector Enterprises in Bihar have not performed well and have been consistently making loss. As per the decision taken in the year 2003, except for the Bihar State Financial Corporation and Bihar State Credit & Investment Corporation, the rest of the 10 PSUs under the Industry Department were asked to file liquidation application.

Out of these, the Government has decided to revive only the Bihar State Electronics Development Corporation and the Bihar State Film Development & Finance Corporation.



In the case of Bihar State Financial Corporation and Bihar State Credit & Investment Corporation, the Government has decided to revitalize these two institutions so as to restart financing to small and medium industries. In the first phase, Government has already extended financial support to Bihar State Financial Corporation to repay the loan dues to SIDBI and IDBI. In order to strengthen these two organizations for starting financing to industrial units, Government is considering extension of financial assistance. Also, under the New Industrial Policy, 2006, a separate 'Corpus' will be created for extending loans for equity participation by sick and closed units, under approved revival package for obtaining working capital from financial institutions. The above two financial institutions would be participating in the creation of a Corpus Fund.

In the Micro, Small and Medium Enterprises Development Act 2006, the District Industry Centres are being notified as the Authority for filing memorandum by the medium enterprises. For micro and small enterprises also, the District Industry Centres will be notified as the competent authority.

A New Purchase Preference Policy is

being finalised so as to give a boost to domestic production.

Under the Growth Pole Scheme for unorganized sector and also for the development for the backward regions of the State, Cluster Development Programme is being designed and the project report is under preparation. In the first phase, the Growth Pole Scheme will be implemented in the Kishanganj district in Bihar. Plans are on the anvil to take up more clusters during the Eleventh plan period.

### **2.4.3 Strengths**

Bihar has many untapped advantages that could lay the base for a thriving industrial sector. Its large work force comprises a large pool of scientists and engineers and its vast market should enable it to become a major manufacturing centre. It has a strong agricultural base, which has potential for value addition in agro- processing industries, and its large number of traditional centers and skilled weavers hold excellent potential for employment potential in the handloom and sericulture sectors.

### **2.4.4 Major impediments to investment**

Investment has been reluctant to enter the industrial sector in Bihar in the

past years. Only 0.4 per cent (Rs 7,682 crore) of proposed investments in India is planned in Bihar (according to recent IEM Data).

v Poor social and industrial infrastructure has been a major constraint to the growth and employment-generation capacity of manufacturing. The state has poor roads, communication facilities and power supply, and no dry port facilities or air cargo complexes. The lack of a functional road network has led to high transportation costs which have severely eroded the competitiveness of the units in the state. Teledensity is relatively low in Bihar at 2.09 per 100 persons against the national average of 7 per 100 persons. State-level power reforms need to be supported by a regulatory framework to improve access to quality power.

v The reluctance of private investors to invest in Bihar is also based on the general perception of lack of governance and a lethargic and non-transparent administrative machinery. This has been compounded by the absence of long-term policies, non-implementation or even reversal of policies and inflexibility in labour laws.

#### 2.4.5 Eleventh Plan Objectives and Strategy

The overall objectives during the

Eleventh Plan will be to provide a well-structured, transparent and enabling environment for industrial growth by simplifying rules and regulations and procedures, providing industrial infrastructure (such as land banks, and industrial estates) and improving the skills of industrial manpower. To simplify and hasten clearance procedures for setting up industries, the state government will simplify labour laws, set up a land bank to meet the requirement of land, create basic facilities at par with international benchmarks and encourage PPPs. Key to the industrial development strategy will be the development of infrastructure. The public sector's role in raising industrial growth will be primarily facilitative, for which public sector outlay will increase substantially.

The policy ingredients will include

v **An enabling political environment and a clear mandated incentive policy** with simplified procedures would act as catalysts for industrialisation. The government has taken several steps to begin the process of attracting private investment into industry. It announced a new Industrial Policy 2006 and enacted the Single Window Clearance

Act 2006 and the Bihar Infrastructure Development Enabling Act 2006 for this. The single window clearance system for establishment of industrial units will ensure that delays in land registration, water and utility connections, environmental and other clearances are minimised.

**v Availability of land** at important growth centers is vital. A land policy which clearly spells out the accompanying relief and rehabilitation measures while acquiring land would have a positive impact on the government's developmental initiatives.

**v Industrial parks** are an essential requirement for industrialization in the state, as they provide integrated infrastructural solutions. The state has 44 industrial areas and estates, an export promotion industrial park and an agri-export zone. Five mega-growth centers have been sanctioned at Bhagalpur, Begusarai, Chapra, Muzaffarpur and Darbhanga, and two mega-industrial parks are planned at Bihta and Hazipur, for which the land acquisition process has started. The government also plans to set up special economic zones in Bihar.

**v Technical education and ITI courses** need to be revamped to meet the needs of industry and changing technology. The state plans to set up technical educational institutes and upgrade the

existing ones, and has recently announced a policy for establishing higher technical institutions in the private sector. These will include setting up technical institutions, upgrading ITIs through tool rooms, mini-tool rooms and setting up national-level institutes such as Plastic Engineering and Technology, National Institute of Pharmaceutical Education and Research, National Institute of Fashion Technology. The private sector has an important role to play in meeting the needs for more trained manpower in different skills and trades, keeping pace with the changing needs of the economy.

### 2.4.6 Village and small enterprises

Promotion of village and small enterprises and the activities of khadi societies would help generate more direct and indirect employment. This is one sector that impinges on the lives of the weaker and unorganised sections of the society with a large segment of the employees being women, minorities and the socially marginalised. Special efforts will be made to market products from these enterprises, with an emphasis on promoting their self-sustainability and on ensuring that the benefits of government schemes targeting this segment accrue even to those that are not registered.

### Growth Oriented Policy Initiatives in 2006

- | Bihar Single Window Clearance Act, 2006.
- | Bihar Infrastructure Development Enabling Act, 2006.
- | New Industrial Policy.
- | New Policy for Sugar, Tea Processing, Sugar Industry & Entertainment.
- | Policy for establishing higher Technical Institution in private sector.
- | Simplification fo VAT Regime, 2006.

### Milestones

- | National Institute of Pharmaceutical & Training at Hajipur already sanctioned.
- | Branch of National Institute of Fashion Technology on the anvil.
- | Steps initiated for revival of RBHM Jute Mill, Katihar and IDPL unit at Muzaffarpur.
- | State Investment Promotion Board approved 66 proposals with investment of approx. Rs 206,000 crore.
- | Out of the approved projects, 4 Mega Projects for production of Ethanol from Maize.
- | 10 Mega Projects for production of Ethanol from sugarcane juice.
- | 19 new sugar mills with total capacity of more than 100,000 ton crushing/day and approx. 1200 KLD of Ethanol.
- | Co-generation of power availability likely to be around 1,7000 MW by 2009.
- | Harnessing of solar energy for irrigation in sugarcane cultivation.

### INDUSTRY: ACTION POINTS

#### Short Term

- | Provide a well-structured, transparent and enabling environment for industrial growth
- | Simplify rules and regulations and procedures for setting up industrial units
- | Create a land bank
- | Encourage and provide incentives for upgradation of skills

#### Medium Term

- | Strengthen existing infrastructure related to industry
- | Establish technical institutions for training
- | Create supportive marketing infrastructure
- | Set up new training institutes and upgrade existing ones to meet the technological and skill needs of industry

## 2.5 The Sugarcane Industry

The sugar industry is the largest agro-based industry in Bihar. It generates considerable employment in the farm sector directly as well as through ancillary industries and related activities. An estimated 5 lakh farmers and their dependants are engaged in the cultivation of sugarcane and approximately another half a lakh unskilled and skilled people, including highly qualified and trained technologists, work in the sugar industry in the state (Table 2.5).

