

BOUDH

Comprehensive District Agriculture Plan (C-DAP) Boudh



BOUDH DISTRICT
ORISSA



05 00 05 10 15
Scale Kilometre

HARABHANGA BLOCK BOUDH NAC
BOUDH BLOCK RESERVE FORESTS
KANTA MAL BLOCK

Foreword (By District Collector)

Executive Summary(1 to 2 pages)

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ACRONYMS

AAC	Annual Action Plan
AH	Animal Husbandry
AIBP	Accelerated Irrigation Benefit Programme
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwifery
AP	Annual Plan
API	Annual Parasite Incidence
ARD	Animal Resource Development
ARWSP	Accelerated Rural Water Supply Programme
ASCAD	Assistance to State for Control of Animal Diseases
ATMA	Agriculture Technology Management Agency
AWC	Aaganwadi Centre
AWP	Annual Work Plan
AWW	Anganwadi Worker
BDO	Block Development Officer
BPL	Below Poverty Line
BRGF	Backward Region Grant Fund
CBO	Community Based Organisation
CBR	Crude Birth Rate
CDAP	Comprehensive District Agriculture Plan
CD Block	Community Development Block
CDMO	Chief District Medical Officer
CDP	Comprehensive District Plan
CDPO	Child Development Project Officer
CDR	Crude Death Rate
CEO	Chief Executive Officer
CHC	Community Health Centre
CDPO	Child Development Project Officer
CEO	Chief Executive Officer
CHC	Community Health Centre
CP	Central Plan
CSP	Centrally Sponsored Plan
CSR	Current Schedule of Rates
DAO	District Agriculture Officer
DHDR	District Human Development Report
DIC	District Industry Centre
DLHS	District Level Household Survey
DLO	District Level Officer
DPAP	Drought Prone Area Programme
DPC	District Planning Committee
DPO	District Planning Officer / District Panchayat Officer
DRDA	District Rural Development Agency
DSWO	District Social Welfare Officer
DWO	District Welfare Officer
EE	Executive Engineer

FFDA	Fish Farmer Development Agency
FYP	Five Year Plan
GFATM	Global Fund to Fight AIDs, Tuberculosis and Malaria
GGY	Gopabandhu Gramin Yojana
GN	General Nomenclature
GoI	Government of India
GP	Gram Panchayat
Ha	Hectare
HDI	Human Development Index
HDR	Human Development Report
HIV/ AIDS	Human Immunodeficiency Virus / Acquired Immune-Deficiency Syndrome
HYV	High Yielding Variety
IAY	Indira Awas Yojana
ICDS	Integrated Child Development Scheme
IDSP	Integrated Disease Surveillance Project
IHSDP	Integrated Housing and Slum Development Programme
IMR	Infant Mortality Rate
ISOPOM	Integrated Scheme of Oilseed, Pulses, Oil palm and Maize
IWDP	Integrated Watershed Development Project
JGSY	Jawahar Gram Samridhi Yojana
KBK	Koraput, Bolangir, Kalahandi
KGVB	Kasturba Gandhi Valika Bidyalaya
KM	Kilometer
KVK	Krishi Vigyan Kendra
LIP	Lift Irrigation Point
MADA	Modified Area Development Agency
MBPY	Madhu Babu Pension Yojana
MC	Micro Credit
MDG	Millennium Development Goals
MDM	Mid-Day Meal
MDR	Major District Road
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MI	Micro Irrigation
MIP	Minor Irrigation Project
MLA	Member of Legislative Assembly
MLALADS	Member of Legislative Assembly Local Area Development Scheme
MM	Millimetre
MMR	Maternal Mortality Rate
MoU	Memorandum of Understanding
MP	Member of Parliament
MPLADS	Member of Parliament Local Area Development Scheme
MSME	Micro Small and Medium Enterprise
MT	Metric Tonne
NA	Not Available / Not Applicable
NABARD	National Bank for Agriculture and Rural Development
NAC	Notified Area Council
NBMMP	National Biogas & Manure Management Programme
NC	Not Covered

NEP	National Environment Policy
NER	Net Enrolment Rate
NFHS	National Family Health Survey
NFBS	National Family Benefit Scheme
NGO	Non-Government Organisation
NH	National Highway
NHPC	National Hydroelectric Power Corporation Ltd
NPEGEL	National Programme of Education for Girls at Elementary Level
NOAP	National Old Age Pension
NRHM	National Rural Health Mission
NVBDCP	National Vector Borne Disease Control Programme
NWDPRA	National Watershed Development Project for Rain fed Areas
OAIC	Odisha Agro Industries Corporation
OBC	Other Backward Class
OCTMP	Odisha Community Tank Management Project
ODR	Other District Road
OLIC	Odisha Lift Irrigation Corporation
ORMAS	Odisha Rural Development and Marketing Society
PACS	Primary Agricultural Cooperative Society
PC	Planning Commission / Partially Covered
PCPNDT	Pre-Conception Pre-natal Diagnostic Test
PD	Project Director
PDS	Public Distribution System
PEO	Panchayat Executive Officer
PHC	Public Health Centre
PHED	Public Health and Engineering Department
PMGSY	Pradhanmantri Gram Sadak Yojna
PLP	Potential Linked Credit Plan
PRI	Panchayati Raj Institution
PS	Police Station / Panchayat Samiti
PWD	Public Works Department
PYKKA	Panchayat Yuba Krida Aur Khel Abhiyan
RCC	Reinforced Cement Concrete
REC	Rural Electrification Corporation
RES	Rural Engineering Services
RGVY	Rajeev Gandhi Gramin Vidhutikaran Yojna
RIDF	Rural Infrastructure Development Fund
RKBY	Rashtiya Krishi Bima Yojna
RKS	Rogi Kalyan Samiti
RKVY	Rashtiya Krishi Vikas Yojna
RPWSS	Rural Piped Water Supply Scheme
RRB	Regional Rural Bank
RWSS	Rural Water Supply Scheme
SC	Scheduled Caste
SCP	Special Component Plan
SGSY	Swarnjayanti Gram Swarozgar Yojana
SGRY	Sampoorna Grameen Rozgar Yojana
SHG	Self Help Group

SJSRY	Swarna Jayanti Sahari Rozgar Yojana
SNP	Supplementary Nutrition Programme
SOAP	State Old Age Pension
SOR	Schedule of Rates
SP	State Plan
SRS	Sample Registration System
SSA	Sarva Shiksha Abhiyan
ST	Scheduled Tribe
S&T	Science and Technology
SWOC	Strength, Weakness, Opportunities and Threat
TFC	Thirteenth Finance Commission
TFR	Total Fertility Rate
TPDS	Targeted Public Distribution System
TRIPTI	Targeted Rural Initiatives for Poverty Termination and Infrastructure
TSP	Tribal Sub-Plan
TSC	Total Sanitation Campaign
TW	Tube Well
UGPHC	Upgraded Primary Health Centre
UIDSSMT	Urban Infrastructure Development Scheme for Small and Medium Towns
ULB	Urban Local Body
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WCD	Women and Child Development
WHO	World Health Organisation
WSHG	Women Self Help Group

Chapter-I

1.0 Introduction

Decentralized local planning has been central tenet of development policy. Local level participation has been established as a building block in achieving developmental goals, targeting poverty, improving service delivery, expanding livelihood opportunities, sharpening decision making and strengthening good governance. In principle, participatory approaches that ensure involvement of key stakeholders has been promulgated as a paradigm shift in the planning process during XI Plan Period, by the erstwhile Planning Commission and now *Niti Ayog* under the aegis of preparing “Comprehensive District Agriculture Plan” or C-DAP. Fundamentally, decentralized/localized planning process takes into consideration the prevailing local conditions of the particular region for which the planning is being done and is based on specific localized endowments, resources, needs and priorities of the region/locality. Hence these local area plans reflect the problems and prospects of the region/locality which helps to identify the right set of interventions to move towards prosperity.

The National Development Council (NDC), Government of India in its meeting held on 29th May, 2007 resolved that a special additional central assistance scheme Rashtriya Krishi Vikas Yojana (RKVY) be launched. The NDC resolved that agriculture development strategies must be reoriented to meet the needs of farmers and called upon the Central and State Governments to evolve a strategy to rejuvenate agriculture. The NDC reaffirmed its commitment to achieve 4 percent annual growth in the agricultural sector during the 11th plan. The Resolution with respect to the Additional Central Assistance scheme reads as below.

Introduce a new Additional Central Assistance scheme to incentive State to draw up plans for their agriculture sector more comprehensively, taking agro-climatic conditions, natural resource issues and technology into account, and integrating livestock, poultry and fisheries more fully. This will involve a new

scheme for Additional Central Assistance to State Plans, administered by the Union Ministry of Agriculture over and above its existing Centrally Sponsored schemes, to supplement the State-specific strategies including special schemes for the beneficiaries of land reforms. The newly created National Rainfed Area Authority will on request assist States in planning for rainfed areas.

With this background, Government of India have conceptualized and operationalized “Comprehensive District Agriculture Plan” (C-DAP) as an integral part of the developmental process of the States, during five year planning process. This exercise of preparing C-DAPs for all the districts of the state of Odisha, is a step towards achieving meaningful plan document that would delineate a ‘road map’ and blue print of strategies and actions for the future. The C-DAP aims at providing evocative strategies to respective districts in order to achieve the targeted growth rate of 4 percent in agriculture during the XII plan period, as envisaged by the National Development Council (NDC). Thus, the C-DAPs for respective districts would be inclusive plan documents that set forth location specific strategies in agriculture and allied sector, both in physical and financial terms. The key features of C-DAP would be increase public investment in agriculture and allied sectors resulting in reduction in the yield gaps, maximizing returns to farmers and improving the production and productivity of the different components of agriculture and allied sectors. Under the RKVY scheme, each district is expected to prepare a district agriculture plan taking into account the available resources from the ongoing schemes namely, National Rural Employment Guarantee Scheme (NREGS), Backward Region Grant Fund (BRGF), to mention a few. The district agriculture plan aims at providing a projection for the development of agriculture from within overall development perspective and at the same time, it provides the financial requirements and source of financing the projections.

1.1 Definition of C-DAP

A District plan describes what a district will try to achieve over a medium term, of five years and how it intends to achieve it. A Plan usually contains an analysis of the current situation of the district and particularly its needs and potentials. It should also

contain a statement of objectives and analysis of ongoing as well as new schemes and programmes within the purview of the districts'. It should contain action plan along with the financial outlay with a provision of continuous updating.

1.2 Characteristics

As per the A District Plan should have following characteristics:

- It should be **simple** to read and easy to explain to all the stake holders.
- It should be **logical**. The proposals emanating from the plan should be feasible in light of available information.
- It should take in to account **socio-economic** aspects and local **felt needs**.
- It should ensure **convergence** with all ongoing schemes/ programmes.

In this process, it will be ensured that

- The agricultural plans are prepared for the district and then integrated into the agricultural plans of the State based on the Agro-Climatic conditions, availability of technology, trained manpower and natural resources.
- The local needs / crops / feed and fodder / animal husbandry / dairying / fisheries / priorities are reflected in the plan.
- The productivity gaps for important crops, livestock and fisheries are reduced and the returns to the farmers from these are maximized
- There are quantifiable qualitative changes in the productivities of the above.
- The livestock and fisheries options are given due consideration as an important source of income.

Chapter-II

Policy Direction & Strategic Focus in Agriculture & Allied Sector in the state (3 – 5 pages)

2.0 Introduction

Policy Direction & Strategic Focus in Agriculture & Allied Sectors in the State

a. State Agriculture Policy 2013

The State Agriculture Policy-2013 has been promulgated in Agriculture and allied sectors to ensure growth on sustainable basis and make agriculture as one of the main growth engine for development of the State. Besides giving vigorous momentum, it would also enhance the opportunities for self employment. Impetus has been given on irrigation to the farmers' field, establishment of commercial agri-enterprise including preservation, processing, value added enterprises, dairy and fisheries unit by the unemployed youth / agri-entrepreneurs / farmers.

Historically, Government of Odisha declared a State Agriculture Policy in 1996. Subsequently, State Agriculture Policy 2008 ushered in the desired impetus and stimulated the growth of private lift irrigation and agro industries. More than 1,00,000 lift irrigation points were established and the State saw the growth of many new agro based industries. Farm mechanization reached new heights; the number of tractors sold to the farmers increased from less than 200 tractors in 1999 - 2000 to more than 5000 in 2011-12. Odisha became the largest consumer of power tillers. A sustained and vigorous growth was maintained in agriculture. Considering the high growth of GDP on one hand and nearly 83% of small and marginal farmers in our state; a major reorientation in the agriculture policy has been conceived to make this growth more inclusive.

The key objectives State Agriculture Policy 2013 are elucidated below.

- To bring in a shift from the present level of subsistence agriculture to a profitable commercial agriculture;
- To promote sustainable agricultural development;
- To enhance productivity of important crops by enhancing seed replacement, availability of quality planting materials, INM, IPM, water management, farm mechanization and technology transfer;
- To encourage crop substitution particularly in uplands and medium lands;
- To focus on horticultural crops including dry-land horticulture;

- To focus on poultry, dairy and fisheries to augment the income of the farmers;
- To encourage modern farming system approach;
- To encourage organic farming;
- To enhance water use efficiency through peoples' participation;
- To facilitate increased long term investment in agricultural sectors (on farm as well as off farm) both by private sector, public sector and private & public partnership (PPP), particularly for post harvest management, marketing, agro processing and value addition, etc;
- To encourage contract as well as compact farming;
- To increase access to credit for small and marginal farmers;
- To improve the marketing facilities and access to market information;
- To facilitate appropriate market linkages for agricultural produce with respect to which the State has competitive advantages;
- To implement integrated watershed development programs in watershed areas for Natural Resource Management (NRM), increased crop production as well as on-farm and non-farm income;
- To create appropriate institutions / facilities to undertake regulatory, enforcement and quality assurance activities matching to the emergent needs.
- To redefine the roles and responsibilities of the agricultural extension machinery by suitably restructuring the field extension set up.

**b. Strategic Plan for Green Revolution in Odisha
(Period: 2010-11 to 2014-15)**

This strategic goal would guide all the relevant social partners in their quest to deliver a range of strategies and programmes. These programmes will be generated and implemented in accordance with the following *basic premises* and *value statements*:

- Equitable access to resources and production factors
- The sustainable use of natural and biological resources
- Sound research, science, knowledge and technology systems
- Fair reward for effort, risk and innovation
- Security of tenure for present and future participants
- Market forces to direct business activity and resource allocation
- A clear regulatory framework and effective government services
- Policy consistency and predictability

- Responsive partnerships between the private and public sector in policy formulation and service delivery.

The following outcomes are expected to flow from the successful pursuit of the strategic objectives:

- Increased creation of wealth in agriculture and rural areas
- Increased sustainable employment
- Increased incomes and increased foreign exchange earnings
- Reduced poverty and inequalities in land and enterprise ownership
- Improved farming efficiency
- Improved national and household food security
- Stable and safe rural communities, reduced levels of crime and violence, and sustained rural development
- Improved investor confidence leading to increased domestic and foreign investment in agricultural activities and rural areas
- Pride and dignity in agriculture as an occupation and sector.

The strategies of enhancing crop production and productivity would be mostly three pronged;

- Transfer the evolved technologies through extension machinery to reduce the yield gap in primary enterprises.
- Enable and assist the resource poor farmers for adoption of modern crop husbandry on a sustainable basis and
- Emphasize post harvest management of produce, value addition and suitable market intervention.

The production programme of different crops by the end of 2014-15 would be as under.

Unit: Lakh tones/ *Lakh bales

Crop	Production at the end of 10th Plan	Production target to be achieved by the end of 2014-15
Rice	69.28	80.10
Other cereals	5.04	9.71
Pulses	8.66	12.57
Food grains	82.98	102.39
Oilseeds	6.00	9.57
Fibres	3.63*	5.82*
Sugarcane	28.36	53.20

It has been envisaged to achieve following growth pattern in food grain production during next five years (2010-11 to 2014-15) in order to match the increased food grain demand of the projected population.

Sl. No.	Crop	Targeted Production growth (%) during XI Plan Period
1	Rice	2.23

2	Pulses	13.24
3	Food grains	6.45
4	Oilseeds	3.84

The key inputs to supplement crop production and productivity are seed, fertilizer, integrated pest management, credit, irrigation etc.

- **Seed**

Steps are being taken to increase supply of certified/ quality seeds & enhance the Seed Replacement Rate (SRR). The achievements in SRR by 10th plan and those targeted by the end of 2014-15 are as follows.

Crops	Seed Replacement Rate in %						
	End of 10th Plan	2009-10 (Likely)	2010-11	2011-12	2012-13	2013-14	2014-15
Paddy	6.35	18.90	21.82	23.98	24.81	26.17	27.75
Ragi	1.31	0.68	2.86	3.07	3.07	3.40	3.77
Maize	1.39	3.34	2.74	2.99	3.32	3.57	3.78
Wheat	20.66	42.09	34.57	32.53	32.80	33.07	34.13
Moong	2.15	1.11	6.28	6.37	6.53	6.69	7.02
Biri	2.42	3.20	9.54	9.32	9.51	9.71	10.07
Gram	13.05	28.56	21.65	21.70	21.75	21.80	22.00
Field pea	8.44	11.93	8.85	8.90	8.95	9.00	9.10
Arhar	2.68	2.54	1.93	2.50	2.52	2.55	2.60
Groundnut	22.89	30.68	30.92	31.01	31.21	31.35	31.50
Mustard	14.45	26.69	13.56	13.67	13.78	13.89	14.16
Sesamum	0.10	0.87	0.78	0.80	0.83	0.89	1.00
Niger	1.02	0.13	1.11	1.14	1.24	1.33	1.43
Sunflower	60.71	51.18	33.26	33.50	33.75	34.10	34.50
Jute	42.86	39.10	30.40	30.52	30.77	30.80	30.93
Cotton	3.85	61.78	4.09	4.15	4.15	4.23	4.25

- **Fertilizer**

Consumption of fertilizer in our state is largely dependant on monsoon; drought, flood etc and socio-economic status of the farmers. The per hectare consumption of fertilizer of the State at present hovers around 62 kg/ha which is much below the national average i.e. 113 kg/ha. However, it is proposed to consume 83 kg/ha by the end of 2014-15.