The status of sugar cultivation in the state shows that there is considerable potential for increasing the area under cultivation and productivity. Only 2.3 lakh hectares (around 4.5 per cent) of the total of 54 lakh hectares of cultivable land in the state is under sugarcane cultivation. The

productivity of sugar cultivation in Bihar at 56.6 MT per hectare is below the national average of 70 MT per hectare.

The industry also needs rejuvenation and new investment if it is to play a dynamic role in the future. Several sugar mills under the state-run Bihar Sugar Corporation had to be closed, as they had not modernized their plant and equipment or retrained their personnel. Those sugar mills that continue to function have a capacity that is far lower than the national average. Bihar has the lowest sugar recovery rate in the country at 9 percent against the national average 10.36 percent.

### 2.5.1 Vision

Given the favourable agro-climatic conditions for cultivating sugar in the state, and its potential for boosting farm incomes,

**Table 2.5 : The Sugar Industry in Bihar (2005-06)**

Land under cultivation	54.82 lakh hec.
Total area under sugarcane	2.30 lakh hec.
Total sugarcane production	129.95 MMT
Productivity of sugarcane	56.50 MT/hec.
Cane crushed	43.161akh MT
Sugar produced	4.22 lakh MT
Recovery percentage	9.45 %
Crushing duration	122 days

as well as non-farm incomes through its links with agro-processing, the objectives during the Eleventh Plan will be to enhance sugarcane output by increasing productivity as well as area under cultivation, and to provide incentives to boost the sugar industry. This will be in keeping with the stated vision of the Eleventh Plan which is inclusive growth coupled with sustained employment generation.

### 2.5.2 Strategy During the Eleventh Plan

**v Expanding Area under Sugar Cultivation:** Increased output and productivity will increase incomes for the 5 lakh farmers engaged in its cultivation as well as give a much needed boost to the sugar industry in the state. A longer-term goal is to gradually double the area under sugarcane cultivation to 4.6 lakh hectares. This will enable a coherent integration of sugarcane producers and sugar mills leading to higher revenue for farmers.

**v Research:** Increasing productivity of the crop will call for dedicated research into appropriate crop varieties, and development of new varieties for different climatic and soil conditions. Some of this is being done at the Sugarcane Research

Institute, Pusa. The state government has also begun the process of strengthening research on ways to increase sugarcane productivity and improve the quality and quantity of yield from sugar mills in collaboration with Rajendra Agriculture University, Pusa.

**v Incentives to Industry :** To expand the capacity of the sugar industry, the state government has announced an incentive scheme to encourage the establishment of new sugar industries and distilleries in a time-bound manner. The scheme is based on the requirements of the industry taken as a whole and incorporates incentives such as rebates for co-generation of power, incentives for the manufacture of ethanol from molasses, and waivers on administrative charges on molasses consumption by distilleries, as well as streamlining the procedure for getting allotments and permits for the sale of alcohol in Bihar.

Several investors from across the country have since expressed their interest in setting up greenfield and brownfield projects in the state. Five detailed project reports (DPRs) for setting up sugar complexes, including ethanol and co-generation units have been received, two



with an initial capacity each of 5,000 tons crushed daily (TCD) (to be expanded to 10,000 TCD) at an investment of around Rs 500 crore, are at the approval stages. Of the nine private sector sugar mills in the state, seven are currently expanding their production capacity from 36,500 TCD to around 53,000 TCD. The introduction of

the Greenfield Projects will raise production capacity to 63,000 TCD, an increment of 26,500 TCD, which is around 72 percent of existing capacity. This increase in crushing capacity has to have backward linkages with sugar cultivation as the spurt in demand for sugarcane should enhance the area under sugar coverage.

### Sugarcane Policy

- | Promote private investment in new sugar mills and in expanding capacity in existing sugar units.
- | Encourage the manufacturing of ethanol from molasses.
- | Waive administrative charges on molasses consumption.
- | Encourage Co-generation of power and bagasse-based paper.
- | For improving the condition of the Research Institute, the Bihar Government is going to provide the budgetary support.
- | Amended incentive policy to promote private investment for new Sugar Mills, Sugarcane Based Distilleries and Co-generation units
- | Exemption of Administrative Charges on Molasses and reimbursement of VAT.
- | Exemption of electricity duty on Co-generated Power.
- | Capital Subsidy on plant and machinery for establishment of Sugar Industry, Distilleries and Co-generation.
- | Stamp duty and Registration fees exempted for purchase of land for establishment of new green field projects and for expansion of existing units.



**SUGARCANE INDUSTRY: ACTION POINTS**

- | Increase sugarcane inputs by
  - b Increasing the area under sugarcane cultivation progressively from 2.3 lacs to 15.0 lacs hectares
  - b Increasing the production of sugarcane from 13.00 MMT to 46.72 MMT by 2015
  - b Promoting research and development of new varieties of sugarcane through the Sugarcane Research Institute at Pusa
- | Promote private investment in new sugar mills and in expanding capacity in existing sugar units
- | Encourage the manufacture of ethanol from molasses
- | Waive administrative charges on molasses consumption
- | Encourage cogeneration of power and bagasse-based paper

## Infrastructure

### 3.1 Roads and Bridges

The state government proposes to upgrade road infrastructure to the best national standards in the forthcoming plan period. In the face of the present objectives laid down by the Government, any previous targets for achievement pale into insignificance. The task is gigantic and its success requires consummate planning, effective strategies and logistic excellence.

#### 3.1.1 Expanding and Upgrading the Road Network: Initiatives

The poor road network in the state has been a major deterrent to private interest in investment, but in recent months this constraint is slowly being tackled: the State Government is pushing for completion of the Golden Quadrilateral Project within the state, CPMF personnel have been provided to ensure progress in road building under the National Highways project, new funds have been sanctioned

under the state budget for accelerated road construction; the process for procurement and tenders has been improved and upgraded, and the Chief Minister's programme for the construction of small bridges and rural roads is being expedited.

#### 3.1.2 National Highways

Upgrading the road network in the state will involve four-laning of all the major routes in the state. Four-laning of NH 2 (the Golden Quadrilateral of 205.7 km) is nearing completion, the East-West Corridor is in progress (513.3 km) and roads under NHDP-III will be taken up (890 km). Other major corridors that need to be four-laned are the Bakhtiyarpur-Biharsharif-Rajgir-Bodh Gaya and Patna-Gaya-Dobhi routes which will be executed under the Buddhist Circuit Development Programme.

In addition, three proposals (Biharsharif-Nawada-Rajauli, Munger-Bhagalpur, and Aurangabad-Mahabalipur-

Bihta) will be developed either on a BOT basis or, if unviable, through an EPC basis as toll roads. The total length of these routes is 242 km and the likely cost is Rs 1,452 crore. If developed through BOST, the Planning Commission will provide 20 percent of the funds as grant and 20 percent as loan. The state government may need to bear a maximum of 10 percent of the cost.