Nutrient	Fertilizer (Nutrient) Consumption in 000'tonnes						
	End of 10th Plan	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Nitrogen	272.50	292.29	354.63	375.91	394.70	414.44	443.45
Phosphorous	108.32	148.58	180.91	191.77	201.35	211.42	226.22
Potash	53.94	78.46	89.19	95.54	99.27	104.24	111.54

Total (N+P+K)	434.73	519.33	624.73	662.22	695.33	730.10	781.21
Consumption in kg/ ha.	52	58.14	70	74	78	81	83

- **Soil Health and Testing**

11 nos. of Govt. soil testing laboratories were functioning in the state with an annual capacity of 1,20,000 samples with 90.83% utilization. It has been envisaged to test 3,00,000 samples per year. Thus the endeavour is for facilitating and promoting Integrated Nutrient Management (INM) through

- judicious use of chemical fertilizers, including secondary and micro nutrients, in conjunction with organic manures and bio-fertilizers, for improving soil health and its productivity;
- strengthening soil testing facilities and provide soil test based recommendations to farmers for improving soil fertility and economic return to farmers;
- improving soil health through green manuring;
- facilitating and promoting use of soil amendments for reclamation of acidic soils for improving their fertility and crop productivity;
- promoting use of micro nutrients for improving efficiency of fertilizer use; upgrading the skill and knowledge of STL/ extension staff and farmers and their capacity building through training and demonstration including demonstration on farmers fields regarding benefits of balanced use of fertilizers;
- ensuring quality control of fertilizers through strengthening of fertilizer quality control facility including training to enforcement officers of State Governments for effective implementation of "Fertilizer Control Order" and upgrading and setting up of STLs/ Fertilizer Testing Laboratories and various activities for promoting balanced use of fertilizers.

- **Plant Protection**

Adoption of integrated pest management (IPM), emphasizing conservation and augmentation of natural enemies of pest such as parasites, predators and pathogens for control of harmful insects and diseases of crops, is being given due thrust for increasing the crop productivity. IPM is organized by the use of pest resistant varieties, seed treatment, crop sanitation, use of bio-control agents and conservation of beneficial insects & pathogens. IPM demonstration-cum-training for crops like rice, maize, cotton etc are also taken up to popularize the practice of IPM under Central & Centrally Sponsored schemes. Annually around 4500 lakh bio

control agents are produced covering 9500 hectares of different crops under biological control.

- **Agricultural mechanization**

Farm mechanization has become utterly essential for timely operation of agricultural activities leading to increase in production and productivity besides reducing drudgery of labour associated with farm activities. It also enables efficient utilisation of agricultural inputs and reduces the cost of production. The Government has been encouraging the farmers to adopt improved farm machinery & equipments by providing financial assistance in form of subsidies and credit facility. The farm power input touched 1.03 KWH/ hect. by the end of 2009-10 and it has been targeted to increase 1.20 KWH/ha by the end of 2014-15.

- **Irrigation**

Irrigation being the lifeline for crop production massive efforts are on to increase the irrigation potential of the state. This endeavour has resulted in creating a potential of irrigating 26.65 lakh hectares during Kharif season and 12.66 lakh hectares during Rabi season. Further, It is proposed to exploit the vast ground and surface water potentials, the state is endowed with, by establishment of more number of shallow tube well, bore wells, dug wells and river/ surface lift points.

- **Agriculture Extension**

Besides providing extension support to the farmers for adoption of various improved technologies the farmers are being trained in the fields of IPM, INM, farm mechanization, post harvest technology, and other aspects of crop husbandry. In view of the extension machinery being squeezed over time the alternate extension need be strengthened and steps are being taken in this regard.

- **Possible Strategies For Enhancing Productivity**

- Selection and adoption of suitable Hybrid / High Yielding varieties (HYV) of crops pertaining to different agro-eco-systems.
- Increasing irrigation potential through installation of Private lift irrigation points.
- Judicious use of irrigation water by construction, proper maintenance and repair of field channels and adopting appropriate water management practices.
- Adequate steps to increase the Seed Replacement Rate (SRR) through Seed Village and Seed Exchange Programme and sale of seeds in each *Panchayat*.

- Improved production technologies now available for each of the unfavorable ecologies, though limited, need to be properly exploited.
- More medium and long range weather forecasts should be made available.
- Increased use of fertilizer, based on soil test reports, well integrated with bio-fertilisers and micronutrients.
- Increased farm mechanization.
- Timely, appropriate and adequate plant protection measures, especially in endemic pockets by Integrated Pest Management (IPM) approach.
- Taking adequate ameliorative measures to reclaim the problem soils.
- Crop diversification from paddy to non-paddy in rainfed upland conditions.
- Consolidation of land holdings for effective farm mechanization.
- Promotion of export oriented Agriculture
- Establishment of processing and storage units.
- Ensuring minimum support price and assured market facilities.
- By providing subsidized electricity to agriculture sector.
- Adequate coverage of crop loss by crop insurance taking G.P/village as a unit.
- Providing adequate input subsidy and crop loan at low interest rates.
- Strengthening research-extension-farmer network.
- Strengthening Infrastructure on all fronts.
- Use of Geographic Information System (GIS) in agricultural technology extrapolation to suit a specific region.

c. Strategic Development Plan of Horticulture Sector in Odisha.

The agro-climatic diversity in the state with its high rain fall distributed over four months of monsoon and a reasonably moderate winter allows for growing a variety of horticultural crops. The agro-climatic conditions are immensely suitable for perennial fruit crops like mango, litchi, guava, oranges and limes; annual fruit crops like banana, pineapple and papaya; spices like ginger, turmeric and chilli, a variety of root and tuber crops and a whole range of vegetables. The low-temperature in hilly areas at higher altitude offer ideal conditions for growing off-season vegetables. Of late floriculture is also showing excellent prospects.

The State thus enjoys a natural comparative advantage for horticulture with possibilities for growing a diversified basket of fruits, vegetables, spices, tuber crops and flowers; whose potential has not been fully exploited. Attempts have been made to exploit the above potentiality while framing strategies for horticulture crops: fruits, vegetables, spices, plantation crops,

floriculture and others. Although there is large demand for horticulture products, some of the major constraints faced by the horticulture sector in Odisha include low productivity, low product and process technology in the value chain, poor human resource, weak marketing and market infrastructure.

Government of Odisha has set an ambitious target to increase the area under horticultural crops by 50% in the next five years i.e. from present level of 13.14 lakh ha to 20.00 lakh ha by 2019-20. It has been proposed to increase the area under various horticultural crops keeping pace with the market demand, internal consumption as well as nutritional security. Further, the availability of irrigation water, area specific crop suitability, climatic and soil conditions have been given due importance. The sectoral proposed area expansion programme is as follows:

**Existing Area, Proposed Expansion & Total Area
under Horticultural Crops**

Sl. No.	Item	Existing Area (In lakh ha.)	Proposed Expansion (In lakh ha.)	Total Area (In lakh ha.)
1	Fruits	3.25	2.39	5.64
2	Vegetables	6.77	1.08	7.85
3	Spices	1.55	0.30	1.80
4	Flowers	0.07	0.07	0.14
5	Plantation crops	2.08	2.40	4.48
	Total	13.74	6.25	20.00

d. Perspective Plan in ARD Sector 2010-2020

Livestock Production had always been an integral part of the rural livelihood systems in Odisha, all through the known history of the state. The predominant farming system in Odisha is the mixed crop-livestock farming system and over 90 per cent of farms of all categories conform to this farming system. The livestock wealth of Odisha is impressive in numbers across all species, constituting a natural resource base with immense livelihood implications, even though productivity levels are very low. Livestock holding in Orissa is equitable as over 80 per cent of all livestock are owned by the marginal / small holders and the land less. Some 80 per cent of all rural households own livestock of one species or the other, or a combination of some of them, cattle being the most popular and therefore, the preponderant species. The sector has ample scope to substantially enhance the production to meet the domestic market demands, create employment and income generating opportunities for the rural poor and enhance their food and livelihood security.

- **Mission**

- To make Animal Resources Development an engine of growth of the rural economy of Odisha, providing income and livelihood opportunities to the people.
 - To make dairying a viable livelihood option for small, marginal farmers and landless persons by strengthening all forward and backward linkages.
 - To enable poor farmers to improve the productivity of animals like sheep, goat and pig.
 - To make backyard poultry a popular and viable subsidiary farming activity in rural area
 - Achieve self sufficiency/ surplus in milk, meat and egg production
 - Enhance per capita availability of milk, eggs, and meat including poultry meat.
 - Enhance availability of feed and fodder for economic dairy farming.
 - Provide efficient veterinary services at the door step of the farmers.
- **GOALS:**
 - Create employment opportunity for 5 lakh farmers in ARD Sector within 10 years.
 - Increase milk production from 1.5 million MT to 3 million MT in the next five years and 4.8million MT by 2020.
 - Enhance sale of milk by OMFED to at least from 1 to 1.5 million litres per day in the next 5 years and 2 million MT by 2020.
 - Increase Meat production to 110 TMT per annum by 2020.
 - Increase egg production from 42 lakhs to 100 lakhs eggs per day by 2020.
 - Increase poultry meat production from 70 TMT to 100 TMT by 2020.
 - Fodder production 200 lakh tons per annum by 2020.

The Perspective Plan of the ARD sector in Odisha for the next 10 years (2010-11 to 2019-20) is based on the Vision 2020.

“To excel as a holistic support system by providing, securing and facilitating effective and efficient services to become self sufficient/surplus in milk, egg and meat by enhancing Livestock productivity along with helping the poor to secure sustainable livelihood through livestock development and management while working in close coordination and partnership with allied institutions”.

e. Perspective Plan in Fisheries Sector 2010-2020

The strength of the fisheries sector in Orissa lies in the large under/ un-utilised freshwater and brackish water resources. By judiciously harnessing these resources, the fish production from the capture and capture-cum-culture fisheries could be substantially augmented to meet the domestic market demands, create employment and income generating opportunities for the rural poor and enhance their food and livelihood security.

During 2008-09, the total fish production of the State was 3,74,822 tonnes (1.31 lakh tonnes marine and 2.44 lakh tonnes inland). The present level of fish

production in the State is about 73% of the overall fisheries potential of 5.14 lakh tonnes. There are around 10 lakh fishermen, of whom 4.50 lakh is marine and the rest inland fishermen. Most of the fishermen villages lack basic amenities like communication, housing, electricity, drinking water, health and sanitary facilities.

The Perspective Plan of the Fisheries Sector in Orissa for the next ten years (2010-11 to 2019-20) is based on the Vision 2020 for Fisheries Management and Development viz, *“To be a leader in the country in sustainable fisheries and aquaculture and improving the food, livelihood security and socio-economic status of fishers.”*

- This Perspective Plan encompasses the entire gamut of fisheries management and development in Orissa, which includes.
- Utilisation of all available water resources as well as new water resources for scientific aquaculture in inland, brackish and marine waters.
- Developing capture-cum-culture fisheries in derelict water bodies, lakes and reservoirs.
- Improve the production and technology for production of fish and shrimp brood stock.
- Improve the supply and quality of fish fingerlings of selected fish species and seed of shrimp, scampi, crab, etc., through a network of State owned and private hatcheries.
- Encourage entrepreneurial development in aquaculture, post-harvest and marketing among the industry, fisheries cooperatives, Self Help Groups including women fishers and individuals.
- Developing and upgrading the infrastructure for production, harvest, post-harvest, transport and marketing of fish and fishery products.
- Support development of post harvest facilities to ensure production of value added fishery products and availability of good quality fish and seafood to consumers.
- Fishermen’s welfare, safety, employment and income generation, livelihood and food security.

The major objectives of this Perspective Plan are:

- Quantitative and qualitative appraisal of the fishery resources and their potential in the State of Orissa.
- Enhancing the productivity and production of fish from the inland, brackish and marine water resources.
- Tapping the untapped potential of aquaculture to contribute to food and nutritional security.
- Bridging the gap between the demand and supply of fish for domestic

- consumption.
- Harnessing the opportunity of expanding export markets for high-value products to increase investment in aquaculture production and processing.
- Capacity building, technological intervention, Human Resource Development,
- Research & Development, Awareness building and Education of fisherfolk and other stakeholders.
- Upgradation of infrastructure facilities in the fishery sector like FH/FLCs, cold chain, road connectivity, etc.
- Upgradation of the overall quality of fish with emphasis on hygienic post harvest handling.
- Encouraging private sector investment across the sector.
- Generating additional employment opportunities in the rural sector for the fishers, educated unemployed youth and others.
- To alleviate the incidence of poverty of traditional fishermen by offering them alternative employment opportunities.
- To develop Chilika fishery as a fully managed, sustainable fishery with stakeholder participation.
- Fisheries resource conservation, management and development through enforcement of relevant Acts, Rules and Regulations.
- Improving fisheries governance and defining resource access, in particular for the poorer sections of the society.

f. Perspective and Strategic Plan for Watershed Development Projects Orissa (2010-2025)

Programme Outcomes/End Results

- Each Watershed Development Project is expected to achieve the following results by the end of the project period:
- All the works/activities that are planned for the treatment and development of the drainage lines, arable and non-arable lands in the watershed area are completed with the active participation and contribution of the user groups and the community at large.
- The user groups/panchayats have willingly taken over the operation and maintenance of the assets created and made suitable administrative and financial arrangements for their maintenance and further development.
- All the members of the Watershed Committee and staff such as Watershed Secretary and Volunteers have been given orientation and training to improve their knowledge and upgrade technical/management and community organizational skills to a level that is appropriate for the successful discharge of their

responsibilities on withdrawal of the Watershed Development Team from the Project.

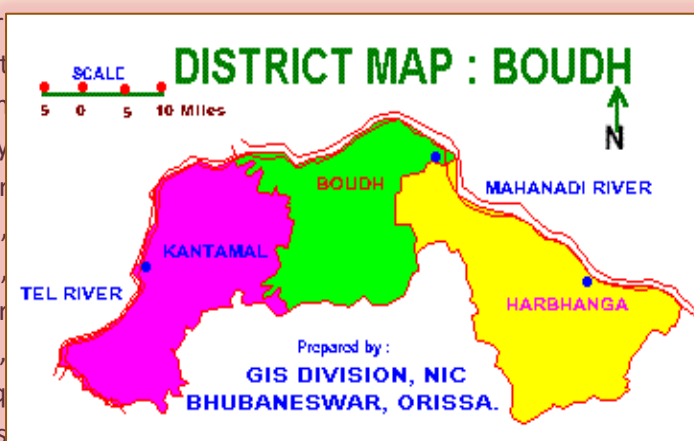
- The village community would have been organised into several, homogeneous self help groups for savings and other income generation activities which would have achieved sufficient commitment from their members and built up financial resources to be self sustaining.
- The increase in cropping intensity and agricultural productivity reflecting in overall increase in agriculture production.
- Increase in income of farmers/ landless labourers in the project area.
- Increase in groundwater table due to enhanced recharge by watershed interventions.
- Increased employment generation for wage employment and self employment
- Reduction in persons/days of migration
- Increased availability of drinking water and its quality
- Success Criteria
- A few measurable and quantifiable criteria are to be fixed for different categories of works/activities under the projects to evaluate their success or otherwise in terms of the stated purposes. The proposed criteria are to be minimal in number as well as in performance standards.
- The proposed criteria can broadly be grouped in 5 categories namely, (a) Physical development (b) Financial management (c) Human capital development (d) Social capital development and (e) Post project sustainability. Specific success criteria under each of the above categories will be decided by State Level Nodal Agency.

Chapter-III

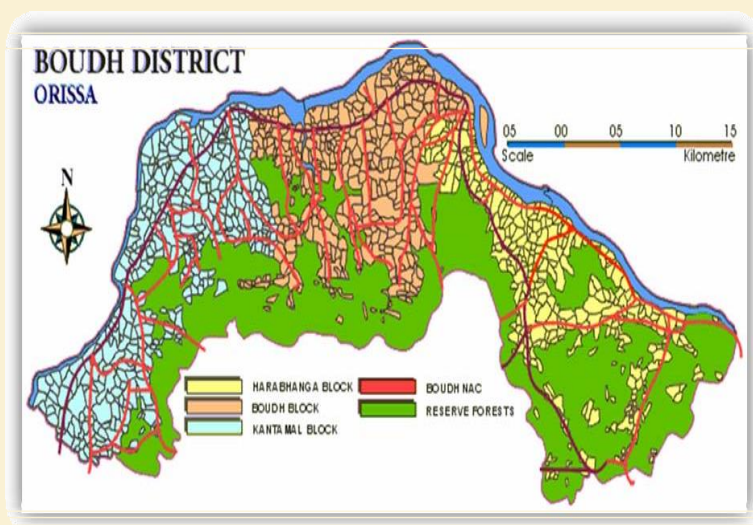
General Description of the District

3.0 District Background

Boudh presents a panorama of many millennia in the human history. It occupies a unique position being endowed with lush green vegetation, different fauna and rich cultural heritage. The district is separated from Phulbani District which was called Bauda- Phulabani earlier. Mostly the Southern part of the district is bestowed with dense forest. Boudh district was formed on 2nd January 1994. Boudh district is bounded by River Mahanadi & Angul District to the north, Kandhamal District to the south, Nayagarh District to the east and River Tel & Subarnapur District to the west, covering a geographical area of 3098 sq km (1.99% of the state), the district lies between 20° 22' N to 20° 50' North Latitude and 83° 34'E to 84°49' East longitude.