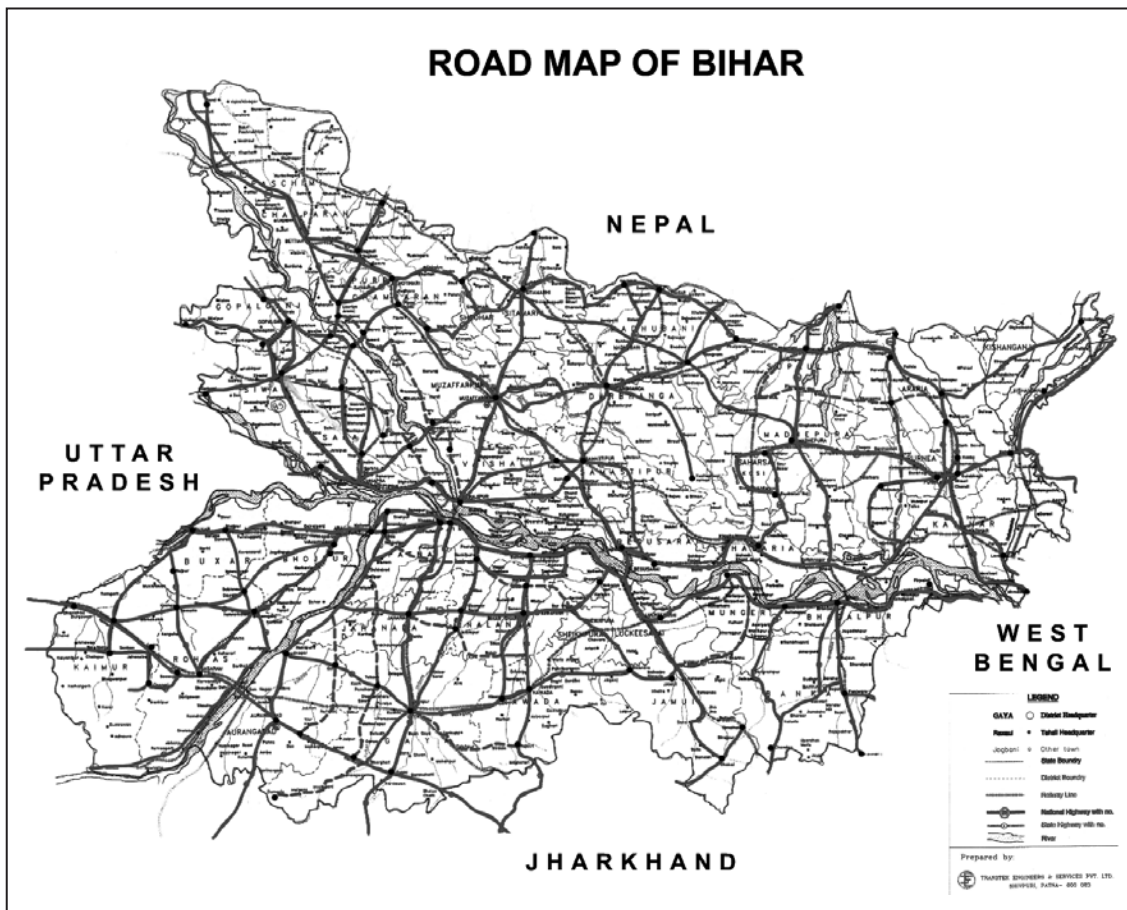
The newly declared National Highways need urgently to be upgraded. A project for upgrading 1,782 km of these highways will be presented to the ADB and the World Bank for funding (see Annexure 3A).

### 3.1.3 State Highways (3,232 km)

The state government shall upgrade all State Highways to at least two lanes.

#### V Old State Highways

All old State Highways (2,178 Kms) are being upgraded under the Rashtriya Sam Vikas Yojana (RSVY). The Planning Commission has agreed to increase the initial outlay of Rs 2,400 crore for a length of 2,045 kms to Rs 3,000 crore to cover the entire 2,178 km of the old State Highways. DPRs have been prepared by CPWD and



IRCON at an estimated cost of Rs 1.7- 1.8 crore per km for two-laning, and the work is expected to be completed by 2008-09.

## v Newly Declared State Highways

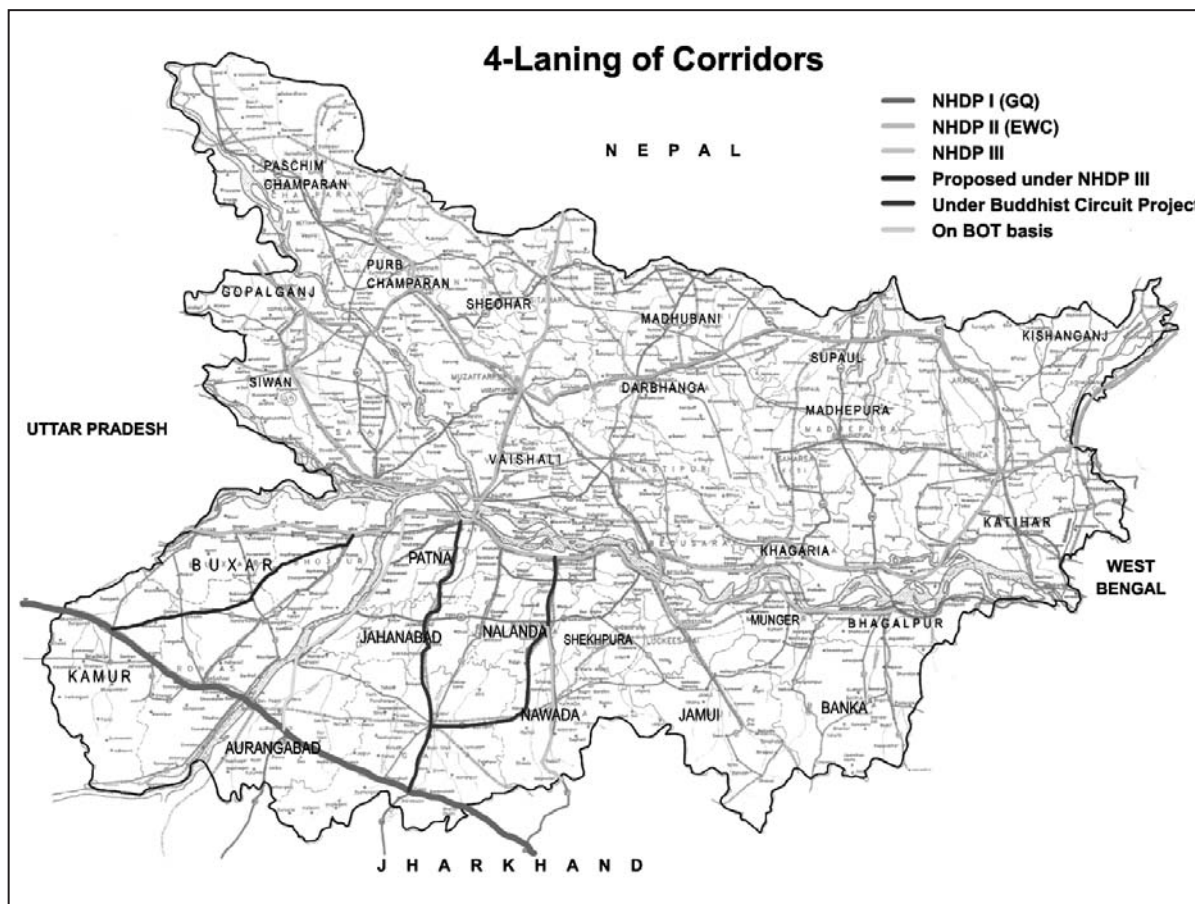
The lengths of National Highways and State Highways within the state are 3,629 kms and 2,178 kms, respectively. To partly rectify this imbalance, an additional 1,054 kms of road connecting two or more districts have recently been declared State Highways. These roads too are to be upgraded to two lanes at a cost of about Rs. 1,800 crore. The project will be implemented with funding from NABARD.