Boudh District is concerned with the native rulers of Boudh. Raja Jogindar Dev was benevolent and generous and introduced the English education in the state. During his regime, Boudh has made a considerable progress in the field of modern education and culture. His sudden death in 1913, results in the numerous uprising and rebellions throughout the District, which was successfully suppressed by Raja Narayan Dev. Raja Narayan Dev was the last ruler of Boudh District, when it was merged with Odisha province on 1st January 1948. Finally in 1994, the Boudh was raised to the status of a separate functioning District on 2nd January 1994.



The district consists of only one Sub-Division i.e. Boudh and three Blocks, viz. Boudh, Harbhanga and Kantamal with district headquarters at Boudh. There is no Municipality area in the district. There is 3 Tehsils, 1 NAC, 6 Police Stations, 63 Grampanchayats and 1186 villages. There are 2 Fire Stations and 1 no, of Assembly Constituency in the District. The

climatic condition of the district is subtropical, being hot and dry in summer and cold and dry in winter. The rainy season is hot and humid. In summer temperature reaches 45°C and in winter temperature may come down to as low as 10°C. The total cultivable area of this district is more than eighty five thousand hectares, with paddy land constituting approximately sixty four thousand hectares. Other crops are grown over an area more than twenty one thousand hectares. Irrigation projects, diversion weirs and dug wells somewhat help in sustaining the agriculture of this District. Paddy, wheat, maize, finger millet, green gram, black gram, kulthi, groundnut and mustard etc are some of the major crops grown here.

There are many festivals in the Boudh District that are celebrated by total population of Boudh with great enthusiasm and faith. Festivals like Chuda Khai Jatra, Ratha Yatra, Laxmi Puja, Nuakhai, Shivaratri, Dasahara, Dola Jatra, Puajiuntia and Bhaijiuntia, Ramaleela, Kailashi Jatra, Christmas, Id–Ul–Fitre are the important festivals of the District.

Industry is a source which has lately been contributing to the growth of Boudh District’s economy. A number of small scale industries functions here. They are food based, metallurgical based, textile based, forest based, engineering based and chemical based. Mining industry is another industry which is quite developed and from which the District earns substantial revenues. More than 6000 weavers are engaged in the textile zone of this District.

3.1 Administrative Set-up

The district is mostly rural in character having 1186 villages without any municipality and one NACs. Increasing urbanisation has contributed in developing township in the district falling under three Tahasils. The district is having one town i.e. Boudhin the district. The district head quarter is Boudh. Detail administrative set-up of the district is reflected in the following table.

Geographical Area	3,09,800 ha
Geographical Location	Latitude – 20°.22’ to 20°.50’-N Longitude – 83°.34’ to 84°.49’-E
Geographical Boundary	North- River Mahandai & Angul Dist. South- Kandhamala Dist. East- Nayagarh Dist. West- River Tel & Subarnapur Dist.
Number of Sub-Division	1 (Boudh)
No. of Municipalities/Corporation	0
Number of Blocks	3[Boudh, Harbhanga and Kantamal]
Number of N.A.Cs.	1 (Boudh) No.of Wards - 17
Number of Tahasils	3 (Boudh,Harabhanga,Kantamal)
Number of Police Stations	6 (Boudh,Manamunda,Harabhanga,Kantamal, Bousuni and Purunakatak)
No. of Registration Offices	2 (Boudh & Kantamal)
No. of Treasuries	2 (Boudh & Kantamal)
Number of Gram Panchayats	63
No. of Inhabited Villages	1115
No. of Uninhabited Villages	71

Total Number of villages	1186 [Inhabited - 1115,Uninhabited -71]
Fire Stations	4 (Boudh,Charichhak, Baunsuni and Kantamal)
No. of Jails	1 (Boudh)
No. of Assembly Constituencies	2 (85-Kantamal ,86-Boudh)
<i>Source: http://ordistricts.nic.in/district_profile/dist_glance.php</i>	

3.2 District Demography

As per census 2011, Boudh had population of 441,162 of which male and female are 221,625 and 219,537 respectively. In 2001 census, Boudh was a population of 373,372 of which male was 188,155 and remaining 185,217 was females. Boudh District population constituted 1.05 percent of total Odisha population. In 2001 census, this figure for Boudh District was at 1.01 percent of Odisha population. There was change of 18.16 percent in the population compared to population as per 2001. In the previous census of India 2001, Boudh District recorded increase of 17.55 percent to its population compared to 1991. Density of Boudh district for 2011 is 142 people per sq. km. In 2001, Boudh district density was at 121 people per sq. km. Average literacy rate of Boudh in 2011 is 71.61 compared to 57.73 of 2001. If things are looked out at gender wise, male and female literacy are 83.34 and 59.79 respectively. Total literate in Boudh District are 271,612 of which male and female are 158,648 and 112,964 respectively.

Geographical Area	3,098.00 sq.km	Area under Forest :	128.00 sq.km	in %
Population (2011 Census)	Total		441,162	4.13
	Male		221,625	50.24
	Female		219,537	49.76
	Rural		420,738	95.37
	Urban		20,424	4.63
	Scheduled Caste (SC)		104,934	23.79
	Scheduled Caste Male		52,497	50.03
	Scheduled Caste Female		52,437	49.97
	Scheduled Tribe(ST)		55,364	12.55
	Scheduled Tribe Male		27,362	49.42
	Scheduled Tribe Female		28,002	50.58
Population Density	142 (Per sq.km)			
Literacy	Total Literate		271,612	72.51
	Literate Male		158,648	84.49
	Literate Female		112,964	60.44
	Total Illiterate		169,550	38.43
	Illiterate Male		62,977	37.14
	Illiterate Female		106,573	62.86
Households	Total Households		106,961	
	Rural Households		102,402	95.74

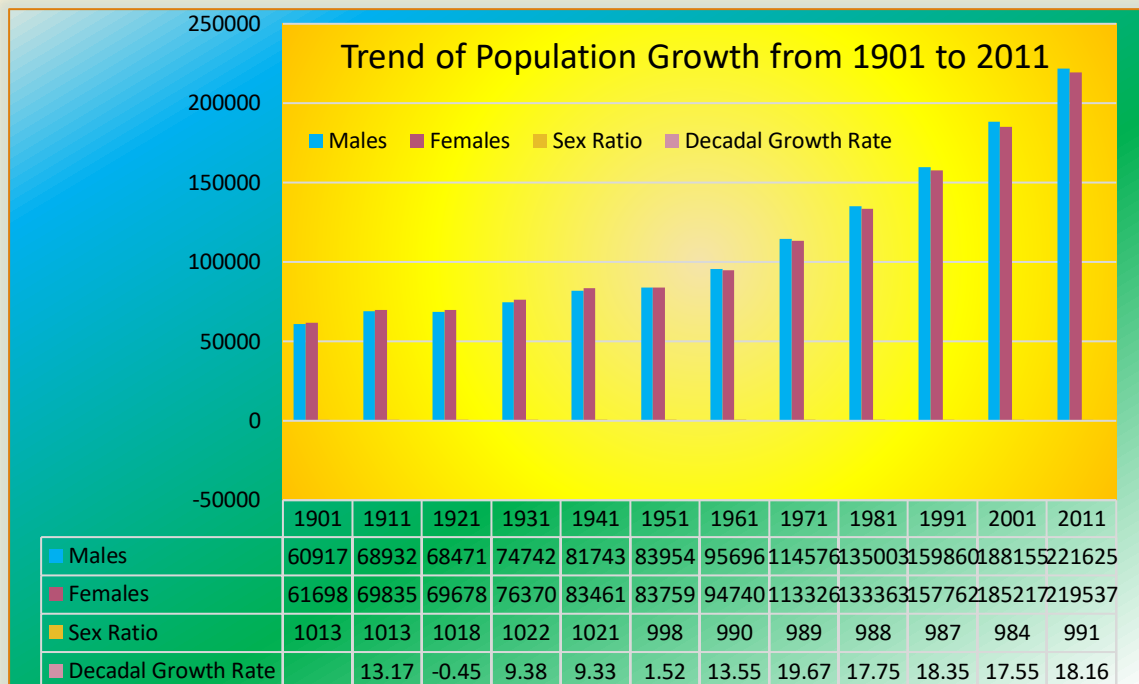
	Urban Households	4,559	4.26
	BPL Households (2001 Census)	4,589	--
	SC/ST Households (2001 Census)	6,889	--
Population Growth			18.16%
Sex Ratio (Per 1000)			991
Child Sex Ratio (0-6 Age)			978
<i>Source: http://ordistricts.nic.in/district_profile/dist_glance.php</i>			

Village Information										Population (As per the 2011)				
Block	Villages		No. of Revenue Villages	Area of villages (ha.)	No. of G.Ps.	Male	Female	Total	S.C.	S.T.				
	In-habitated	Un-in habitated												
Boudh	384	32	420	65506.26	21	73069	72450	145519	34627	16670				
Harabhanga	340	22	354	52456.75	18	63826	63008	126834	35832	15947				
Kantamal	393	16	408	69301.00	24	74238	74147	148385	28979	22250				
Total (District)	1117	70	1182	187264.01	63	211133	209605	420738	99438	54867				
<i>Source: District Census Handbook, 2011</i>														

Table shows that, the SC and ST population accounts for 23.63% and 13% respectively of total population. Population density in the village area is 225/square km. SC population is high Harabhanga and ST population is high in Kantamal. Highest village area and no of GP found in Kantamal district. 992 female are there per 1000 male.

Average literacy rate of Boudh in 2011 were 71.61 compared to 57.73 of 2001. If things are looked out at gender wise, male and female literacy were 83.34 and 59.79 respectively. For 2001 census, same figures stood at 76.23 and 39.02 in Boudh District. Total literate in Boudh District were 271,612 of which male and female were 158,648 and 112,964 respectively. In 2001, Boudh District had 180,321 in its district.

As per 2011 census, 95.37 % population of Boudh districts lives in rural areas of villages. The total Boudh district population living in rural areas is 420,738 of which males and females are 211,133 and 209,605 respectively. In rural areas of Boudh district, sex ratio is 993 females per 1000 males. If child sex ratio data of Boudh district is considered, figure is 979 girls per 1000 boys. Child population in the age 0-6 is 59,737 in rural areas of which males were 30,184 and females were 29,553. The child population comprises 14.30 % of total rural population of Boudh district. Literacy rate in rural areas of Boudh district is 70.84 % as per census data 2011. Gender wise, male and female literacy stood at 82.82 and 58.79 percent respectively. In total, 255,716 people were literate of which males and females were 149,864 and 105,852 respectively.



3.3 Agro –Ecological Situation (AES)

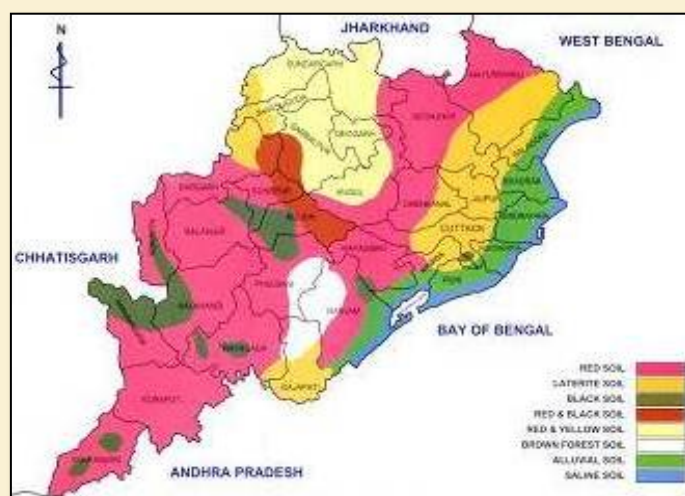
Phytogeographically, the vegetation of Boudh district comes under two major divisions, northern tropical semi-evergreen forest and northern tropical moist deciduous forest. Boudh district comes under West Central Table Land agro climatic zone of the state. The district is covers under one agro climatic zone and two agro-ecological situations as indicated below:

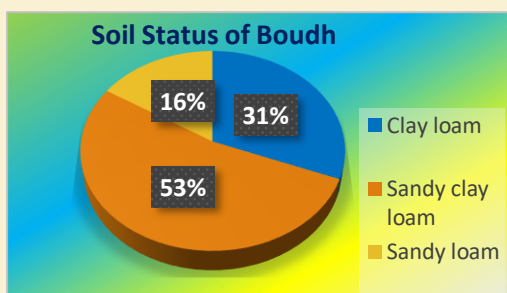
Table 4, ACS and AES of Boudh District

Sl. No	Agro-climatic Zone	Agro-ecological situations	Blocks covered	Broad Soil groups
1	Western Central Table Land	Plain land irrigated	Boudh	Red and Yellow, Red & Black, Black, Brown Forest, Lateritic
		Plateau rainfed	Harabhanga	
		Plain land rainfed	Kantamal	

3.4 Soil

The soil of the district is generally fertile with low status of nitrogen and available phosphoric acid at certain places. Most part of the district has black alluvial soil. The revering blocks of Kantamal, Boudh and Harbhanga is full of black alluvial Soil which is most fertile due to deposit of silt. Out of 3 Blocks, 2 blocks have plane lands and one block has the combination of plane and hilly ranges. The soil of the district has high moisture retention capacity. The soil is quite rich for growing paddy, pulses, oil seeds and cotten.





S. No	Soil type	Characteristics	Area (000ha)
1	Black soil	Clay loam	96.1
2	Mixed red & black	Sandy clay loam	164.3
3	Red soil	Sandy loam	49.6

Figure shows that 53 percent soils are sandy clay loam in nature followed by 31 percent clay loam and only 16 percent are sandy loam soil across the district.

The soils are mostly neutral to acidic in nature throughout the district. Availability of Phosphorous (P) and Potash (K) in soils are high whereas the Nitrogen status is medium in two blocks except Kantamal block. The status of Nitrogen is low in Kantamal block. The block wise soil reaction and fertility status are stated below:

S. No	Name of Block	Soil Reaction			Fertility Index		
		Acid	Normal	Alkaline	N	P	K
1	Boudh	89%	11%	-	1.18	1.43	1.32
2	Harabhanga	70%	30%	-	1.27	1.54	1.23
3	Kantamal	90%	10%	-	1.16	1.70	1.59

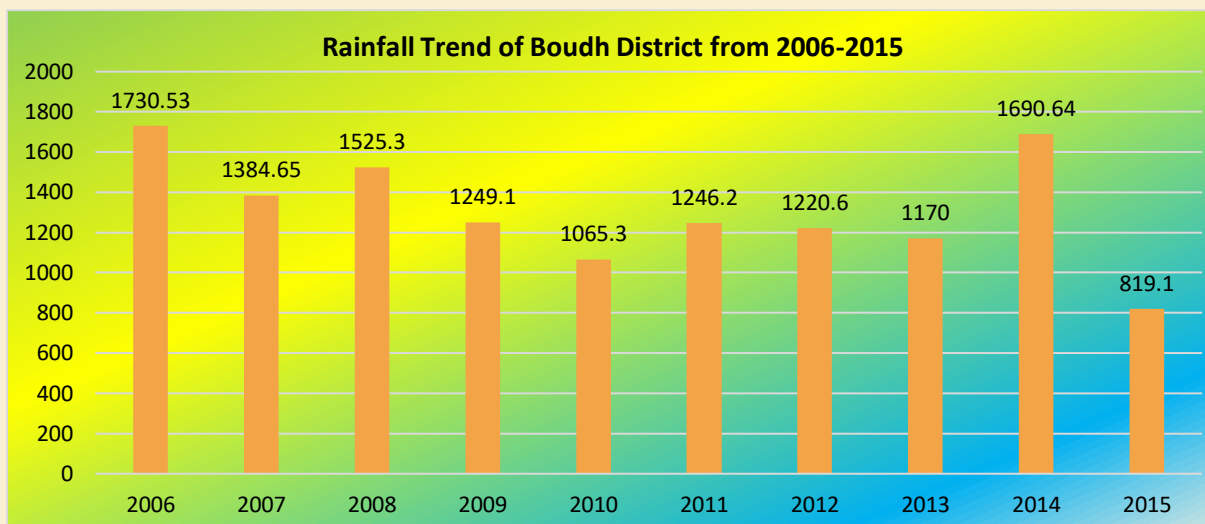
3.5 Topography

Most part of the district has black alluvial soil. The district Boudh covers fertile plains and hilly zones. This area consists of a long strip of level land running parallel to the Mahanadi. Many small streams, tributary rivers, fountain (locally called *jhori*) find their way to the Mahanadi. The river line plains of Boudh are drained by the tributaries of the Mahanadi while the southern and the western region are drained by the tributaries of the Tel. The referring blocks of Kantamal, Boudh and Harabhanga is full of black alluvial soil which is most fertile due to deposit of salt. Out of 3 blocks, 2 blocks have plain lands and one block has got mixture of plain and hilly ranges. The soil of the district has high moisture retention capacity. The soil is quite rich for growing paddy, pulses, oil seeds and sugarcane.

3.6 Climate and Rainfall

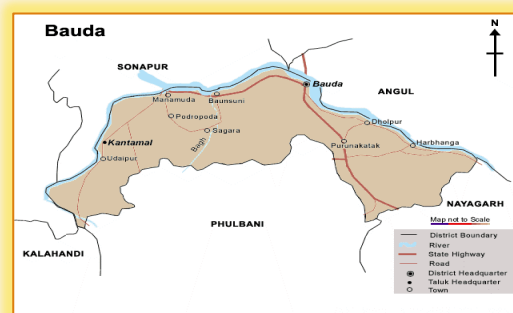
The climate of this district is sub-tropical, hot dry in summer, cold dry in winter, cool and humid during rainy season. In summer the temperature rises up to 45^o C, in winter it falls to 10^o C. December is the coldest month in the year and May is the hottest month. The rainfall is erratic with uneven distribution resulting very frequently either in drought or in flood condition. The monsoon breaks in the middle of June and completely ends in mid-October, causing heavy downpour in July and August. The normal rainfall of this district is 1626 mm. The month wise rainfall are stated below:

S.No	Block	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	Boudh	0.00	0.00	0.00	0.00	73.00	34.20	470.40	479.00	357.30	65.30	0.00	0.00
2	Kantamal	0.00	0.00	0.00	0.00	143.00	57.00	993.90	549.30	327.20	22.20	0.00	0.00
3	Harabhanga	0.00	0.00	0.00	0.00	160.40	18.20	543.70	347.60	344.40	85.80	0.00	0.00
Total (District)		0.0	0.0	0.0	0.0	376.40	109.4	2008	1375.9	1028.9	173.3	0.0	0.0



3.7 River

The principal rivers are the Mahanadi and Tel, which flow around the North Western side bordering Kantamal, Boudh and Harbhanga Blocks, a few small rivers such as Sunamodi, Salur, Khadog and Bagh are originated from the hilly regions of Kandhamal district and flow towards Boudh district and meet with Mahanadi and Tel river. Major portion of this district is flood prone as many rivers pass through this district.



3.8 Forest

Out of the total geographical area of 3,58,292 ha in the district, the area under forest is 1,12,000 ha. Which is 32% of the total area. The forest produce of economic importance in the district are Bamboo, Kendu leaves, Mahua Flowers/Seeds, Siali leaves, Timber, Fire wood, Myrabolam, Gendulingama and Tamarind. Over the years, forest suffered serious depletion due to relentless pressure arising from ever increasing demand for fuel wood, fodder, and timber.

Table 8, Forest Area of the District

Sl. No	Type	Area in Sq. Kms.
1	Total Forest Area	1277.17
2	Reserved Forest	983.33
3	Demarcated Forest	43.48
4	Other Forests	249.34
5	Undemarcated Protected Forest	0.00
6	Un Classified Forest	1.02
7	Forest Division	1 [Boudh]

3.9 Income

The district economy is mainly agrarian and the primary economic activity of the people is cultivation. Many of the people depend on minor forest produce as well. However, the artisans

available are weavers, black smith, carpenters and Basket markets, etc. However, agriculture is the main source of income. The economy of the district is not only unorganized but also non-monetised. The non-monetised economy has given rise to all kinds of exploitations because the tribal people cannot get a good price for the forest and agricultural produce that they used to sell in the market.

3.10 Sources of Irrigation

Substantial investments have been made over the plan period for construction of irrigation infrastructure and creation of irrigation potential in the district. The district has about 35.48 percent land are irrigated. Many major, medium and minor irrigation projects have been constructed during the plan period in the district. To create additional irrigation facilities, the Agriculture Department provided subsidy to farmers for digging of bore wells, dug wells and purchase of pump sets etc. Scrutiny revealed that 18 bore wells, 65 dug wells and 2077 pump sets were provided during 2007-12 to the farmers at subsidized cost. Boudh district is rich in both groundwater and surface water resources. Around 51550 ha (60.52%) of the net cultivable area (85180 ha) is irrigated during Kharif season and 10444 ha (12.26%) is irrigated (assured irrigation) during Rabi season. As against the groundwater utilisable resource for irrigation use at 35618 ha, annual draft for irrigation use is 4938 ha. The current level of exploitation of groundwater potential is only 15.6% of the utilizable recharge as against state average of 18.3%.

Table 9, Sourcewise Area Irrigated (Latest data) (Area in hectares) of the Year 2014-15

Block	Dug/ Tube /Bore Wells		Lift Irrigation		Medium		Minor		Total
	Nos.	Area	Nos.	Area	Nos.	Area	Nos.	Area	Area
Boudh	1181	796	147	3366	2	14884	21	2695	22489
Harabhangra	1494	904	137	2737	1	6989	26	7063	18464
Kantamal	1607	1158	206	5354	1	6853	27	3970	17896
Total	4282	2858	490	11457	4	28726	74	13728	58849

Source: Irrigation Dept.

3.11 Drought

Among the different Kharif crops, the upland rice is most affected by drought. Therefore, diversified land use with low duty non-paddy crops is the best option in these lands. In real sense the technology available to mitigate drought are mostly preventive in "nature and requires early planning. The age-old adage "Prevention is better than cure" thus holds good in drought management. Therefore, it is imperative to have a long-term policy and planning at the beginning of the season for judicious use of water, land and crops in a particular locality for best results. The major thrust in drought mitigation in rain fed areas should be on rainwater management through in-situ conservation and water harvesting through on-farm reservoirs capturing runoff from local catchments, flash flood water from local streams to recycle at the time of need.

3.12 Infrastructure Facilities

Infrastructure is an umbrella term for many activities referred to as "Social Capital". It includes public utilities like power, telecommunications, sanitation and sewerage roads and major dams, canal works, irrigation and drainage, roadways, urban transport, post, waterways and airports. The prosperity of the

district is determined by the achievement it made in creating and developing the infrastructure facilities. Boudh district is well connected by road to different parts of the state.

Table 10, Road and Railway Network in the District

Particular	Year	Unit	Statistics
Length of rail line	2015-16	Kms	0
National Highway	2015-16	Kms	266.11
State Highway	2015-16	Kms	112.5
Major District Road	2015-16	Kms	4
Other district Roads	2015-16	Kms	49.45
Rural road	2015-16	Kms	606.20
G.P.Road	2014-15	Kms	4494
Panchayat samiti road	2014-15	Kms	208
Forest Road	2014-15	Kms	245

The length of surfaced roads is 5687 Kms. in the district. The district has good network of roads but no railway line.

3.13 Industries

Boudh is industrially one of the most underdeveloped district of Odisha. In spite of rich forest resources the industrial sector has remained stagnant over the successive Five-year Plans. The slow growth of industries in the district is due to the absence of sufficient coal and other sources of power, lack of mineral resources, low production of different raw materials, not to mention the inadequate infrastructure facilities, lack of demand for finished products, lack of skilled workers, shortage of capital and entrepreneurial talent. The entire district is not served by any railway line. The district has, however, a railway Booking Counter at Boudh which is served by Rairakhol Railway Station in the neighbouring district of Sambalpur, situated at a distance of 30 km. from Boudh. There is no large scale or medium size industry in the district. The existing industrial unit deals comprise only the small scale and cottage industry.

Table 11, Major Rice Mill in the District

Sl. No	Name of the Unit	Address	No. Workers
1.	M/s. Maa Arnapurna Rice Mill	Kultajore, Block-Kantamal	20
2.	M/s. Om Shanti Paddy Products (P) Ltd.	Majipada, Block-Kantamal	47
3.	M/s. Balaji rice Industries	Tubuda, Block-Kantamal	18
4.	M/s. Sherawali Rice Mills (P) Ltd	Biswanathpur, Block-Harabhanga	30
5.	M/s. Bhabani Rice Mill	Biramchandrapur, Block-Harabhanga	23
6.	M/s. Maa Bhairabi Rice Industries	Landibandha, Block-Harabhanga	49
7.	M/s. Ranisati Paddy Processing (P) Ltd	Purunakatak, Block-Harabhanga	38
8.	M/s. Maa Paddy Industries	Laigaon, Block-Harabhanga	40
9.	M/s. Shree Krishna Rice Industries	Rambhikata, Block-Harabhanga	14
10.	M/s. Maa Pahadiwali Rice Mill	Kamaplpur, Block-Boudh	18

Boudh district is situated at the central parts of the state. The main stay of the people of the district is agriculture and this continues to be practiced in a traditional method. Boudh is industrially categorized as an underdeveloped district. Most of these units have come up in agro-based (rice mills, flour mill etc.), food processing (cashew, pickles, badi & papad, sauce,

biscuits, corn flakes etc.), engineering & allied (automobile repairing & servicing, mechanical workshop etc.), mineral based (granite cutting & polishing, stone chip etc.), textile based and servicing & repairing. Besides the above, the other industries under micro enterprises sector are also functioning in the district. Industry is a source which has lately been contributing to the growth of Boudh District's economy. A number of small scale industries function here. They are food based, metallurgical based, textile based, forest based, engineering based and chemical based. Mining industry is another industry which is quite developed and from which the District earns substantial revenues. More than 6000 weavers are engaged in the textile zone of this District.

3.14 Agro Service Centre

Establishment of Agro-service centre under special drive on self-employment for unemployed youth has been taken up where a set farm machineries for different unit operations in agriculture, will be procured by the beneficiary either by availing loan from commercial financial institution or self-finance. The farmers can take these equipment's in custom hiring basis as and when they need them. One Agro Service Centre will create self-employment for the beneficiary along with four other persons directly. It will also create indirect employment of large numbers of people while contributing towards increasing productivity in agriculture. The minimum target cost of an Agro Service Centre has been fixed Rs. 5.60 lakh. Where the beneficiary is eligible to avail 50% subsidy subject to a maximum limit of 2.00 lakh.

3.15 Development of District Vision and Strategy

Vision for the district was articulated based on the current situation, basic requirement and perspective plan of the district. The district vision balances and amalgamates all the divergent views and blended suitable for the fulfilment of the aspiration of the people of the district. It is based on objective assessment of ground realities and future possibilities. The vision looks to find a way around the limitations the district has been experiencing, fulfilling emerging gaps and overall strategy to deal with the present and expected future challenges capitalizing upon the prevailing opportunities and potentials. The broad vision of the C-DAP has taken into account for integrated holistic development of the district is stated below:

- Ensure food security and livelihood security for all
- Ensure inclusive growth in agriculture and allied sectors
- More focus on climate smart agriculture
- Increase current rate of SRR in the district
- Significant improvement in crop production and productivity
- More emphasis on crop diversification and farm mechanization
- Capacity building of stake holders in agriculture and allied sectors
- Conservation, integration and judicious use of farm resources
- More practise INM, IPM, IDM and IWM
- Better land husbandry practises in agriculture and horticulture sectors
- Prepare a land use plan which should strike a balance between the two apparently conflicting interest i.e. meeting the growing demand for land associated with urbanization

process in one hand and preservation of green verge wet lands for ecological balance on the other hand.

- Integrate the provisions of the C-DAP documents with the subsequent comprehensive development plan preparation.

The vision is not only confined to the agriculture growth of the district at state perspective rather it is visualized to be one of the leading developed districts from the national perspective. By 2020, the district population will increase substantially but people would be better educated, healthy and more prosperous than the present. The economy will prosper without hampering the environment and available natural resources will be optimally used benefiting the district. Industrial growth will go hand in hand with agriculture and better agricultural productivity will be achieved in a self-sustained manner.

“Synchronization of different sectors in such a way that there is **Balanced Development** of the district with a higher growth of 4 per cent from the current level of agriculture growth.

Socio-Economic Growth after C-DAP

1. All the household get round the year wage employment for better livelihoods
2. Technology made available at farmer doorstep
3. Information is being made available in greater quantity and quality than ever before.
4. Infrastructure of the district is becoming sounder than earlier
5. Per capita income from agriculture of people will improve substantially over the years in the district
6. Rate of technological innovation and application are accelerating for higher yield and climate hazards
7. Faster communication is dissolving physical and social barriers, inter and intra district
8. Opening up of new market avenues adhering to globalization and macro level changes.
9. Production and productivity of major crops are increased
10. Educated, efficient and effective human resource base contributing to district development
11. Entrepreneurship among the young mass are rising.

The Challenges Ahead

There is ample evidence showing that if longer term perspective is adopted, which is not misdirected by immediate circumstances and fluctuations, higher rates of growth is achievable for the district in the coming years. This is not simply a prediction rather a potential which the district is having at present. The reality will depend on how effectively we utilise the opportunities to do so. The major factors of economic growth that have accelerated district development process till now needs harvested optimally and objectively to a greater degree in the coming years than they had been in the past.

Ultimately, it is not our capacity for prediction but our action that will determine the outcome. That action needs to be based on proper appreciation of the forces available for accelerating our progress. Assuming that the district achieves this multi-fold, at least 2-3 times of per capita income by 2020, it would attain a level of development far higher than other districts of the country. Our vision is not only to reach the set references at the national levels but also to surpass them in many cases through appropriate action.

Striving to achieve these reference levels and surpass them in some cases will present very significant challenges in so far as the determination and resourcefulness of the country is concerned.

Major Challenges for the District

1. Generation of new employment opportunities for farm families
2. Infrastructure of the district
3. Eradication of poverty and farmers suicide
4. Massive investment in agriculture and allied sectors
5. Accelerated acquisition of technology capabilities to raise productivity in agriculture, industry and services
6. Farm mechanization in agriculture and horticulture sectors
7. Becoming a more important player in the state economy in terms of both trade and investments.

We are confident that we can and will meet these challenges. We also feel that we have the knowledge and the capacity to achieve **food for all, health for all and jobs for all**. What we do not know for sure however is, how long it will take us to accomplish them. We need, therefore, to reaffirm the will and the determination to do it rapidly and achieve it now rather than delaying the process. An essential requirement for envisioning the district's future is to recognize that the equations which determine district development have changed in recent years, opening up greater possibilities than before with macro level changes. The same factors are expected to continue in future and district would be prepared to accommodate those accordingly.

By 2012-17, the district population will increase substantially but people would be better educated, avail basic minimum amenities, healthy and more prosperous than the present. The economy will prosper without hampering the environment and available natural resources like land, water and vegetation which will be optimally used benefiting the district. Industrial growth will go ahead in hand with agriculture and better agricultural productivity will be achieved in a self-sustained manner.

Agriculture is main source of district economy. More than 75 per cent people are directly or indirectly earning their livelihood from agriculture and allied activities (animal husbandry, forestry and fishery), which generate massive employment opportunities for poor and vulnerable people. It is observed that wage employment is available within and nearby the villages for about three months. It is mostly the poor and the very poor households who are working as wage earners. During lean seasons wage earners are forced to migrate distant places such as cities and towns within and outside the state, working for construction and related activities. These households are mainly from the poor and very poor categories.

Animal Husbandry is one of the most significant activities in the rural economy of Boudh district. The livestock resource of this district is very rich (as mentioned in livestock population). It includes a good number of CB cattle and improved buffaloes. The district is also rich in small animal & poultry resources. It has also been estimated that the quantity of livestock produce (milk, meat and egg) is much higher in comparison to the other parts of the state.

By 2017, the district will have the capacity to produce sufficient quantities of food to provide a healthy diet to its entire population and become a major inter district food exporter. By maintaining the required rates of productivity growth for major cereal, the district will be able to meet the projected demand in all major food categories and generate a substantial surplus of food grains and dairy products. Rising productivity and rapid diversification into value-added crops would benefit the

farmers and overall agrarian economy of the rural habitation. Production of required / surplus food will help to ensure eradication of under-nutrition and better access to the farmers for other benefits.

Agriculture and Allied Sector

For increasing agricultural productivity and accelerating agricultural growth of the State, public investments in agriculture sector need to be stepped up substantially. Keeping in view the importance of agriculture in creating employment, generating income and ensuring self-sufficiency in food production, share of agriculture in total plan outlay is considerably enhanced. Emphasis is laid upon providing appropriate rural infrastructure and services along with agricultural inputs for production, productivity and marketing. Irrigation facility is needed to be extended to dry land and rain-fed areas. Instead of constructing big dams and reservoir canal projects, ground water development should be encouraged by providing subsidised credit for construction of wells and tube wells and for purchase of diesel or electric pump sets with ground water recharge option. Other infrastructural facilities like rural road, transport, power supply, marketing and storage should be improved. Agricultural credit should be made available to the needy farmers in time and as per their requirement. For better recovery of crop loans group-lending may be encouraged. Effective extension services would be provided to the farmers.

Farmers would be motivated to diversify their cropping pattern by cultivating more remunerative and cash crops, which include oilseeds, fibre crops, vegetables and fruits. It is expected that state government would provide all-out support for cultivation of crops having export potential. In this regard thrust would be given on development of floriculture and horticulture in the State. District is having vast potential for development of horticulture [different agro-climatic zones have been identified for development of specific fruits, vegetables and spices]. Hill tracts and up land of Boudh district would be suitable for intensive horticultural activities. Cultivation of commercial fruits, use of hybrid vegetable seeds, propagation of off-season vegetable cultivation, establishment of “bio-centres” for production of quality planting materials, use of quality potato seeds, installation of drip irrigation / micro irrigation system etc. are the major thrust areas in horticulture. Cluster approach by horticultural product typology with cold storage facilities may be adopted for propagating horticultural activities. This would help in developing the market and also facilitate establishment of food processing and other downstream activities.

Farmers would be encouraged to follow integrated farming along with dairy, poultry, goatery and piggyery to supplement farm income. A mixed farming system is more desirable from the view point of ensuring better utilisation of farm resources and also to meet the increasing demand for nutritious food and compost.

Also, for adding value to agricultural produce, agro-processing industries would be set up in rural areas. Agricultural inputs like quality seeds, chemical fertiliser, pesticides would be made available to the farmers in time and as per their requirement at reasonable prices. Micro-financing through formation of Self-help groups and Joint liability group would be given due importance. The coverage of crop insurance would be extended and instead of “defined area approach” individualistic assessment of crop loss would be made and accordingly indemnities paid. Land leasing and contract farming may be thought of legalising with proper regulation of its terms and conditions for achieving efficient production and equitable distribution of production gains and opportunities to access institutional finance. Employment opportunities in the nonfarm / off-farm sector would be created by accelerating the pace of agro industries promotion in the district so that growing pressure on limited land and declining size of land ownership holding can be supplemented through agro based enterprises.

Our vision for agriculture and allied sector looks at “achieving sustained growth in production, where natural resources are judiciously utilised and rejuvenated without affecting the natural eco-system, where farmer’s knowledge is decisive and technology is localized, where soil is fertile and yield is high and critical infrastructure is need based, investment flows from all corners and add value to produces, where farmers feel remunerated with smile in face and impact of disaster is negligible, investment is farmer-friendly and welfare is the motto, we visualise such an eminence where everyone prosper and no one sleep in empty stomach and balanced food is available adequately”.

At least a minimum annual rate of 2% growth will be achieved in fishery, animal husbandry and horticulture sectors which are supportive for agriculture. The full potential of the existing ponds, as per the fishery sector policy will be explored where private investment will be mobilised and invested for fish production. The existing potentials will be trapped in shape of renovation / excavation of existing fish tanks and adoption of improved pisciculture technologies. This will help to increase the employment status of the district where skilled or educated persons can get employment.