The state's 20 percent share amounting to Rs 360 crore will be given at the rate of Rs. 180 crore per year over the two-year period, 2007-09. The NABARD loan will cover the three-year period at the rate of Rs. 480 crore per year.

A preliminary financing proposal has been submitted to NABARD and work is likely to start by January 2007.

## v More State Highways

Despite declaration of new State Highways, the length of NHs and SHs within the state now stands at 3,629 kms and 3,232 kms (2178 kms + 1054 kms),



respectively, with NH length exceeding the length of SHs by nearly 400 kms. Identifying an additional 500 kms or more of priority roads for upgradation to State Highway standard will rectify this imbalance. There are several roads connecting district headquarters which meet this criterion for upgradation. The state's share of 20 per cent amounting to Rs.170 crore will be made available at the rate of Rs 85 crore per year over 2009-11; the NABARD loan may be obtained over two years at the rate of Rs.340 crore per year starting 2009-10 (see Annexure 3B).

### 3.1.4 Major District Roads (MDRs)

The state government will upgrade all 7,714 kms of Major District Roads to intermediate-lane standards during the Eleventh Plan period. Funding will be from the State Plan, NABARD (RIDF) and the Central Road Fund (CRF). Other sources of funds include centrally sponsored schemes comprising the Central Road Fund (CRF), Roads of Economic Importance, Inter-State Connectivity, and Border Area Development Project (BADP) along with grants-in-aid from the Twelfth Finance Commission (see Annexure-3C).

#### Strategies to Achieve Targets

**v Constitution of a flexible autonomous body for Project Development/Management :** The State

Government proposes to set up a flexible autonomous body for project development and project execution / management. This body will have comprehensive delegated powers and regulations which will facilitate quick decision making. It will have the power to hire consultants/experts for preparing DPRs for construction as well as project monitoring. This will lead to efficiency in the preparation of projects as well as project management. This will also be an appropriate body for managing PPP Projects.

**v Maintenance policy:** The Government is framing a comprehensive policy for proper maintenance of all roads in the state. The current practice of cyclic phased maintenance over a period of 4 years will be replaced by maintenance that covers the entire road in one go. Upgraded roads will be maintained by implementing agencies for a period of three years. The draft policy is evaluating the inclusion of collecting toll on stretches where toll revenue will be ploughed back for maintenance

**v Online monitoring :** An online monitoring system is being designed with the assistance of the state centre of the National Informatics Centre which will allow real-time monitoring of all projects. Computerisation for implementing the monitoring system is in progress.



v **Quality control laboratories :** The quality control laboratories at the headquarter level as well as mobile quality assurance units will be upgraded both qualitatively and capacity-wise to meet the QA needs of the projects under execution.

v **Special projects cell :** A special cell has been set up to expedite the process of appraisal and approval of DPRs for PPP projects.

v **Road Cess and Non-lapsable Fund:** Considering the scale of investments required in infrastructure, leveraging private and institutional investment is essential. The State Government is considering a small road cess. The receipt from the cess as well as allocations received under plan / non-plan, are proposed to be consolidated into a non-lapsable Road Fund which will be leveraged for institutional funding in order to finance the ambitious road upgradation programme taken up by the State Govt.

v **Dispute resolution:** The current system of arbitration is saddled with procedural delays and are subject to manipulation by vested interests. Since the Department is going in for large-scale projects and the works are to be executed by

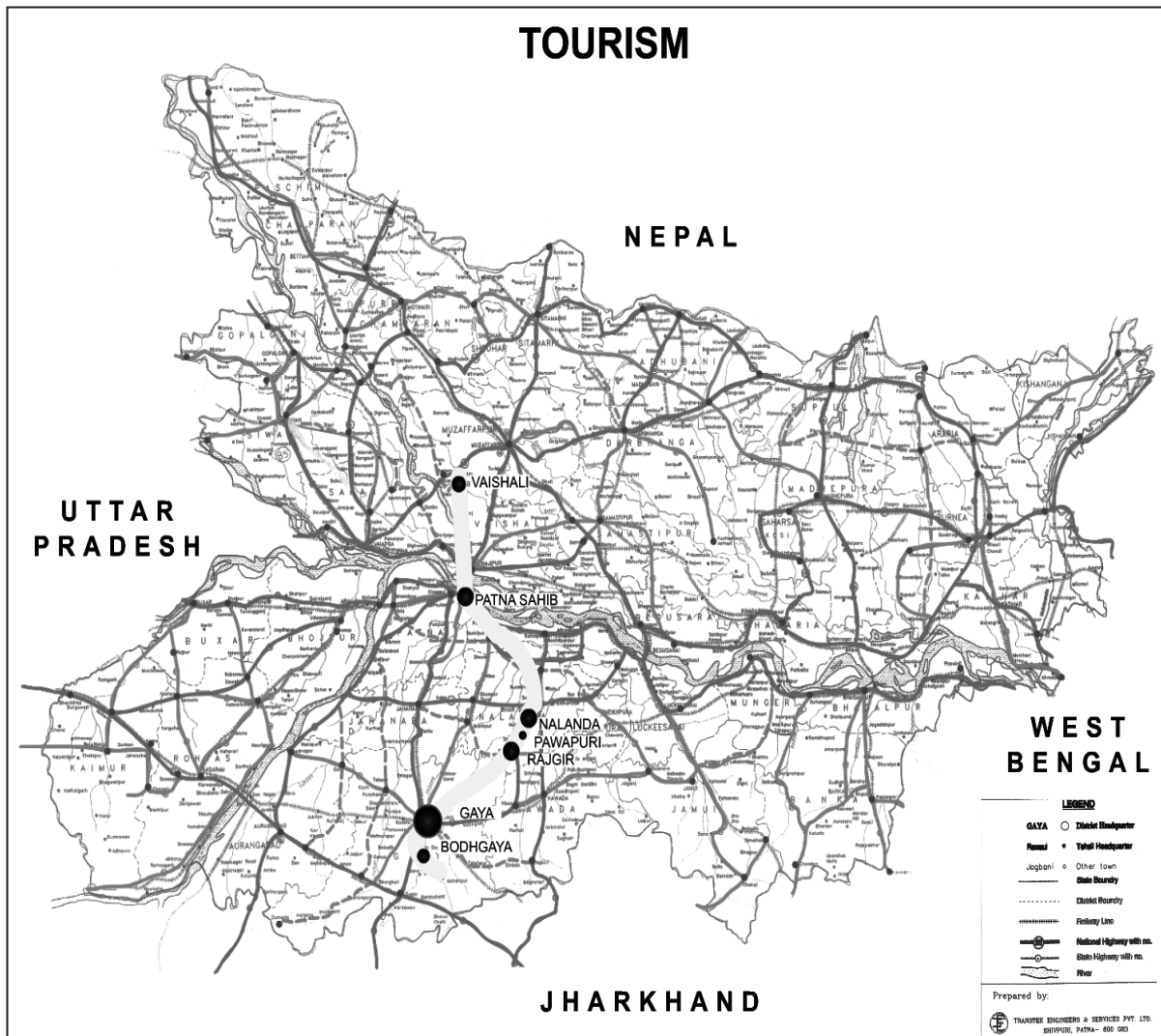
national-level agencies, addressing dispute resolutions through a Central Tribunal is necessary.

v **Preserving Right of Way :** The tendency to encroach on the highways or to make construction along the right of way or to access the Highway at any point needs to be checked. The State Government is drawing up regulation under an enabling Act for this purpose. The regulation will empower Highway authorities to take immediate action to stop temporary / permanent encroachments, and regulate construction along and access to the right of way.

v **Highway Amenities :** It is proposed that all State Highways have Public Conveniences and telephone kiosks at every 25 kms.