Same investment strategy would be adopted for enhanced horticultural crop production. More area will be put to horticultural crops especially putting waste and fallow lands under the fold of horticulture. Agro forestry would be another possibility to enhance horticultural production in the district. Adoption of improved varieties, minimising the gestation period, nutrient management, disease and pest management etc. will add to horticultural growth. Looking at the horticultural perspective, schemes of national horticultural mission will be suitably implemented in potential areas. In collaboration with entrepreneurs, these facilities would be created in the district in a PPP or PPCP mode of operation.

Enormous potential exists for increasing the productivity of water in agriculture by methods to raise crop productivity combined with better water management practice. Both urban and rural water resources can be substantially enhanced by widespread adoption of rain-water harvesting techniques, designed to capture run-off water during the monsoon season and channel it to recharge both surface water and underground aquifers. These methods need to be applied throughout the district on a massive scale, both in rural and urban areas. Roof-top water harvesting and channelling it to recharge the ground water table and open wells would be another option for harvesting rain water apart from tossing the water recycling options. It is always desirable to go for restricted water use and scientific treatment and recycling of used water, more particularly in urban set ups.

Animal husbandry would be another most demanding sector in the coming years with the increasing pressure on consumption of milk, meat, egg and other animal products. So, it is required that this sector should grow with a higher pace than many other allied sectors. The district will take up required promotional measures in animal husbandry to achieve a sustained production growth in terms of incentives to farmers for adoption of breed improved facilities, schematic tie up with existing government provisions, appropriate extension support, adoption of technology etc.

Educated youths would be encouraged to take up livestock rearing as business opportunities. Infrastructural support with ancillary processing and marketing units will encourage maintaining the product quality to meet people's demand.

The unbridled growth of population and multiplication of needs have tremendously increased the demands for food, fuel, fodder, fiber, shelter, communication, industry and infrastructure etc. These growing demands are putting pressure on natural resources mainly on land, water and plants, which is now under threat. To ensure future food and water security, the vertical and horizontal expansion of production has to be effected without degrading productivity. A combination of measures would make it possible to increase the land under forest and tree cover from the current level of 1.35% of the state forest area to at least 2.7% of the state forest area. A comprehensive programme of embankment plantation will also lead to more forest coverage and reduce soil erosion.

The district vision 2017 in this regard looks forward to "employment for all" as constitutional right of every citizen, backed by the full commitment of the Government. The district vision looks at enhancing employment opportunities in high employment potential sectors, including commercial agriculture, agro-industry and agri-business; retail and wholesale trade; tourism, housing and construction; IT and ICT-enabled services; transport and communications; education, health and financial services. While all these sectors are already expanding, a wide range of strategies and policies will be made available to stimulate more rapid development of the underdeveloped sectors. Growth in under developed sectors will bring in employment opportunities for educated youths and skill labourers in the district.

Chapter-IV

CHAPTER-IV

Process of C-DAP Preparation

4.1 Background:

At the instance of Department of Agriculture, Government of Odisha, Orissa University of Agriculture & Technology (OUAT) has undertaken the preparation of C-DAP in 30 districts along with State Agriculture Infrastructure Development Plan (SAIDP) and State Agriculture Plan (SAP) of Odisha.

According to the Report of The Working Group on Decentralised Planning in Agriculture for XII Plan period, 2011 suggested that decentralised planning for agriculture and allied sectors is essential, as the local level resources, climate and agro-ecological features dictate success or failure of any intervention. Local level planning therefore, helps to arrive at an integrated, participatory, and coordinated initiative for development of a sub-state geographical area. District plan for agriculture should be a comprehensive document incorporating steps towards development of agriculture and allied sectors, both in physical and financial terms with an objective to achieve sustainable growth in agriculture during the stipulated period.

This document is expected to address (i) all the major issues related to agriculture and allied sectors, (ii) identification of projects and filling of resource gaps (iii) convergence of various State and Central Government programmes, (iv) involvement of all the stakeholders (v) improving the quality of life of the farmers (vi) increasing agricultural productivity and (vii) achieving food security. Therefore, district agricultural planning involves a process of preparing an integrated and comprehensive district agriculture plan taking into account the local needs and the resource (natural, human and financial) potential.

Further, the broad framework of C-DAP preparation was strategized and operationalized based on the C-DAP Manual issued by Planning Commission, 2008. The Expression of Interest (EoI) submitted by OUAT, followed by the 'Memorandum of Understanding' (MoU) signed with Director, IMAGE

representing Govt. of Odisha in Agriculture Department have mutually agreed upon the process to be adopted for preparation of the C-DAPs, SAIDP and SAP.

4.2 Institutional Profile.

Orissa University of Agriculture & Technology (OUAT), the second oldest Agriculture University in the country, was established during 1962 with an overarching mandate of teaching, research and extension in the field of agriculture and allied sectors. This premier technical university draws its expertise from a pool of more than 500 agricultural scientists supported with state of art research laboratories, infrastructure and equipments. The University epitomizes a light house of knowledge, skill and information in the diversified areas though its constituent colleges namely, agriculture, veterinary, fishery, forestry, agriculture engineering, home science along with frontier areas like microbiology, biotechnology, bioinformatics and agri-business management. The district outfits of the University are represented by its regional research stations, commodity research stations, district specific Krishi Vigyan Kendras (KVKs). Each KVK is manned by a team of multi-disciplinary team of extension scientist that provides strategic link between research system and farmer system.

The key institutional features of OUAT are

- Second oldest Agriculture University of India
- Network with ICAR and other SAUs
- Mandated for agricultural and allied education, research & extension
- Pan-Odisha presence with 10 constituent Colleges, 1 CPGS, 12 RRTTS/RRTSS, 7 Commodity Research Stations, 31 KVKs, 10 Agro Polytechnics.
- Team of Multi-disciplinary scientists
- Pioneer in technology generation, refinement, assessment and integration

4.3 Institutional arrangements

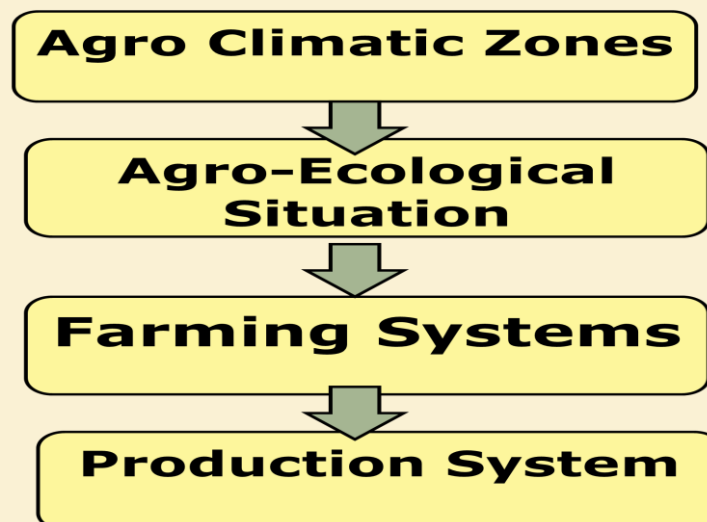
The following institutional arrangements have been made to functionalize smooth C-DAP, SAIDP and SAP preparation.

- **Advisory Committee**
 - Vice-Chancellor, OUAT
 - Principal Secretary, Agriculture Department
- **Steering Committee**

- Dean, College of Agriculture (Chief Nodal Officer)
- Dean College of Vety. Sc. & A.H.
- Dean, Extension Education
- Dean, PGS-cum-DRI
- Director, Polytechnic
- **Expert Team**
 - Former Deans/ Directors/ Professors of OUAT/ Senior Officials of Line Departments.
- **Executive Team**
 - 5 Member multi-disciplinary expert group
- **Technical Support Institution Facilitators for 30 districts**
 - 30 Members multi-disciplinary experts drawn from OUAT.
- **Coordinating Team**
 - Senior officials of line departments
- **District Level Team**
 - 5 district officials drawn Department of Agriculture, Horticulture, Animal Resource Development, Fisheries and one scientist from KVK.
- **Agro-Eco Situation Team**
 - 4-5 block level officials drawn from Agriculture & line departments

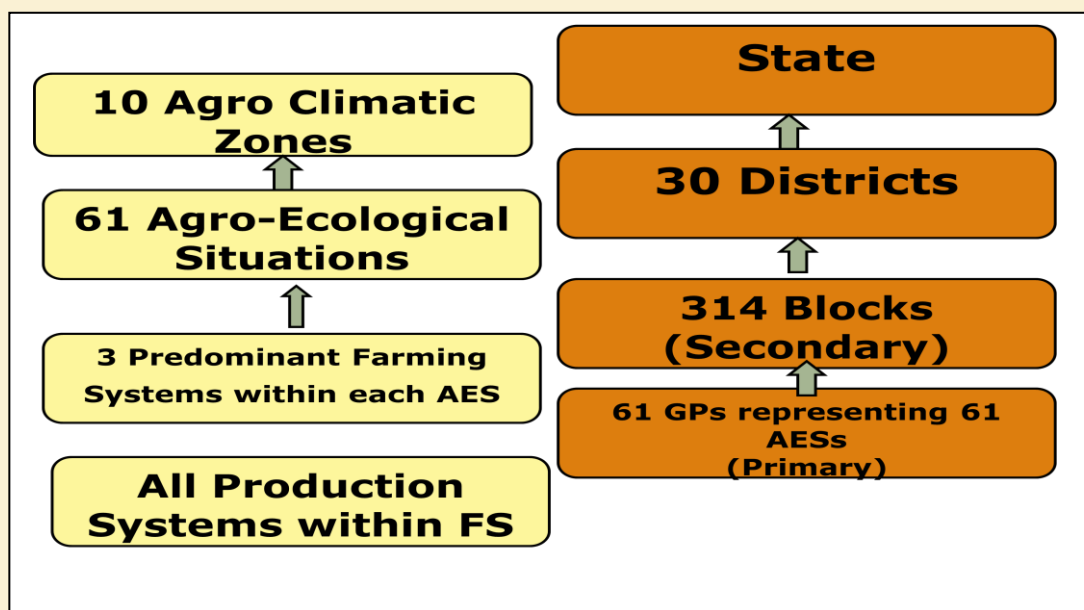
4.4 Logical Framework and Sample Size

The Logical Framework of C-DAP preparation would involve delineation of agricultural units into following categories



In order to cover all the agro-climatic and agro-ecological situations (AES) thereof, the C-DAP preparation would take representative GPs as samples of all the prevailing AESs within a district. Thus, AES would be the planning unit, wherein three predominant 'Farming Systems' would be taken into consideration

and all the 'Production Systems' within the three predominant 'farming systems' would be assessed and evaluated for plan preparation. The AES as agricultural planning unit and samples thereof are depicted below;



Thus, the sample size of C-DAP preparation would be

- 10 Agro-Climatic Zones
- 61 Agro-Ecological Situations (AESs) spread over 120 AES locations in 30 dist.
- 183 Predominant Farming Systems
- All Production Systems viz. crop, vegetables, fruits, livestock, fishery, household within predominant Farming System.
- 314 Blocks & 30 Districts for Secondary Data
- 120 sample villages representing 120 AESs for primary data collection

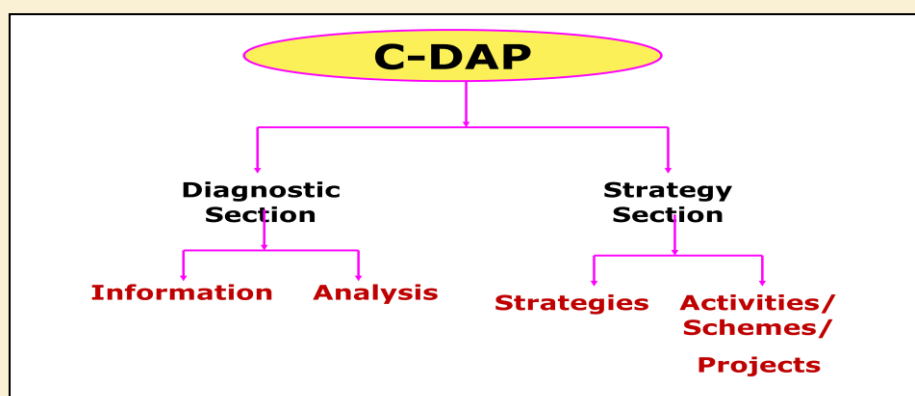
4.5 Scope of C-DAP

The C-DAP would include all the components of agriculture and allied enterprises viz. crops, vegetables, fruits, flowers, livestock, fisheries and other agri-allied enterprises with AES priorities and specificity. Consequently, five agriculture and allied Directorates viz. Directorate of Agriculture & Food Production, Directorate of Horticulture, Directorate of Watershed Mission, Directorate of Animal Husbandry & Veterinary Services, Directorate of Fisheries would come under the 'ambit of planning' and therefore, would form the 'scope of C-DAP' preparation.

It is also envisaged that these five Directorates would extend information, manpower, issue of official communications and other support services like irrigation, power, credit, insurance required for carrying out C-DAPs preparation.

4.6. Content of C-DAP

Each C-DAP would contain two major sections viz. Diagnostic Section and Strategy Section; which would be further categorized into sub-sections viz. Information, Analysis, Strategies and Activities. Diagrammatically, it is depicted below;



4.7. Sources of Data

In order to assess the situation both secondary and primary data would be elicited. An indicative list (not exhaustive) of data to be collected from both the sources are given hereunder

4.7.1 Secondary Data (Indicative)

Secondary data would be collected from state, district and block level offices of the five Directorates and other published sources. Since, the C-DAP is a roadmap of agri-development action plan valid for five years period of XII Plan period, starting from the year 2012 to 2017; but in the mean while three years have already been elapsed, therefore the year information relating to the year 2011-12 would be taken as 'benchmark' and subsequent three years 2012-13, 2013-14 and 2014-15 actual progress made under various heads/ parameters would be recorded. Based on the 'rate of growth' for last 3-5 years time; the projection or likely achievements for the forthcoming years 2015-16 and 2016-17 would be spelt out.

The indicative list of secondary data required for C-DAP preparation is given below;

- ❖ General Features
- ❖ Agro-Ecological situation
- ❖ Agro-Climatic Information
- ❖ Information on land based systems.
- ❖ Demographic data
- ❖ Land and soil
- ❖ Rainfed and irrigated area
- ❖ On-going development, extension and research
- ❖ Information on markets
- ❖ Agro-processing facilities
- ❖ Storage facilities
- ❖ Agricultural credit
- ❖ Input and service facilities
- ❖ Farmers' groups and organizations
- ❖ Private sector organizations and NGOs
- ❖ Information and communication
- ❖ Parameters of climate change etc.

The details of secondary information had been collected by using 69 numbers tables, specifically referring to the C-DAP manual of Govt. of India, 2008.

4.7.2 Primary Data

Similarly, the following primary data (indicative) directly from the farming community would be elicited by using various participatory tools and techniques including focus group discussion (FGD). The primary data would be collected from 61 Gram Panchayats representing equal numbers of AESs of the state. This would provide insight into AES specific issues and opportunities that would shape formulation of regionally differentiated strategies.

- ❖ Farming systems
- ❖ Land and soil
- ❖ Demographic data
- ❖ Rainfed and irrigated area
- ❖ Farming Systems
- ❖ Land and soil
- ❖ Demographic data

- ❖ Rainfed and irrigated area
- ❖ Agro- processing facilities
- ❖ Information on markets
- ❖ Agro- processing facilities
- ❖ Information on markets
- ❖ Storage facilities
- ❖ Agricultural credit
- ❖ Input and service facilities
- ❖ Farmers' groups and organizations
- ❖ Private sector organizations and NGOs

The primary data had been collected using following participatory methods viz.

- *AES wise gap analysis*
- *SWOC Analysis of major production systems*
- *Value Chain Analysis of major agri-commodities*
- *AES wise stakeholder consultation*

4.8. Data Analysis

Data collected from both secondary and primary sources would be analyzed using both qualitative and quantitative methods.

4.8.1. SWOC Analysis of the Farming Systems (Qualitative)

- **Strength** - Within existing farming system and success stories.
- **Weakness** - Within the Farming Systems.
- **Opportunity** - Outside the farming system for optimal exploitation.
- **Challenges** - Outside the farming system threat to natural resource base

4.8.2 Gap Analysis (Quantitative)

The gap analysis would be carried out by comparing recommended/ expected vis-à-vis existing practices. The gap thus arrived, followed by 'reasons of gap' would help in developing strategies

- Production & Productivity Gap
- Infrastructure Gap
- Support Services Gap- Input, Credit, Insurance,
- Marketing Gap- Accessibility

- Information Gap
- Institutional Gap- Research & Extension Services
- Value Chain Analysis

4.8.3 Value Chain Analysis

The concept of ‘agricultural value chain’ includes the full range of activities and participants involved in moving agricultural products from input suppliers to farmers’ fields, and ultimately, to consumers’ tables. Each stakeholder or process in the chain has a link to the next in order for the processes to form a viable chain. At each stage, some additional transformation or enhancement is made to the product – ranging from simply moving the product from point ‘a’ to point ‘b’ (a common value addition of traders for example) to complex processing and packaging. Hence, a value chain is often defined as the sequence of value-adding activities, from production to consumption, through processing and commercialization. Each segment of a chain has one or more backward and forward linkages.

The ‘farm to table’ integration of a chain can increase efficiency and value through reduction of wastage, ensuring food safety, preserving freshness, decreasing consumer prices, and improving farmer prices and incomes. Efficient value chains normally reduce the use of intermediaries in the chain, and strengthen value-added activities because of better technology and inputs, farm gate procurement, upgraded infrastructure (such as cold chains), improved price opportunities through demand-driven production, and facilitation of more secure procurement for food processing and exports.

Thus, Value Chain Analysis of 10 most important agri-commodities in a district have been conducted by the respective KVKs at district level involving farmers, chain actors, extension functionaries and input suppliers.

4.8.4 AES wise consultation

The outputs of secondary data analysis along with AES wise gap analysis, SWOC Analysis and Value Chain Analysis are taken as inputs for AES level

consultations. A team of multi-disciplinary team consisting of block level officials viz. AAO, AHO, BVO, Asst. Director (Fisheries) has been constituted to carry out the AES level consultation with primary stakeholders i.e. farmers, FIG leaders, SHG members. Altogether 120 AES consultations had been conducted for verification of critical issues and opportunities arising out of the analyses of both secondary and primary information. The broad strategies thereof to address the critical issues and opportunities had been delineated.

4.9. Strategy Formulation

The broad strategy formulation would include the following

- Diversification of enterprises
- Technological Intensification
- Sustainability of production system
- Replication of successful enterprises
- Market-led production
- Promotion of farmers' organization
- Public-Private –Community Partnership (PPCP) in prog. delivery
- Interdepartmental coordination
- Dovetailing of on-going programmes
- Development of Regionally Differentiated Strategies

4.10 Activities, Schemes and/ or Projects

Each strategy would be translated into activities which can be either met out of existing scheme/ project or new schemes can be formulated to support the activities. According to the Govt. of India manual on C-DAP, the convergence of resources would be attempted. An indicative list of resource pool management is given hereunder;

- State/Centrally sponsored schemes viz. NREGS, BRGF, NRLM, Bharat Nirman, NHM, NFSM, NPCBB, NFDB, RKVY etc.
- Tied and untied grants from Central and State Finance Commissions.
- Externally aided projects.
- MLA/MP LADs

- Commissioning of food processing industries including small scale industries (fruit processing, canning, etc.)
- Any other sector and district segments of the State Plan
- Possible private initiatives across sectors

4.11. District wise ACZ & AES Delineation for C-DAP Preparation

Sl. No.	District	ACZ	AES	No. of Samples
1	Angul	MID CENTRAL TABLE LAND ZONE	River valley alluvial(Medium rainfall)	5
			Red loam soil(Medium Rain fall)	
			Medium textured red loam	
			Black soil(Low rain fall)	
			Black soil(Medium rain fall)	
2	Balangir	WEST CENTRAL TABLE LAND ZONE	Plain land irrigated	4
			Plain Land Rain Fed	
			Undulating Plain Drought Prone	
			Undulating SUB-mountainous Tract Rainfed	
3.	Balasore	NORTH EASTERN COASTAL PLAIN ZONE	Red laterite-rainfed	6
			Red laterite canal irrigated	
			Alluvial canal irrigated	
			Alluvial rainfed	
			Low lying and flood prone area	
			Saline soil group	
4.	Baragarh	WEST CENTRAL TABLE LAND ZONE	Plain land irrigated	4
			Plain Land Rain Fed	
			Undulating Plain Drought Prone	
			Undulating SUB-mountainous Tract Rainfed	
5.	Bhadrak	NORTH EASTERN COASTAL PLAIN ZONE	Alluvial canal irrigated	3
			Low lying and flood prone area	
			Saline soil group	
6.	Boudh	WEST CENTRAL TABLE LAND ZONE	Plain land Irrigated	2
			Plateau Rainfed	
7.	Cuttack	EAST AND SOUTH EASTERN COASTAL PLAIN ZONE	Costal irrigated alluvium	5
			Rainfed alluvium	
			Rainfed Lateritic	
		MID CENTRAL TABLE LAND ZONE	River valley alluvial(Medium rainfall)	
			Light textured laterite(Medium Rainfall)	

8.	Deograh	NORTH WESTERN PLATEAU ZONE	Low rainfall lateritic soils	1
9.	Dhenkanal	MID CENTRAL TABLE LAND ZONE	River valley alluvial (Medium rainfall)	6
			Light textured laterite (Medium Rainfall)	
			Red loam soil (Medium Rain fall)	
			Medium textured red loam	
			Black soil (Low rain fall)	
			Black soil (Medium rain fall)	
10	Gajapati	NORTH EASTERN GHAT ZONE	Red loam Soil, low rainfall, moderate elevation(300-500m)Moderate irrigation	3
			Black soil, moderate rainfall, high irrigation	
			Laterite soil, moderate rainfall, high irrigation	
11	Ganjam	East and South Eastern Coastal Plain Zone	Costal irrigated alluvium	9
			Rainfed alluvium	
			Costal alluvial saline	
			Rainfed Lateritic	
			Rainfed Red and lateritic	
			Mixed Black & alluvium	
		NORTH EASTERN GHAT ZONE	Black soil, moderate rainfall, high irrigation	
			Alluvial soil, low rainfall, high irrigation	
			Laterite soil, moderate rainfall, high irrigation	
12	Jagatsinghpur	EAST AND SOUTH EASTERN COASTAL PLAIN ZONE	Costal irrigated alluvium	4
			Rainfed alluvium	
			Costal alluvial saline	
			Costal waterlogged	
13	Jajpur	NORTH EASTERN COASTAL PLAIN ZONE	Red laterite-rainfed	3
			Low lying and flood prone area	
			Saline soil group	
14	Jharsuguda	NORTH WESTERN PLATEAU ZONE	Low rainfall lateritic soils	3
		WEST CENTRAL TABLE LAND ZONE	Undulating SUB-mountainous Tract Rainfed	
			Plateau Rainfed	
15	Kaklahandi	WESTERN UNDULATING ZONE	Red soil, medium rainfall, medium elevation	8
			Red soil, high rainfall, medium elevation	
			Red soil, high rainfall. High elevation	
			Red and yellow soil, high rainfall,	

			medium elevation	
			Black soil, medium rainfall, medium elevation	
			Black soil, high rainfall, medium elevation	
			Alluvial soil	
			Forest soil	
16	Kendrapada	EAST AND SOUTH EASTERN COASTAL PLAIN ZONE	Costal irrigated alluvium	4
			Rainfed alluvium	
			Costal alluvial saline	
			Costal waterlogged	
17	Keonjhar	NORTH CENTRAL PLATEAU ZONE	Low elevation, low rainfall	6
			Low elevation, medium rainfall	
			Medium elevation low rainfall	
			Medium elevation medium rainfall	
			Medium elevation high rainfall	
			High elevation high rainfall	
18	Khurda	EAST AND SOUTH EASTERN COASTAL PLAIN ZONE	Costal irrigated alluvium	6
			Rainfed alluvium	
			Costal alluvial saline	
			Rainfed Lateritic	
			Rainfed Red and lateritic	
			Mixed Black & alluvium	
19	Koraput	EASTERN GHAT HIGHLAND ZONE	Farming situation I (Elevation 600-1000m aboveMSL)	4
			Farming situation II (Elevation 300-600m aboveMSL)	
			Farming situation III (Elevation 150-300m aboveMSL)	
		SOUTH EASTERN GHAT ZONE	Medium rainfall-high elevation	
20	Malkangiri	SOUTH EASTERN GHAT ZONE	Midium rainfall-low elevation	3
			High rainfall-low elevation	
			Low rainfall-low elevation	
21	Mayurbhanja	NORTH CENTRAL PLATEAU ZONE	Low elevation, low rainfall	4
			Low elevation, medium rainfall	
			Low elevation high rainfall	
			Medium elevation medium rainfall	
22	Nuapada	WESTERN UNDULATING ZONE	Red soil, medium rainfall, medium elevation	6
			Red soil, high rainfall, medium elevation	
			3.Red soil,high rainfall. High elevation	
			Red and yellow soil,high rainfall,medium elevation	
			Black soil, medium rainfall, medium elevation	
			Forest soil	
23	Nawarangpur	EASTERN GHAT	Farming situation I (Elevation 150-	1

		HIGHLAND ZONE	300m aboveMSL)	
24	Nayagarh	EAST AND SOUTH EASTERN COASTAL PLAIN ZONE	Rainfed Lateritic	1
25	Phulbani (Kandhamala)	NORTH EASTERN GHAT ZONE	Brown forest, high rainfall, high elevation(500-1000m),rainfed Red and yellow soil, moderate elevation(300-500m)moderate irrigation.	2
26	Puri	EAST AND SOUTH EASTERN COASTAL PLAIN ZONE	Costal irrigated alluvium Rainfed alluvium Costal alluvial saline Costal waterlogged Rainfed Lateritic	5
27	Rayagada	NORTH EASTERN GHAT ZONE	Red loam soil,moderate rainfall,high elevation(500-1000m)rainfed Red loam Soil,low rainfall,moderate elevation(300-500m)Moderate irrigation	2
28	Sambalpur	WEST CENTRAL TABLE LAND ZONE NORTH WESTERN PLATEAU ZONE	Table land canal irrigated Table land rainfed Undulating SUB-mountaineous Tract Rainfed Plateau Rainfed High rainfall lateritic soil	5
29	Sonepur	WEST CENTRAL TABLE LAND ZONE	Plain Land Irrigated Plain Land Rainfed Undulating SUB-mountaineous Tract Rainfed	3
30.	Sundargarh	NORTH WESTERN PLATEAU ZONE	Low rainfall lateritic soils Medium rainfall red & black soils High rainfall lateritic soils Medium rainfall black and brown forest soils High rainfall black and brown forest soils	5
TOTAL AESs LIMITED TO 120				120

Chapter-V

Overview of Agriculture and Allied Sector in the district

5.0 District Overview

A large proportion of the population of Boudh district depend on agriculture as their primary source of livelihood as well as building up economic stability. Therefore, the agricultural policies of the government are aiming at bringing an all-round development of agriculture. Agriculture has been accepted as industry because about 85% of the State's people virtually depend on agriculture. The unpredictable weather, ever increasing population and monotonous government policies have made dependence on agriculture a losing position. Agriculture needs massive investments to develop primary infrastructure to meet the basic need of farmers. Extension of innovative ideas, availability of quality inputs, eco-friendly approach and marketing of farm produce makes agriculture a viable livelihood option to fulfil the fundamental need of the rural



people. 80% of the total workforce of the district are cultivators and agricultural labourers who depend on agriculture and allied activities. The Agriculture and allied sector comprises sub sectors like Agriculture, Horticulture, Soil & water conservation, Animal Husbandry, Dairy and Fisheries.

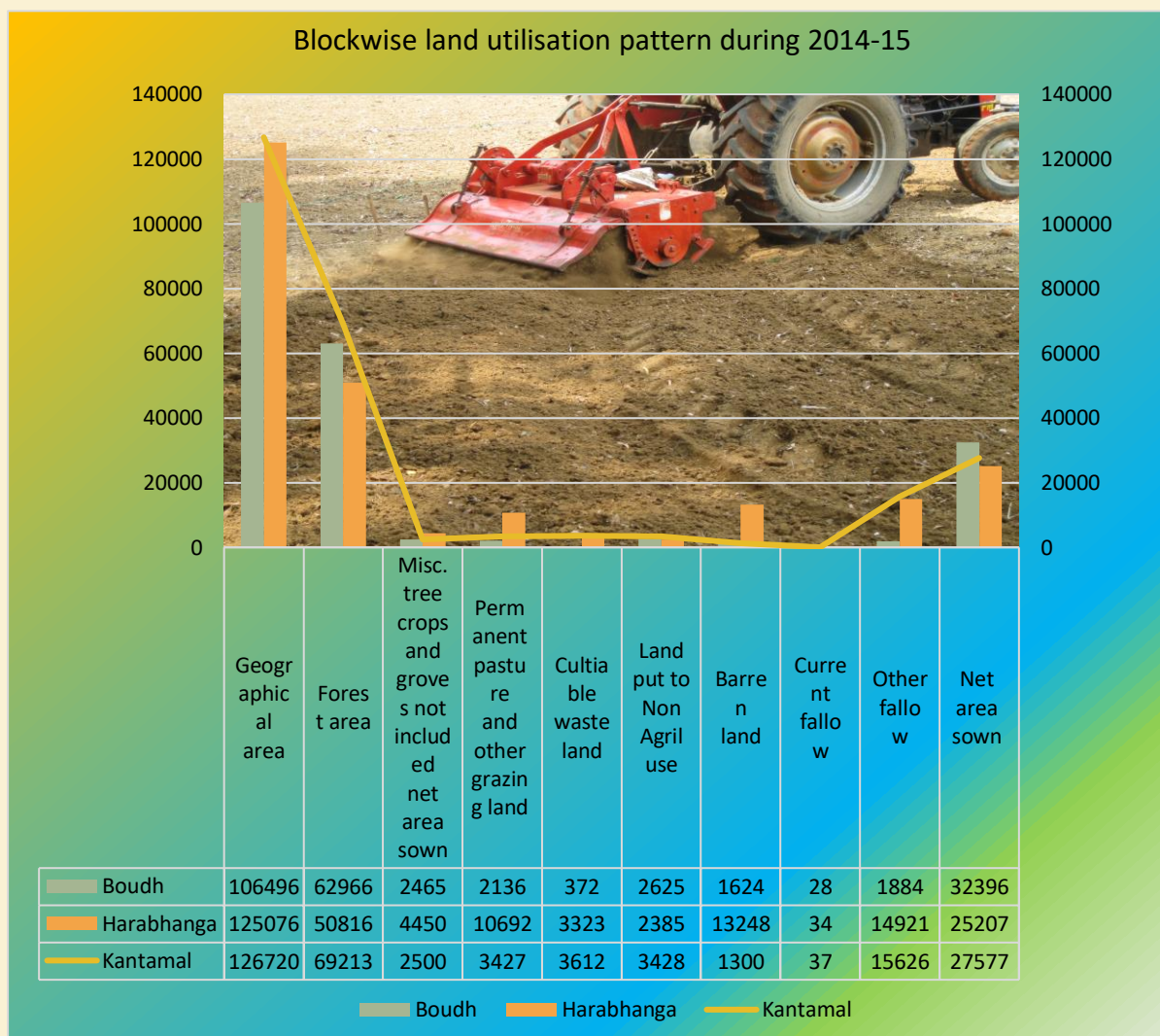
5.1 Overview of Agriculture Production System

Agriculture is lead sector of the district which provides livelihoods to nearly two-thirds of total workforce in the district. The area under irrigation is about 44 percent of the total cultivated area. Agriculture is the backbone of the district economy. Therefore, it is essential to deal with this sector in a proper way to increase 4 % agricultural growth in the 12th fifth year plan. Heavy pressure on land has resulted in large scale unemployment and under employment in the rural area. Boudh district is having 62 % upland followed by 24 % medium and 14 % low land. The district is rich in both groundwater and surface water resources. About 58849 ha (69.08%) of the net cultivable area (85180 ha) is irrigated during Kharif season and 16282 ha (19.11%) is irrigated (assured irrigation) during Rabi season. As against the groundwater utilisable resource for irrigation use at 35618 ha, annual draft for irrigation use is 4938 ha. The current level of exploitation of groundwater potential is only 15.6% of the utilisable recharge as against state average of 18.3%.

Therefore, the challenge before the agriculture department today is to 'produce more from less' i.e., more nutritious food from less land, water and other resources. Another challenge is to protect what

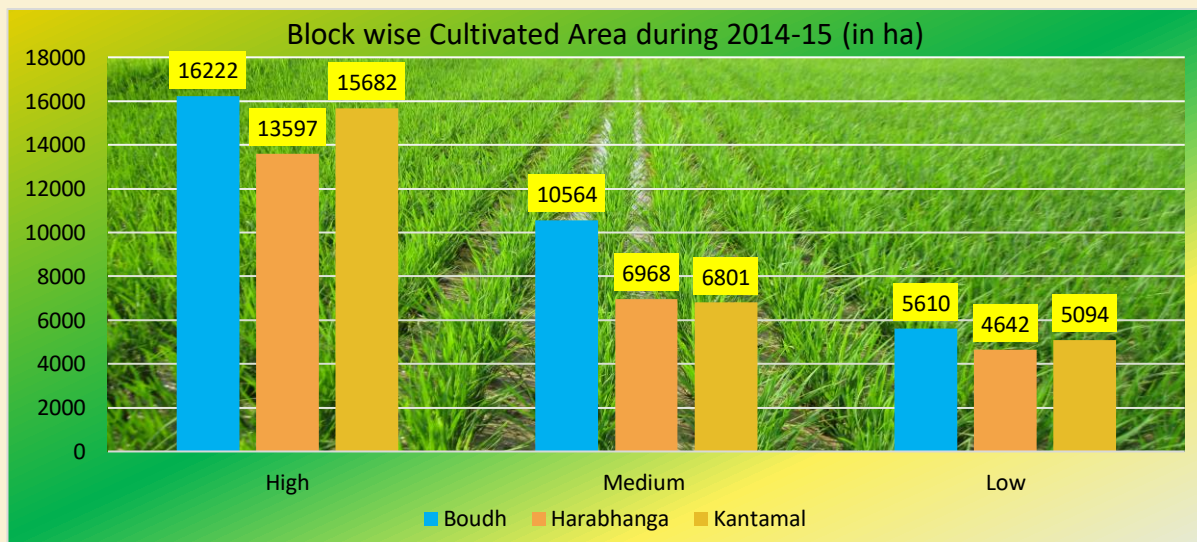
we produce. These can be accomplished only through new technologies as the existing technologies do not seem to be adequate. Recent advances made in biotechnology offer exciting opportunities to address some of these challenges. Transgenic technology in crops is one of the most powerful methods and has already made some breakthrough in this endeavour.

Paddy is the subsistence crop and grown as a major cereal in the district. Apart from paddy, green gram, black gram, gram etc. are grown in the district. Paddy production has substantially increased from 78.89 thousand MTs to 122.59 thousand MTs. The paddy cultivated is an area of 59,439 ha. Out of which medium land paddy area is 23,662 ha followed by upland paddy area is 19,462 ha and low land paddy is 15,346 ha. The district having non paddy area is 26,710 ha. Commercial crops like cotton and potato are grown in the district. The climate is conducive for oil seeds and pulses.