### 3.1.5 Tourism

Improvement of modern infrastructure and clean and functional accommodation in tourist places are proposed for development of tourism. The road connectivity to Buddhist and Jain Circuits is very fragile and needs to be upgraded to international standards. The facilities at the International Airport at



Bodhgaya have to be improved and the existing length of the runway has to be increased from 7500 ft. to 9000 ft. for enabling bigger aircrafts to land. Greenfield Airport will need to be sanctioned at Patna and Rajgir.

An International University as a Centre of Excellence has been planned as a regional initiative with the help of major Buddhist countries of Far-East and South-East Asia. A Bill entitled the Nalanda

University Bill, 2006 is in an advanced stage and will be enacted shortly. Land acquisition for the University is in process. This process will be implemented and managed in partnership with several countries to ensure educational excellence both for high research quality to attract students and sustaining excellence in both students and faculty. A Group entitled Vision Nalanda has also been constituted to monitor its progress.



**ROADS AND BRIDGES: ACTION POINTS**

- | Developing a road network equal to the best in the country
- | Upgrading 1,600 km of National Highways (out of total of 3,629 km.) to four lanes, two-laning all State Highways and upgrading all Major District Roads to intermediate lane
- | Providing all-weather connectivity to all unconnected villages with a population of over 500 within five years
- | Implementing the new road maintenance policy
  - b Introducing tolls on some stretches and use revenue for maintenance
  - b Replacing cyclic phased maintenance with covering road stretch in one go
- | Setting up a non-lapsable road fund
- | Setting up a central tribunal for dispute resolution
- | Setting up a specialised cell to expedite the process of appraisal and approval of DPRs for projects
- | Upgrading quality control labs at the headquarters and in the division
- | Monitoring all projects in real time
- | Exploring options for levying a road cess

**Anticipated Expenditure in the next 3 years**

	4 - laning of National Highways (NHAI)	–	Rs 11400 crore
	State Highways	–	Rs 4000 crore
	Major District Roads	–	Rs 2500 crore
	<b>Total</b>	<b>–</b>	<b>Rs 17900 crore</b>

### 3.2. Energy

Rapid augmentation of generation capacity is an overwhelming priority for the state government and a crucial prerequisite to achieving its socio-economic growth targets during the Eleventh Plan. There is severe power shortage in the state, even in a constrained demand scenario where the electricity system covers barely 50 percent of the villages and 6 percent of households. Against this demand, peak availability is about 950 MW, causing a peak shortfall of 550 MW, which results in widespread shortage in supply to all categories of consumers.

Bihar has only 584 MW of installed capacity, of which 540 MW is thermal and the remaining 44 MW is hydel. However,

generation from the thermal power stations is negligible, and most of the power requirement is met by purchases from the Central generating plants: NTPC, Chukha Hydel (PTC) and Rangit Hydel (NHPC).

The annual per capita consumption in Bihar is also abysmally low, which is 76 units, as against a national average of 612 units in 2005 (Table 3.1). The National Electricity Policy aims to increase the average annual per capita consumption to 1,000 units by 2012. The growth is predicated on increasing generation to remove peak electricity shortfalls, as well as implementation of the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), which aims to electrify all villages by 2009 under Central Government grants amounting to 90 to 100 percent.

**Table 3.1 : Average Generation and Consumption of Power-Bihar & India**

	India	Bihar
Villages electrified (%)	84	41*
Household electrification (%)	55.8	10.3
Per capita consumption (units)	612	76
Installed capacity (MW)	1,18,619	584
Actual generation (MW)	71,000-75,000 (approx)	30

Note: \* 20,200 out of 45,103 villages

The financial and operational performance of the Bihar State Electricity Board (BSEB) has declined steadily over the past few years as it has experienced aggregate technical and commercial losses of over 70 per cent. Out of an annual revenue of Rs 985 crore in year 2005, cash losses were estimated to be Rs 970 crore. In the annual ratings of state power utilities in 2006 by the Ministry of Power, Bihar ranked third from the bottom.

The BSEB purchases power worth Rs118 crore every month, but collects only Rs 75 crore as revenue. Added to this, its monthly establishment costs amount to Rs 51.71 crore, which brings the monthly deficit to Rs 107 crore per month. Apart from giving the BSEB Rs 34.37 crore per month as resource gap, the State Government has assumed its resource debts of the past two years, and is also servicing its loans from the Rural Electrification Corporation.

The annual subsidies supporting BSEB have now become unsustainable financially for the state government. The distribution and supply of power have to become commercially viable before the state can achieve its additional generation requirements. Reforms in distribution call

for radical changes in structure and governance, with emphasis on augmenting revenues and bringing operational efficiency.

### **3.2.1 Eleventh Plan Approach**

The Electricity Act, 2003 and the National Electricity Policy provide an enabling framework at the national level. In order to realise the objectives of the Eleventh Plan, the state government is finalising a state-level power policy based on specific requirements at the state level. The state has also begun the process of unbundling state electricity services and improving the functioning of the SEBs to reduce its fiscal losses while improving its efficiency.

In the first phase, the registration of eight companies is likely to be completed by March 2007 and the remaining work of distribution of assets, liabilities, etc., shall be done in due course.

### **3.2.2 The Proposed State Power Policy**

The policy will have the following key objectives:

- v To create an enabling environment for rapid addition to generation capacity in the state;

v To raise per capita consumption to 650 units by 2012 and above the national average by 2017;

v To ensure efficiency in the generation, transmission and distribution of power, which will involve the restructuring of the BSEB within the time frame of the Act, while fully protecting the terms and conditions of service of the BSEB employees;

v To provide cost-effective, reliable, quality power supply to all consumers connected to the grid, including domestic, commercial, industrial and agricultural;

v The State Government shall expand its Rural Electrification programme under the programme support of the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) which aims at achieving 100% electrification by the year 2009. All future household electrification and agriculture based connections will be done by 2012 on 100% metered basis, even if the load/sector is subsidised.

v Develop infrastructure for the generation of renewable energy in a competitive manner to help achieve the rural electrification target.

### 3.2.3 Generation

During the Eleventh Plan, peak demand for electricity is expected to surge as Bihar is a major beneficiary of the RGGVY scheme which will give new villages and households access to electricity. Industrial demand for power is also expected to pick up substantially in the wake of new incentives for investment provided by the Bihar Single Window Clearance Act, 2006, the Bihar Infrastructure Development Enabling Act, 2006 and the State Government's new Industrial Policy, 2006.

In this backdrop a target per capita consumption equal to the current national average (of about 650 units) by 2012 is realistic. This per capita consumption translates to a staggering 10,500 MW of power generation capacity for Bihar. Achieving minimal levels of self-sufficiency in generation capacity is necessary in the context of such significant growth targets. The role of the public sector is crucial in the transition phase, as the current environment is far from commercial and the poor operational performance of the distribution segment creates significant payment security related risks for private investors in generation.

The approach in the Draft Policy is, therefore, to involve as far as possible Central Public Sector Undertakings (like NTPC) in revamping existing generation assets, expanding existing assets through joint ventures and setting up dedicated units in projects already planned in the state by these PSUs. Since these PSUs have a continuing relationship with the State Government and are secured through the tripartite agreement signed between Reserve Bank of India, the Central Government and the Government of Bihar, they are likely to be relatively more comfortable in executing such projects.

The role of the private sector is important in creating a significant amount of new generation capacity required to meet targets. Private investors in generation are offered attractive investment opportunities in other States, including five ultra-mega power plants being competitively bid out by the Ministry of Power with planned capacity addition of 20,000 MW.

The State Government will create opportunities and incentives to attract investors to fund large generation projects in the State. Priority will be given to remove administrative hurdles in acquiring land

(with associated rehabilitation and resettlement problems) and obtaining initial consents which have tended to give rise to uncertainties in the development of projects. Investors and their project financiers also insist on sound payment security mechanisms and a creditworthy counter-party, to make projects financially.

The State Government considers the involvement of the private sector in the development of thermal power projects in the state, as an important aspect of the Power Policy. As an initial measure towards meeting this objective, the State Government has identified three sites at Nabinagar (2000 MW), Katihar (1000 MW) and Pirpainti (200 MW) where necessary groundwork is being completed by the State Government while inviting tariff-based competitive bids from private developers for development of the projects.

The State Government proposes to form three separate Shell companies for the three above mentioned mega power projects which, in turn, will develop the projects sites by providing necessary infrastructure. These Shell companies are likely to be formed by February 2007.

The State Investment Promotion

Board (SIPB), created under the Bihar Single Window Clearance Act, 2006, in consultation with representatives of BSEB (or its successors) shall periodically review the progress on obtaining the following clearances and consents while inviting final bids from the private developers.

- a. Land Acquisition by BSEB or its successor utility for each of these projects with State Government funding, to be subsequently reimbursed by the successful private developer. This shall include issue of Section 6 notification under the Land Acquisition Act.
- b. Obtain Environment and Forest Clearance from the Ministry of Environment and Forests.
- c. Ensuring Water Linkage for reasonable project requirements.
- d. Initiate the process of obtaining necessary coal blocks/linkages for the projects being tendered.
- e. Projects other than the three identified above, shall be cleared by the SIPB and will subsequently follow the same process as outlined under this policy.
- f. In keeping with the national policy,

where private players are prepared to invest without the above measures, they are free to do so.

To address these concerns, the power policy will include measures aimed at increasing private investment in generation:

v Commitment from the State Government to acquire land required for the project and to transfer it at cost to the project developer;

v Assistance to developers in obtaining all initial consents for the development of power projects through the State Investment Promotion Board (SIPB), created under the Bihar Single Window Clearance Act, 2006.

v Permission to sell up to 50 per cent of the power generated outside the state. Bihar's distribution segment is not perceived as creditworthy (according to Ministry of Power ratings), so having Bihar licencees as the sole off-takers of power increases the risk perception of the project. Besides, mega-power status for projects above 1,000 MW requires sale to more than one state and concessions due to such projects would lower the tariff from such projects, to the benefit of Bihar.



Apart from widening the participation of central PSUs and encouraging private participation in generation development, the Draft Policy seeks to encourage generation capacity through captive power plants and renewable energy-based generation, by providing specific benefits in addition to the incentives provided under the new Industrial Policy, 2006.

The State Government encourages Captive Power generation by industries using any of their waste, by-product or similar substances like bagasse-based co-generation in the Sugarcane industry, provided that for continuity of generation in the off-season, any other substance could be used for generation. The State Government shall provide all such co-generation plants similar incentives as available to Captive Power Plants outlined in this Policy.

v Constituting three Shell Companies for putting up power generating stations at Nabi Nabi Nagar, Katihar and Pirpanthi which will undertake land acquisition, secure coal linkages, environment and other clearances before being promoted in joint-venture partnership with either private or Central Government public entities.

## 3.2.4 Hydropower

The lack of any medium or large hydropower plants in Bihar restricts its ability to meet peaking requirements or to have the flexibility to meet intra-day changes in system demand. Bihar has a current installed capacity of about 46 MW from small hydropower (SHP) with the potential for 150 MW more. The State also has large hydropower generation potential in Dagmara (Kosi) and Indrapuri, besides five pumped storage projects, pre-feasibility for which have been established by the Bihar State Hydro Power Corporation (BSHPC).

The State Government intends to develop large hydropower projects and the pumped storage schemes either through loans from bilateral and multilateral funding agencies or as joint ventures with Central Government generating companies like the National Hydro Power Corporation (NHPC), or even through private sector participation.

## 3.2.5 Renewable Energy Sources

Renewable energy based generation has a significant role in Bihar especially in the biomass and small hydro section. Given the predominantly agrarian



nature of the economy, such a generation source is cane which is self-sustainable and economically viable.

It is expected that the Plateau and hilly areas as well as the riverine belts in Bihar have sufficient wind speeds suitable for wind power generation. Wind energy potential in Bihar is shortly to be taken up for assessment under the sanction of the Ministry of Non-Conventional Energy Sources.

BREDA has been nominated as a nodal agency to take up the rural electrification work in those villages which are inaccessible or where connectivity is not economically viable. The State Government has decided to sign MoU with the Government of India to take up rural electrification work in those villages. The preparatory work for the survey of these villages is being taken up and accordingly plan estimate would be submitted in due course.

To encourage local private participation in renewable energy power generation projects including solid waste management projects and decentralized distribution generation (DDG), the policy will include incentives such as :

v A single-window clearance system for renewable energy projects and adequate budgetary allocations in the plan funds to augment central sector support.

v The State Government will work with the Electricity Regulatory Commission to fix the renewable energy procurement quota and tariffs for renewable energy-based power over the next six months.

v The State Government will provide banking and wheeling facilities for all grid-connected renewable energy electricity generation projects up to 25 MW in size.

v Entry tax will be waived on capital costs for equipment for DDG renewable-based plants of less than 5 MW.

v The State Government shall encourage project developers to install mechanisms such as the Clean Development Mechanism (CDM) for leveraging funds for renewable energy-based power generation projects. BREDA is the nodal agency for helping private developers apply for CDM benefits. Bundling of projects shall be encouraged for CDM application to make the initiatives viable.

### 3.2.6 Energy Conservation

Understanding the importance of energy conservation, the State Government shall accord priority to it. There is an urgent need to have a system that encourages energy conservation and provides disincentives for inefficient use of energy. The State Government shall promote measures for economy and efficiency in energy consumption. The State Government also proposes to implement the provisions of the Energy Conservation Act 2001 and to set up the State Resource Fund to promote activities for energy conservation.

### 3.2.7 Transmission

Transmission is treated independently under the new Policy, in line with requirements of the Electricity Act, 2003. Investment projects to strengthen the transmission system in North Bihar under the Rashtriya Sam Vikash Yojana are nearing completion. An additional sum of Rs 1,780 crore for augmentation and strengthening of transmission has been assessed jointly by the CEA, PGCIL and BSEB and the work is being executed in two parts.

An additional amount of Rs 7000

crore will be required by 2012 in order to cope with the expansion of generation capacity, the expansion of grid to meet the requirements outlined in the Policy and to augment the transmission system to handle evacuation of the increased supply. The State Government will provide active support to ensure the financial viability of developing new transmission capacity in the State, and the SIPB will give priority to the clearance of new transmission systems. Wherever required, the State Government will also provide counterpart funding and guarantees for obtaining lines of credits from Central financial institutions and international funding agencies like ADB, World Bank, JBIC, etc.