The figure shows that Harabhanga is having highest geographical area of 125076 ha followed by Kantamal 126720 ha and Boudh 106496 ha. But, Boudh is having highest net sown area of 32396 ha and lowest in Harabhanga block of 25207 ha. The details are stated below:

Greengram, arhar and chick pea are the major pulses crop and mustard, groundnut and sesamum are grown in Boudh district. The reason of low productivity of pulses and oilseeds are due to use of local variety and poor crop management practices. The productivity of pulses and oilseeds in the district could be increased by cultivating quality seeds with advance production technology. The yield trend of major crops are stated below:



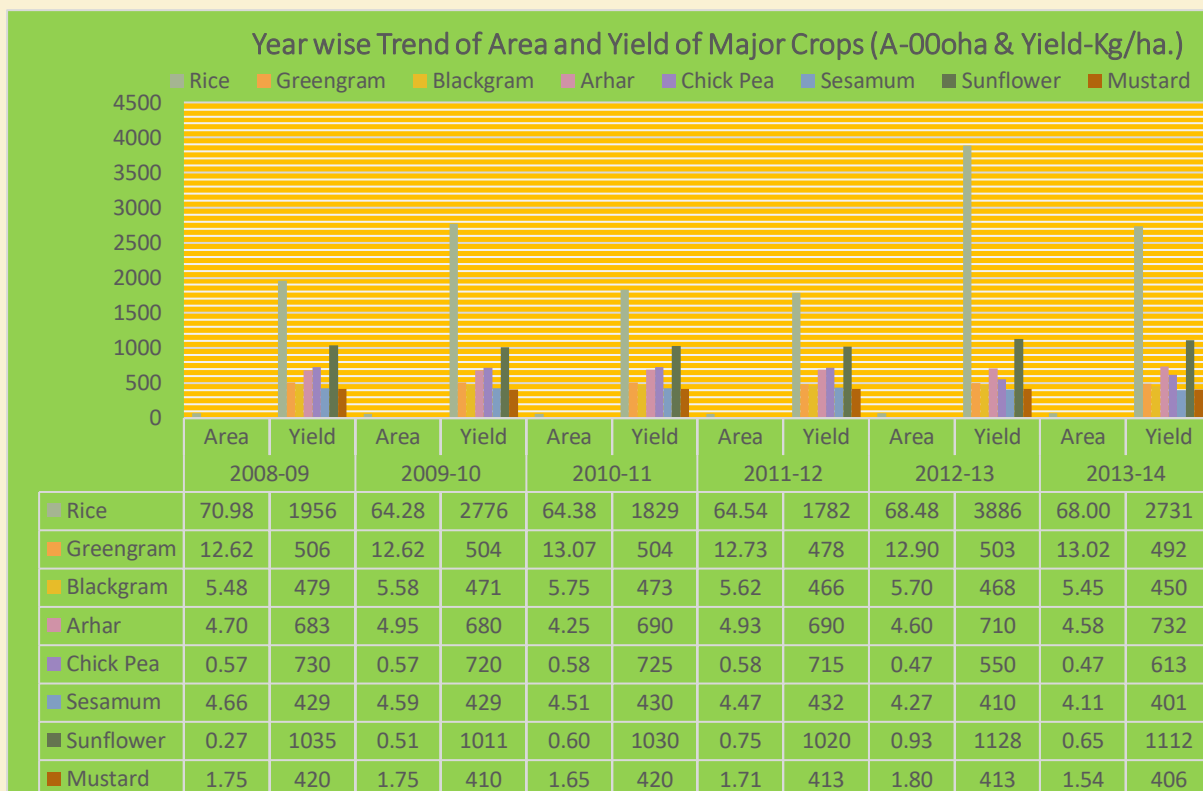


Table 12, Area Yield and Production of Different Crops of Boudh District During 2014-15
(Area- Ha , Yield - Qtl , Production in MT)

Sl No	Name of the Block	Autumn Paddy								
		Local			Hy.Paddy			Total Autumn Paddy		
		A	Y	P	A	Y	P	A	Y	P
1	Boudh	518	15.35	795.13	4465	27.25	12167.13	4983	26.01	12962.26
2	Harabhanga	485	15.86	769.21	2835	29.45	8349.08	3320	27.46	9118.29
3	Kantamal	1425	15.16	2160.30	3356	26.85	9010.86	4781	23.37	11171.16
	Total	2428	15.34	3725	10656	27.71	29527	13084	25.41	33252
Sl No	Name of the Block	Winter Paddy								
		Local			Hy. Paddy			Total Winter Paddy		
		A	Y	P	A	Y	P	A	Y	P
1	Boudh	82	25.60	209.92	18223	46.65	85010.30	18305	46.56	85220.22
2	Harabhanga	65	23.58	153.27	12100	44.25	53542.50	12165	44.14	53695.77
3	Kantamal	225	24.85	559.13	14751	42.08	62072.21	14976	41.82	62631.33
	Total	372	24.79	922	45074	44.51	200625	45446	44.35	201547
Sl No	Name of the Block	Summer Paddy								
		A	Y	P						
		1	Boudh	277	29.25	810.23				
2	Harabhanga	253	27.50	695.75						
3	Kantamal	275	28.60	786.50						
	Total	805	28.48	2292						

The agricultural land of the district has been classified into four broad divisions depending on the gradients of the land (i) Att, (ii) Mal, (iii) Berna and (iv) Bahal. Berna and Bahal are low-lying lands which are mostly used for paddy cultivation. Mal (locally called Majhikhandia) is medium land and Att (locally called Dhepaketa or Dhupa) is high land. Att and Mal are suitable for light crops like pulses, millets, oil-seeds and root crops. The district is having 75922 number of operational

households. Out of which, 62 percent are marginal farmers occupied an area of 25052 ha followed by 26 percent small farmers occupied 26496 ha. Similarly, semi-medium are 10 percent occupied 19156 ha land followed by 2 percent medium farmers occupied 8457 ha. Only 83 farmer comes under large farmers occupied 1105 ha land in the district. The details are stated below:

District	Marginal (<1.0 ha.)		Small (1-2 ha.)		Semi-medium (2-4 ha.)		Medium (4-10 ha.)		Large (>10 ha.)	
	No	Area	No	Area	No	Area	No	Area	No	Area
Boudh	47259	25052	19439	26496	7538	19156	1603	8457	83	1105

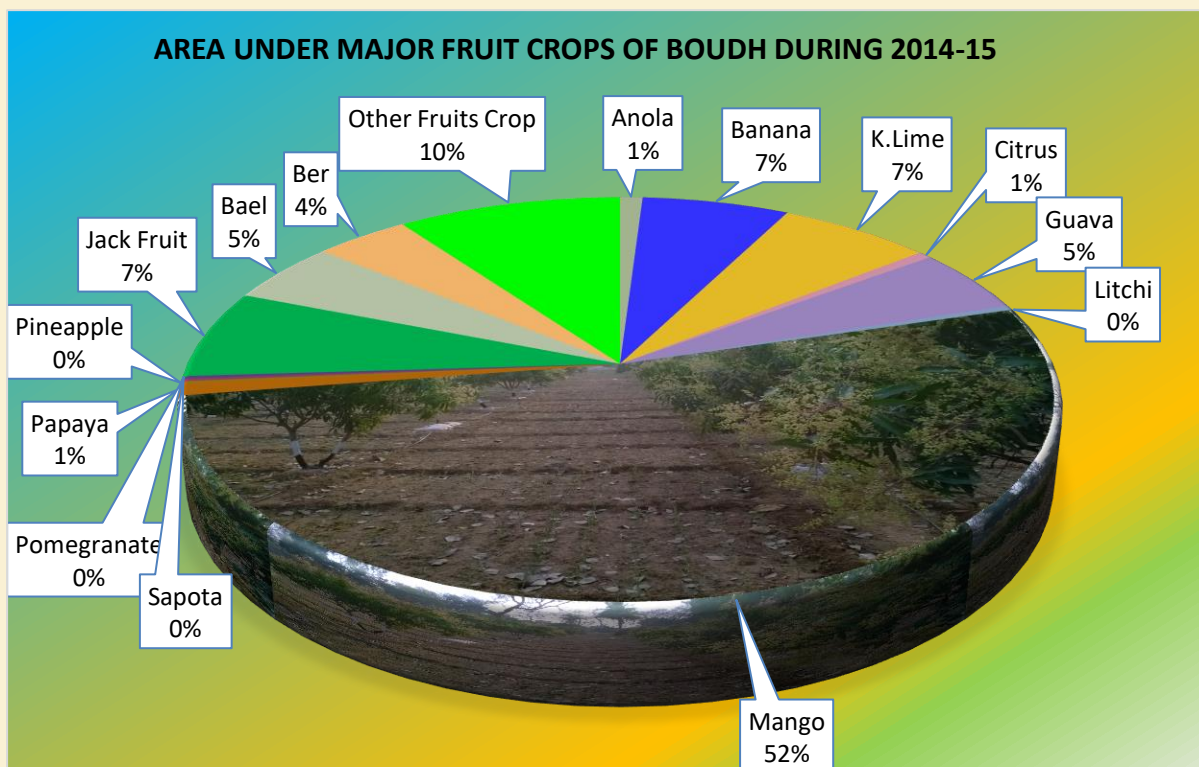
Source: Agril. Statistics 2013-14

The OAIC and other private dealers provide sales and service facilities to the farmers. The ATMA has greater role to play in popularizing the use of modern agriculture implements by holding workshops at village/GP/ Block level. The degree of mechanisation is the primary factor in bringing more area under cultivation, increase in productivity, cropping intensity, and timely completion of the agricultural operations. The total cattle population is 2.76 lakh as against human population of 3.73 lakh. The thrust area of agriculture to increase the production and productivity are stated below:

- Reclamation of acidic soil
- Crop diversification in upland mainly from paddy to non-paddy
- Increasing seed replacement rate
- Variety replacement in low land
- Water management in drought prone areas
- Farm mechanization
- Promotion of INM, IPM, IDM and IWM
- Promotion of organic farming
- Rationalisation of agricultural extension system to the isolated areas
- Construction of farm pond and repair LI points for live saving irrigation
- Minimize the post-harvest losses
- Establishment of market yard and market linkage
- Financial and technical support to the poor farmers

5.2 Overview of Horticulture Production System

The congeniality of agro-climatic conditions and topography of many parts of the district provide an ideal situation for commercial cultivation of various horticulture crops like mango, banana, guava, citrus, flowers, medicinal plants etc. Horticultural crops like fruits and vegetables have high market value and provide higher returns to the farming community. The broad objective for horticulture sector is to expand the areas and productivity of vegetable cultivation, fruit plantation or orchard development. Imparting regular skill up-gradation programme for farmer and farm women can change the district scenario. Propagation of high value crops increases the income over a period of time. Encouragement of micro irrigation like drip & sprinkler, poly house & shed net and judicious use available water resources like LI points and MIP are having huge potential in the district. There is good scope for floriculture, bee keeping as well as mushroom production. The district has covered 17755 ha under vegetables followed by 4436 ha of fruit crops, 2042 ha under spices, 1633 ha plantation crops and 56 ha under floriculture.



In view of the thrust given by the State Government for developing agro-based processing industries capable of providing employment directly & indirectly, this sector needs to be encouraged in a greater way. The major thrust for horticultural development in the district would be on:

- Commercial cultivation of fruits, vegetables, flowers, species and mushrooms
- Production and supply of quality planting materials
- On and off-season vegetable cultivation for better income and livelihoods
- Agro-forestry model
- Introduction new vegetables
- Increasing water use efficiency through micro-irrigation
- More emphasis on organic farming
- Post-harvest management of fruits and vegetables
- Market linkage with leading agencies
- Set up cold storage
- Establishment of greenhouse /poly house
- Value addition of surplus fruits and vegetables
- Commercial cultivation of medicinal plants
- Formation of more number of farmer clubs or Farmer Producer Organisation or Farmer Federation

5.3 Overview of Livestock Production System

Animal husbandry and dairy development have recognized as important economic activities in Boudh district. Next to agriculture, livestock supports the farmers to generate income and employment. The back yard poultry is very relevant for the district mainly for small, marginal and landless farmers. Rearing of goat, sheep and pig are the traditional activity of the OBC, SC and ST population of the district.

Animal resources and dairy development being an integral part of agriculture sector bolster the income of the people having land and without land. This sector also quells the fierce of occurring drought conditions. The various programmes of this sector enable the rural households to keep live stock in any form to generate enormous income. It has opened vast employment opportunities for the landless labourers to maintain their livelihood through small and big ruminants. Simultaneously it has proved, it is relatively supportive in creating self-employment opportunities for unemployed educated youth.

The district is having 7 Dispensaries and 28 Live Stock Aid Centers (2014-15) and 82 Artificial Insemination Centres exist in the district providing insemination facilities to the livestock rearing families. Apart from this, the district is also having 40 Integrated Livestock Development Centre(ILDC) of JKTrust. The district also having 5 numbers Cattle Development centre (CDC) of BAIF. Total cattle population in the district estimated 1, 84,698 numbers as per census 2013. Out of the total numbers, cross breeds are 13,950 and Indigenous are 1, 70,748 numbers. Similarly, Buffalo population is 16,916, sheep-84,613, goat-96,397, Pig-50 and poultry is 1, 03,628. The rate of milk production / milk productivity in the district is directly influenced by the existence of very high proportion of indigenous variety of cattle whose productivity is comparatively less than cross breed or exotic type cattle. The details of veterinary institutions are as follows:

Institutions	Boudh	Kantamal	Harabhanga	Total
Vety. Disp.	3	2	2	7
Livestock Aid Center	10	11	7	28
Cattle Development center (CDC) BAIF	2	2	1	5
Integrated Livestock Development Center(ILDC) JK Trust	18	13	9	40
Gomitra	3	2	4	9
Total Institutions	35	29	23	87
Non AI Center	3	1	1	5
Total AI Center	32	28	22	82
New LAC	3	4	4	11

5.4 Overview of Fisheries Production System

Pisciculture is an important sector for employment generation and supplementation of food. Boudh district is bestowed with a good number of water bodies in terms of tanks, ponds, GP tanks, MIPs Irrigation canals, rivers etc. which make the district potential for pisciculture. There are 1662 nos. of GP tanks with 1563 ha of water spread area, 76 nos. of revenue tank with 55 ha WSA, 574 nos. of private tanks with 314 ha WSA, 26 nos. of MIPs with 254 ha WSA of different water resources available for pisciculture in the district. Out of these water area approximately 690 nos. of GP tanks

with 758 ha WSA , 26 nos. revenue tanks with 28 ha WSA ,371 nos. of private tanks of 190 ha WSA and 16 nos. of MIPs of 122 ha WSA are suitable for pisciculture . Besides rivers such as Mahanadi, Tel, Bagha, salunki, and other canal s also enrich the capture fisheries potential of the district. There are 158 no of fishermen villages in the district with 3958 nos. of males and 3804 nos. of female totalling to approximately 7762 nos. of fishermen in the district who reside on the banks of the rivers depending upon the capture fisheries for sustenance of their livelihoods. The geographical location of the district is responsible for availability of only fresh water, so only the inland fish farming of fresh water pisciculture is practised in the district. The details of fishery resources are stated below:

Table 15, Fishery Resources In Boudh District

SN	Type of Resources	Resource available								Resources suitable for pisciculture							
		Boudh		Harbhanga		Kantamal		Total		Boudh		Harbhanga		Kantamal		Total	
		No	Area	No	Area	No	Area	No	Area	No	Area	No	Area	No	Area	No	Area
1	G.P.Tanks	778	695.91	346	453.77	518	413.44	1642	1563.12	211	297.95	229	253.72	250	206.80	690	758.47
2	Revenue Tank	70	47.20	-	-	6	8.00	76	55.20	20	19.52	-	-	6	8.00	26	27.52
3	Pvt. Tank	290	89.34	142	48.28	241	221.75	673	359.37	135	48.90	117	42.95	218	143.32	470	235.17
4	W.H.S	14	27.40	21	16.18	15	19.32	50	62.90	2	7.20	6	3.40	5	5.30	13	15.90
5	MIP	4	16.60	6	42.40	16	195.00	26	254.00	3	12.50	3	22.40	10	87.24	16	122.14
6	Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Total	1156	876.45	515	560.63	796	857.51	2467	2294.59	371	386.07	355	322.47	489	450.66	1215	1159.20

5.5 Overview of Natural Resource Management System

Soil and Water Conservation are mutually interdependent on each other. It is required to protect soil from various abrasive factors and check excessive accumulation of water. The State Government as well as Government of India continues to lay great emphasis on soil and water conservation. Various initiatives are taken up in the district to control soil degradation and manage the top soil restoration through the implementation of planned schemes. Tree plantation, avenue plantation and implementation of various watershed development projects are undertaken to control the soil erosion rate in the district. Under IWMP programme 62 nos. of micro watersheds in 7 clusters has been taken up for treatment of an area of 36068 ha. The soil & water conservation measures are being taken up in watershed approach from ridge to valley treatment. The following proposed works are to be taken up in coming year i.e, 2016-17.

The unbridled growth of population and multiplication of needs have tremendously increased the demands for food, fuel, fodder, fiber, shelter, communication, industry and infrastructure etc. These growing demands are putting pressure on natural resource base primarily on land, water and plants, which is now under threat. To ensure future food and water security, the vertical and horizontal expansion of production has to be effected without degrading ecological balance. The declining per capita land and fresh water availability coupled with soil erosion and land degradation in Odisha are posing serious threat to environmental, food, social and economic security. The current trend shows soil erosion (about 10 tons per ha per year over 4 tons per year under normal erosion) has increased significantly in the district. Land and water go together and their development cannot be considered independent of each other for sustainability of rain fed areas. The erratic rainfall, rising temperature and occurrence of drought situations at frequent intervals resulting from the climate change have adversely affected economic condition of rural people. To be physically and qualitatively developed

as per the rising global standards, blending conservation measures with development and adoption of sustainable development strategy has to be given added emphasis.