### 3.2.8 Distribution Reforms

The real challenge of reforms in Bihar's power sector lies in improving the efficiency of distribution. The current power distribution system is characterised by Aggregate Technical and Commercial (AT&C) losses of over 70 percent, which calls for a radical change in the way electricity distribution is managed. Fundamental restructuring and institutional development of distribution operations is crucial to the reforms planned for the power sector as a whole.

**Distribution reforms will contain the following elements:**

v New distribution licensees formed as successor entities of BSEB will begin operations afresh, and without the burden of past losses, unserviceable liabilities and unrecoverable arrears.

v New franchisees will function in urban areas, where better governance and improved technological and management interventions are likely to improve operational efficiency and services. Over the next six months, the State Government will set up a mechanism for appointing franchisees to manage power distribution wholly or partially in urban areas, with guidelines for periodic performance monitoring.

v The management of rural electricity supply through franchisees is mandated under the RGGVY. The State Government is formulating guidelines to promote the participation of local institutions in the management of rural power distribution. So far, 46 franchisees have already been formed and the remaining 1154 franchisees would be formed by December, 2007

The State Government will support all efforts to improve distribution performance through:

v Administrative support in implementing anti-theft provisions under the Act. An officer of the rank of Inspector General/Deputy Inspector General of Police will be designated to provide police support in implementing anti-theft measures in the state, with the abolition of the existing system which has dual responsibilities over vigilance and anti-theft.

v Institution of a centralised payment system for electricity dues of all government departments at the state and local government levels.

v A subsidy policy based on recovering at least 50 percent of cost from agricultural consumers and at least 80 percent of cost from domestic consumers. This policy shall, however, exclude lifeline and Below Poverty Line (BPL) consumers with a monthly consumption of up to 30 units, who will continue to receive subsidised power.

## POWER REFORMS

- | To augment generation and distribution by encouraging private investment
- | To bring down Average Transmission and Commercial losses (AT&C) by 5% p.a. in the next five years
- | To stop cross subsidy and recover costs
- | SEB is being re-organized into 8 companies. Power Finance Corporation appointed consultants for implementation. The process of re-organisation will be completed by March 2007 and the companies will become fully operational by Dec. 2007
- | State Regulatory Commission is in place and application has been filed for tariff revision
- | Appointment of franchisee in all 11 KV distribution lines to be completed for IMPROVING CUSTOMER SERVICES & BOOSTING revenue collection
- | Already 31 such lines have been handed over to private parties for maintenance, minor repairs, fuse calls, billing and revenue collection and revenue has increased substantially in most of them and in some nearly by 100%

## ENERGY: ACTION POINTS

### Generation

- | To achieve minimal levels of self sufficiency in generation capacity
- | To involve central Public Undertakings in Central PSU projects in the state
- | Create incentives to attract private interest in large generation projects

- | To acquire land for large projects and transfer it at cost to the project developer
- | To help developers obtain initial consents through the State Investment Promotion Board (SIPB).
- | To allow up to 50 percent of power to be sold outside the State
- | To expand generation capacity through captive power plants and renewable energy based generation
- | To provide a single window clearance system and banking and wheeling facilities for renewable energy projects.
- | To constitute three shell companies for putting up Power Generating Stations at Nabi Nagar, Katihar, Pirpainti in joint venture partnership.

#### **Transmission**

- | To provide active support for ensuring the financial viability of developing new transmission capacity in the State.
- | To provide counterpart funding and guarantees for getting lines of credits from financial institutions and funding agencies.

#### **Distribution**

- | To provide administrative support in implementing anti-theft provisions under the Act.
- | To institute a centralised payment system for electricity dues of all government departments at the State and local government levels.
- | Completion of total metering in all Urban areas and its extension to rural pockets.

### 3.3 Urban Development

Population growth and urban influx have placed unsustainable stress on urban infrastructure and services and led to deterioration in the quality of urban life. Although the 2001 Census has shown that urban centres are growing at a faster pace than rural areas, Bihar, with urbanisation at 10.5 per cent, is second from the bottom in a ranking of States and Union Territories. Urbanisation in India is already below that of several other countries such as China and Indonesia. These countries had relatively lower levels of urbanisation in 1950, which has risen to 32.1 per cent and 40.9 percent, respectively.

Using per capita water supply as a surrogate variable, Bihar (with 61 litres per day) is woefully below the national average (of 142 litres per day) in its civic amenities. Urban poverty in Bihar, at 32.91 percent, is much above the national average of 23.62 percent. Cities hold tremendous potential as engines of economic and social development, creating jobs and generating wealth. For this, productivity of the units located in the urban area needs to be augmented which could be achieved through provision of a supportive urban infrastructure. So far, the approach to the

process of urbanization has been largely “reactive”, as problems have been addressed in a knee-jerk manner. Urban planning needs to be anticipatory, based upon an integrated approach to the various dimensions of urban development.

#### 3.3.1 Vision under the Eleventh Plan

The Eleventh Plan visualises conversion of the towns and cities of Bihar into vibrant, aesthetic, and efficiently functioning urban areas which are sustainable physically, socially, economically and environmentally. These areas would act as catalysts for development of the entire state. The approach has to be a holistic one, which will give all urban residents access to a minimum level of basic urban services, at reasonable costs and at the same time ensure that local bodies function transparently, with greater accountability to the urban residents.

#### 3.3.2 Eleventh Plan Strategies

Augmenting civic amenities so that all inhabitants have access to some minimum level of basic provision will call for the large-scale creation of large scale infrastructure in water supply, sanitation, drainage, roads and housing.

### 3.3.3 Devolution of Power to Local Bodies

An important prerequisite to realising the Eleventh Plan vision would be empowering local bodies to function as an effective tier of government. For this, Urban Local Bodies will have to become functionally and financially autonomous, and their financial position should be augmented through the implementation of the State Finance Commission (SFC) awards. Though the 74th Amendment has been implemented in letter, much needs to be done to incorporate the real spirit enshrined in the Constitution. At the same time, local bodies have to become more efficient and function in a more transparent manner, through the introduction of e-governance and a double-entry system of budgeting.

The state legislature shall assign specific taxes, duties, tolls and levies and authorise Local Bodies to impose, collect and appropriate them. The government is working on a framework to institutionalise citizens' participation in local decision-making.

### 3.3.4 Planning and Mapping

The master plan for eight major

towns will initially be prepared by HUDCO. The same for Patna has been prepared by a competent consultant and objections are being invited from the public on the Master Plan.

The Patna agglomeration and BodhGaya will be developed under the Jawarharlal Nehru National Renewal Urban Mission (JNNURM). City Development Plans (CDPs) for both towns have been prepared, and the CDP for Patna has been submitted to the Central Government. The State Government has earmarked Rs. 500 crore in its annual budget for 2006-07 for the JNNURM, mainly to create and augment basic facilities in water supply, sewerage, storm water, drainage, solid waste management, roads, bridges, street lighting, tourism and heritage sites.

The CDP for Patna is based on an investment proposal of approximately Rs 3,580 crore over seven years. The DPRs are ready for the road projects worth Rs 129 crore and for underground cabling for water pumps worth Rs 40 crore. DPRs for other projects are expected to be ready in 2-3 months. The CDP for Bodh-Gaya envisages the holistic development of the heritage city at an investment of over Rs 400 crore.



Considering the scale of urbanization that is expected in the coming decades, the development of new townships and growth centres is also envisaged. The GIS mapping of towns like Ara, Darbhanga, Muzaffarpur, Patna, and Gaya is under process. The Master Plans of towns like Gaya, Muzaffarpur, Darbhanga, Ara, Biharsharif, Rajgir, and Chhapra have already been taken up. The ultimate imperative is to undertake the planet urbanization by augmenting and developing the growth centres along the main trunk roads. In the process, the requirement of Express Highways and rail networking will also be addressed.

### 3.3.5 Legislative measures

The State Government has recently undertaken several legal initiatives that will revitalise urban centres so that they become supportive engines of growth during the Eleventh Plan. Many of these initiatives have been taken this year, including the repeal of the Urban Land (Ceiling and Regulation) Act, which has been a bottleneck to large-scale investment in urban areas, especially in housing and commercial enterprises. Its repeal should attract large-scale private investment in the

sector. The Department is also framing amendments to the Rent Control/Municipal Law keeping in mind the interests of landlords and tenants. The Apartment Ownership Act which was restricting investment in the sector has recently been amended and can be used as a model.

Simplification of legal and procedural frameworks for conversion of agricultural land for non-agricultural purposes and cross subsidisation concept, earmarking of at least 20-25 percent of developed land in housing projects for economically weaker sections and low income groups are the two reforms that will be addressed towards the end of the Mission period.

The State Government recently revised several bye-laws related to building and construction to speed up the process of construction, allow the development of commercial spaces and incorporate environmental and safety concerns. It has revised building bye-laws and incorporated provisions for streamlining the approval process for construction and site development. It has also framed building bye-laws and amended existing cinema

rules to facilitate the development of multiplexes and malls. Byelaws have been amended to incorporate norms and measures for structural safety, rainwater harvesting, landscaping and water conservation, and to aid the movement of disabled persons.

### **3.3.6 Governance through IT Applications**

Efficiency and transparency will be improved using IT applications. GIS and MIS will be applied for various urban services, and the GIS mapping of major towns has begun. Arrangements are being made for its effective implementation so as to enhance collection efficiency. This has been introduced in a few wards in the Patna Municipal Corporation on an experimental basis. The State Government has computerised registration of land and property, and certification of property titles.

Modern and transparent budgeting, accounting and financial management systems are to be designed and adopted for all urban services and governance functions. Patna has already initiated these

commitments, and several ULBs have migrated to a computer-based system in tax administration.

### **3.3.7 Administrative and Fiscal Measures**

Administrative reforms, including reduction in establishment costs by introducing voluntary retirement schemes and surrender of posts after retirement. The state is committed to implement the administrative reform agenda in the stipulated time frame. The government has begun the process of reducing stamp duty to the prescribed 5 percent, by bringing it down from 18 percent to 10 percent.

### **3.3.8 Encouraging Public-Private Partnerships**

The Department is framing policy to encourage PPPs, and has identified some areas where such partnerships will be effective. Several ULBs have already formed PPPs especially in solid waste management, urban transport, street lighting, etc.

### Status of Reforms Agenda

Stress has been laid on the actual implementation of the reform agenda. Basic strategies of the Government of Bihar are briefly explained below.

1 Effective implementation of decentralization initiatives as envisaged in the 74th CAA. The State Government has initiated the constitutional commitments, by starting with the decentralization process. The real spirit of the 74 CAA was to convert the urban local bodies into vibrant self governing institutions. However, the mere incorporation of the provisions of the 12th schedule could not literally make a shift over. In order that the urban local bodies can perform the functions assigned to them, financial autonomy has to be imparted. The State legislature shall assign specific taxes, duties, tolls and levies and authorize the local bodies to impose, collect and appropriate the same.

1 Repeal of Urban Land (Ceiling and Regulation) Act.

The prevailing Urban Land Ceiling and Regulation Act was a stumbling block for large scale investment in the urban sector, especially in the housing and commercial enterprises sector. The state has taken a bold step to repeal the same, paving the way for attracting large scale private investment in the sector.

1 The aim of the reform of Rent Control Law is to balance the interest of the land lords and the tenants. The Department is involved in framing relevant amendments in the existing law. The Apartment Ownership Act which had severe shortcomings, restricting the investment in the sector, has been amended and the same can be used as a Model Act.

1 Rationalisation of stamp duty - Corrective steps have been taken to down scale the stamp duty towards the prescribed 5%. At present, it has been brought down from the existing 18% to 10%.

1 E-governance- A system of e-governance using IT application, GIS and MIS for

various urban services and reform of property tax with GIS, and arrangements for its effective implementation have been introduced to enhance collection efficiency. Steps have already been taken to address this reform agenda. In a few selected wards of Patna Municipal Corporation it has been initiated on an experimental basis.

- 1 Levy of reasonable user charges. Under the National Urban Renewal Mission, the Municipal Corporation of Patna and other Local Bodies falling under the Patna agglomeration area have committed a time frame to incorporate this provision.
- 1 Revision of bye-laws to streamline the approval process for construction of buildings and development of sites. The State Government has already revised the bye-laws and incorporated the provisions for streamlining the approval process for construction of buildings and development of sites.
- 1 In order to attract investment and facilitate the construction of multiplexes and malls in the urban sector, the Government has framed building bye-laws and amended the existing cinema rules.
- 1 Respective bye-laws have been amended to incorporate structural safety norms, rainwater harvesting and adoption of water conservation measures, provision for disabled persons and landscaping measures.
- 1 Computerised registration of land and property, and property title certification. This is one of the reform agenda which is already in place.
- 1 Administrative reforms including reduction in establishment cost by introducing voluntary retirement schemes and surrender of posts falling vacant due to retirement. The State is committed to implement the administrative reform agenda within the stipulated time frame.
- 1 Simplification of legal and procedural frameworks for conversion of agricultural land for non agricultural purposes and cross subsidisation concept - Earmarking at least 20-25% in developed land in housing projects for economically weaker

sections and low income groups. These two reforms will be addressed towards the end of the Mission period.

- | Encouraging public private partnership. The Department is involved in framing a policy towards this end and a few sectors have been identified for practicing the same. In several ULBs, Public Private Participation projects have been implemented especially in solid waste management, urban transport, street lighting etc. A broad agreement has been reached for infrastructure development in the PPP model along with IDFC, which is under consideration by the Government.
- | Modern and transparent budgeting, accounting and financial management systems designed and to be adopted for all urban services and governance functions. The Mission town Patna has already initiated the commitments. Several ULBs have moved on to a computer based system in tax administration.

### **URBAN DEVELOPMENT : ACTION POINTS**

- | Implement decentralisation initiatives envisaged in the 74th Constitutional Amendment
- | Reform the Rent Control Law by March 2007
- | Frame rules to enact the association of elected municipality with the city planning functions
- | Introduce IT applications for GIS and MIS; Computerise registration of land and property; develop Master Plans and initiate GIS mapping of major towns
- | Frame policy for levying of reasonable user charges by end of year 2007-08
- | Simplify legal and procedural frameworks for converting agricultural land to non-agricultural purposes

- | Create and augment basic infrastructure facilities in water supply, sewerage, storm drainage, solid waste management, roads and bridges
- | Implement the City Development Plans for Patna and Bodh Gaya under the National Urban Renewal Mission
- | Encourage private and public investment in multiplexes, malls, housing complexes, mass transit systems, tourism, communication facilities and basic infrastructure in the urban sector.