Development through watershed approach is one such developmental option. It aims at alleviating habitat and in-habitant impoverishment through a holistic approach of conservation & sustainable exploitation of natural & human resources considering both of them as part of a system where mutual responsibility and harmonious coexistence matters. This may be the reason why 9th Plan document of Govt. of India have accepted the natural unit of watershed for harmonizing synergies of different resources to realise the livelihood aspirations of the agrarian community. This approach offers appropriate planning of natural resources, especially land, water and vegetation to sub-serve the socio-economic-cultural and community needs of human society.

5.6 Overview of Agricultural Marketing System

Farmers don't obtain remunerative prices of their produce due to inadequate facilities. Besides, value addition and preservation at the peak period of harvest of agricultural produce are required. Hence basing on the need of the problem some extension strategies have been suggested.

It is a commonly observed that the market for farm produce is not assured for the farmer. There is no security of fair prices on reaching the market. There is no organized system of selling products by the farmers. Farmers carry their products to these markets through head loads or through by-cycle. The average quantity of selling farm produce is minimal. Sometime majority of farmers sell their products to small traders within the village also. Since the people are not aware of the market rate / government support price, most of the times they sell their produces under rate. They are also being exploited by middle men & small traders. To overcome this situation, market policy should be well defined and accessible to all.

5.7 Fact Sheets

Table 16, Land Utilisation Statistics (Year 2012-13, 2013-14, 2014-15) (Area in hectares)												
Block	Year	Geographical area	Forest Area	Land Under Non-agril. use	Cultivable waste	Permanent pastures	Land under miscellaneous tree crops and groves	Current Fallows	Other Fallows	Net sown area	Gross cropped area	Cropping intensity (%)
Boudh	2012-13	106496	62966	2625	400	2136	2465	28	1884	32368	46468	143
	2013-14	106496	62966	2625	400	2136	2465	28	1884	32368	46696	144
	2014-15	106496	62966	2625	372	2136	2465	28	1884	32396		
Harabhanga	2012-13	125076	50816	2385	3357	10692	4450	34	14921	25173	39811	158
	2013-14	125076	50816	2385	3357	10692	4450	34	14921	25173	39662	157
	2014-15	125076	50816	2385	3323	10692	4450	34	14921	25207		
Kantamal	2012-13	125720	69213	3428	3649	3427	2500	1300	15626	27540	38160	138
	2013-14	125720	69213	3428	3649	3427	2500	1300	15626	27540	38198	139
	2014-15	125720	69213	3428	3612	3427	2500	1300	15626	27577		
Total (District)		357292	182995	8438	7307	16255	9415	99	32431	85180	124439	146

Source: DDA, Boudh

It reveals from the above table that the Kantamal is with highest with geographical area (35.1%) followed by Harabhanga (35%) and then Boudh (29.80%). Forest area is 51% of total geographical area. 37% of total forest is found in Kantamal block which is maximum followed by Boudh and Harabhanga. Gross cropped area is highest in Boudh district owing to maximum irrigated area 22489Ha (38.2%) of total irrigated area. Cropping Intensity is maximum in Harabhanga (158%). There is potential to enhance the CI, if irrigation infrastructure of overall dist. strengthened.

Table 17, Soil Fertility Indices (Figures in Percentage) (For latest year)

Sl. No	Block	PH			EC (ds/m)			% of Area under Soil Salinity	Organic Carbon			Available N (Kg/ha)			Available P (Kg/ha)			Available K (Kg/ha)		
		Acidic	Neutral	Alkaline	Low	Medium	High		Low	Medium	High	Low	Medium	High	Low	Medium	High	Low	Medium	High
1	Boudh	99	1	0	100	0	0	-	88	12	0	-	-	-	32	68	0	69	31	0
2	Harabhanga	95	5	0	100	0	0	-	89	11	0	-	-	-	39	61	0	68	32	0
3	Kantamal	96	4	0	100	0	0	-	89	11	0	-	-	-	35	65	0	76	24	0
Total (District)		96	4	0	100	0	0	-	89	11	0	-	-		36	64	0	71	29	0

Source: http://www.odishasoilhealth.org/csc_stl/fertility-status-report.aspx Based on 2014-15 data only

It reveals from the above table that all the parameters to soil fertility indices show a uniform trend for all block. 64% of soil are medium in available P and 71% of soil are low in available K. Soil data base need to be strengthened for real time data interpretation. GP level soil map must be developed to address the ready recommendation problem.

Table 18, Micronutrient Status (Figures in Percentage)(For latest year)

Name of the Block	Boron (B)		Iron		Manganese		Zinc (Zn)		Sulphur (S)	
	Sufficient	Deficient	Sufficient	Deficient	Sufficient	Deficient	Sufficient	Deficient	Sufficient	Deficient
Boudh		Deficient						Deficient		
Harabhanga		Deficient						Deficient		
Kantamal		Deficient						Deficient		
Total		Deficient						Deficient		

Source: DDA, Boudh

The table shows that micronutrient data is not sufficient to draw an effective conclusion. AAS facility for micronutrient analysis is not available in existing STL. So individual micronutrient profile is yet to develop in coming years. No of micronutrient testing per annum should be raised.

Sl. No	Name of Block	Rainfall		Temperature		Humidity (%)	
		No of rainy days	Average rainfall(mm)	Min. ^o C	Max. OC	Min	Max
1	Boudh	68.1	1623.10	10 ^o	45 ^o	51	72
2	Harabhanga	68.1	1623.10	10 ^o	45 ^o	44	73
3	Kantamal	68.1	1623.10	10 ^o	44 ^o	45	72
Total (District)		68.1	1623.10				

It reveals from the above table that the district received an average rainfall of 1623.10 mm where maximum temperature is 45^o C and minimum temperature goes down to 10^oC during January. Similarly maximum humidity recorded 72% and minimum is 44%.

Sr. No	Block	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	Boudh	0.00	0.00	0.00	0.00	73.00	34.20	470.40	479.00	357.30	65.30	0.00	0.00
2	Kantamal	0.00	0.00	0.00	0.00	143.00	57.00	993.90	549.30	327.20	22.20	0.00	0.00
3	Harabhanga	0.00	0.00	0.00	0.00	160.40	18.20	543.70	347.60	344.40	85.80	0.00	0.00
Total (District)		0.0	0.0	0.0	0.0	376.40	109.4	2008	1375.9	1028.9	173.3	0.0	0.0

The table shows that the maximum rainfall of 2092.4mm received by Kantamal block which is 23.8% above and over average rainfall of 1690.6mm. Rainy days extends over May to October month. Still Kantamal block is prone to drought situation every year. It may be due to the fact that maximum rain water got wasted to River system due to Upland topography. Steps must be taken to harvest and conserve the rain water.

Block	Tanks		Open Wells		Dug /Tube/Bore Wells		Lift Irrigation		Medium		Minor		Creek	Total	
	Nos.	Area	Nos.	Area	Nos.	Area	Nos.	Area	Nos.	Area	Nos.	Area	Area	Nos.	Area
Boudh	-	-	-	-	1181	796	147	3366	2	14884	21	2695	-	-	22489
Harabhanga	-	-	-	-	1494	904	137	2737	1	6989	26	7063	-	-	18464
Kantamal	-	-	-	-	1607	1158	206	5354	1	6853	27	3970	-	-	17896
Total (District)	-	-	-	-	4282	2858	490	11457	4	28726	74	13728	-	-	58849

Source: Strategy

The table shows that irrigated area is maximum in Boudh (38%). There is sufficient scope for increasing irrigated area of the district if Mahanadi and Tel river water is lifted to upper slope area. Proper maintenance of existing LI points. De-siltation of existing MIP and minor projects. Increasing the catchment area of all existing MIP. Maintenance of previously constructed water courses. Lifting the canal seepage water to the canal to meet the tail end demand.

Name of the Farm	Total area (ha)	Cultivable area (ha)	Irrigated area (ha)	Infrastructure available						
				Animals (Nos)	Implements (Nos)	Farm Pond / well /	Seed Processing plant (Nos)	Go down capacity	Temporary Shed Average	Other
KVK	20	5	-	-	6	2	-	-	-	-
Paljhar	129.25	91.90	36	-	27	2	1	200	250	-
Total (District)	149.25	96.9	36	-	33	4	1	200	250	-

Source: KVK Annual Report 2014-15 / FS Paljhar

It reveals from the above table that only 28% of total area of Paljhar farm is irrigated. Scope is there to enhance the irrigated area of the farm. Go-down capacity must be increased to 300 tones. Fund must be placed to fence the farm to protect the standing crop from stray animals. Regular man power must be positioned to supervise and look after the daily work. Fund is a problem for land development of rain-fed portion of farm.

Name of the Farm	Total area (ha)	Cultivable area (ha)	Irrigated area (ha)	Crop	Seed production during (in Qtls)				Proposed Seed Production (qtls)	
					2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
KVK, Boudh	20	5	-	Arhar	1.60	5.20	10.00	3.00	16.00	20.00
Paljhar	129.25	91.90	36.00	Paddy	177.60	525.40	547.40	720.20	1080.00	1080.00
Total	149.25	96.9	36		179.20	530.60	557.40	723.20	1096.00	1100.00

Source: KVK Annual Report 2014-15/ F S Paljhar

Table shows that paddy seed production data of 2014-15 indicates a yield of 20q/ha from the irrigated area. Yield must be enhanced by adopting new technology. Rest 56 ha of rain-fed area must be diverted for cultivation of short duration of upland paddy variety or non-paddy seed like oilseed and Pulses. Steps should be taken to bring more rain fed land of farm for irrigation facility.

Achievement 2012-13		Achievement 2013-14		Achievement 2014-15		Proposed plan for 2015-16			Proposed plan for 2016-17				
No. of Nurseries	Area under mother plants	Production of seedlings / grafts	No. of nurseries	Area under mother plants	Production of seedlings / grafts	No. of nurseries	Area under mother plants	Production of seedlings / grafts	Investment for development	No. of nurseries	Area under mother plants	Production of seedlings / grafts	Investment for development
1	-	227407	-	-	444881	1	-	578842	100000	1	-	800000	100000
3	22.5 AC	60000	3	22.5 AC	80000	3	22.5 AC	85000	5000000	5	32.5 AC	110000	125000
Total	22.5 Ac	287407	3	22.5	524881	4	22.5	663842	5100000	6	32.5	910000	225000

Source: KVK Annual Report, ADH

Table shows that the production of seedlings/grafts are increasing every year to meet the farmer's demands at district level. Proper plan has been formulated based on the resources available at district level. During 2012-13 the production of seedlings/grafts were 287407 nos. Similarly in 2013-14 and 2015-16 the seedlings/grafts are 524881 nos. and 663842 nos respectively.

Table 25, Soil Testing Laboratories in District

Soil Testing Laboratories Under	No of Soil Testing Laboratories			Annual Analysing Capacity	No. of Samples Analysed
	Static	Mobile	Total		
Govt. Sector	1	-	1	10000	0
Co-operative & Public U-taking	-	-	-	-	-
Private Sector	-	--	-	-	-
Total	1		1	10000	0

Source: DDA, Boudh

Table shows that one laboratory belongs to state govt. which is yet to be functional. Full fledged man power must be provided to laboratory as soon as possible.

Table 26, Facilities Available in Agri Polyclinics including Aqua shops

Block	Name of Agri polyclinic	Facility available (Yes or No)										Average No. of farmers benefited/ year	Average Receipts/ year (Rs)
		Farmers Training	Demonstration	Diagnosis of Soil & Water Samples	Diagnosis of Pest & Diseases	Production of Vermi compost	Green House	Dormitory facility	Library	Museum (Crop/ implement)	Computer with modem		
Boudh	KVK, Boudh	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2500	100000.00
Boudh	ADH, Boudh	Y	N	N	N	Y	Y	N	N	N	Y	50000	117500.00
Total												52500	217500.00

Source: KVK Annual Report, ADH

Table shows that two Agri Polyclinics are operating in the Boudh district and farmers are directly benefited through the multifarious activities.

Table 27, Training Infrastructure Available for Capacity Building in Agriculture and Allied Department								
Sl.No.	Name of Block	Name of the Department	Name of Training Institute (Location)	Year wise no. of personnel trained			Training Halls (Capacity)	Training Equipment's
				2012-13	2013-14	2014-15		
1	KVK, Boudh	KVK	KVK, Boudh	2207	2265	2000	450 sqfts	Laptop, LCD Projector,
2	Boudh	Fisheries	FTI, Balugaon	5	-	7	-	-
3	Boudh, Kantamal	Horticulture	AHO Office, Boudh & Kantamal	Nil	Nil	100	50 nos.	Laptop, LCD Projector,
4	Boudh	Agriculture	FIAC, Boudh	-	-	-	50 nos.	LCD Projector
5	Harabhanga	Agriculture	FIAC, Harabhanga	-	-	-	50 nos.	LCD Projector
6	Kantamal	Agriculture	FIAC, Kantamal	-	-	-	50 nos.	LCD Projector

Source: KVK Annual Report, Fisheries, ADH, DDA

Table shows that most the institutions are having training hall. They are regularly imparting training programme on different topics as per their action plan. KVK is having boarding facilities for farmer and farm women in his office premises.

Table 28, Training Infrastructure Proposed for Capacity Building of Agriculture and Allied Department										
SlNo	Name of Block	Name of the Department	Name of Training Institute (Location)	Yearwise no. of personnel to be trained		Training Halls Required (Capacity)	Training equipment's	No of training faculty required	Recurring funds/year (Rs in lakh)	Non recurring funds (Rs. in lakh)
				2015-16	2016-17					
1	Boudh	KVK	KVK, Boudh	2200	3000	900 sqft	LCD	5	4.00	10.00
2	Boudh & Harabhanga	Horti.	ADH, Boudh & AHO,	Nil	Nil	150 nos.	LCD Projector	1	2.00	2.00
Total								6	6.00	12.00

Source: KVK and ADH Boudh

It reveals from the above table that a common training institute at district level with boarding and lodging facility are to be established. (At least 100 bed). District level agri. museum hall for Agriculture and allied sector must be there for real time exposure of farmers in side district.

Table 29, Proposed Plan for establishment/ renovation of Agro-Polyclinic Facilities for Farmers at Block Level

Taluk	New Agro polyclinics proposed	Govt./ Non Govt.	Funds for overall establishment (Rs. In Lakh)	Capacity generated (No. of farmers)	Renovation of Old Agro Polyclinic (No.)	Requirement of Funds for renovation of old/establishment of new agro polyclinics		
						Type of Facility Required	Financial Requirement (Rs. In Lakh)	Additional Capacity generated through farmers training (No. of farmers)
Total	-	-	-	-	1	Physical	10.00	1000 per annum

Source: KVK

Table shows that 10 lakh is required to renovate the existing polyclinic at KVK. So that KVK will impart more numbers of training programme for the farming community in the district. New initiatives need be taken up to establish agro polyclinic in three blocks for better technical knowhow.

Table 30, Planning for Farmers Training Programme Related to Agriculture and Allied Departments (Rs. in lakh)

Sl. No.	Name of Block	Name of technology to be transferred	No. of training Institutes available for training	No of farmersto be trained and fund requirement				Total	
				2015-16		2016-17		Phy	Fin
				Phy	Fin	Phy	Fin		
1	Boudh	Pond Management	-	5	0.25	7	0.35	12	0.60
2	Harabhanga		-	5	0.25	7	0.35	12	0.60
3	Kantamal		-	5	0.25	7	0.35	12	0.60
4	Boudh	Hitech Horticulture	1	100	0.50	200	1.00	300	1.50
5	Harabhanga	Mango, Banana, Onion	1	100	0.50	200	1.00	300	1.50
6	Kantamal	Potato, Oil Palm, Micro Irrigation	1	100	0.50	200	1.00	300	1.50
7	Boudh	CSBT, Capacity Building	1	250	1.48	340	1.90	590	3.38
8	Harabhanga	CSBT, Capacity Building	1	220	1.34	280	1.62	500	2.96
9	Kantamal	CSBT, Capacity Building	1	280	1.62	400	2.18	680	3.80
Total				1065	6.69	1641	9.75	2706	16.44

Source: Fisheries, ADH Boudh, DDA

It reveals from the above table that 1065 number of farmers are targeted to be trained during 2015-16. Similarly for the year 2016-17, 1641 farmers will be trained in three blocks of the district.

Name of Block	No. of Agro-Service	Classification				
		Seed/fertilizer supply	Irrigation systems	Farm equipment and machinery	Agriculture consultancy	Diagnostic services provided
Boudh	5	-	-	5	-	-
Total	5	-	-	5	-	-

Source: DDA / DAO, Boudh

Table shows that agro service centre is essential at GP and block level to meet the farmers demand. Mainly farmers are small and marginal, they can't not afford for hiring farm machinery for farm operation. Nor labour is also the problem for inter cultural operation. The district level initiative need be taken up to establish agro service centre in every block.

Crops	Block	Area (ha)					Production (MT)	Yield (q/ha)
		Irrigated	%	Rain fed	%	Total	Total	Average
Paddy	Boudh	20227	87%	3061	13%	20227	107401	46.11
	Harabhanga	13347	86%	2138	14%	15485	62142	40.13
	Kantamal	16056	81%	3701	19%	19757	73056	36.98
Total		49630		8900			242600	41.44

Source: Agril. Statistics 2013-14

Table shows that paddy production is significantly is higher than Kantamal and Harabhanga blocks. More support service is required to increase the paddy productivity in Kantamal and Harabhanga block.

Crops	Taluk	Area (ha)					Production (Mt)	Yield (q/ha)
		Irrigated	%	Rain fed	%	Total	Total	Average
Mung	Boudh	465	13	3205	87	3670	1761.6	4.80
	Harabhanga	432	14	2743	86	3175	1428.8	4.50
	Kantamal	503	19	2102	81	2605	1224.4	4.70
Total		1400		8050		9450	4414.8	4.67

Source: Agril. Statistics

Table shows that more area of moong and other pulses are to be included particularly Arhar in rain fed upland. There is scope to enhance Rabi irrigated area by increasing capacity water harvesting structure.

Sl. No	Block	Crop	Area					Production					Yield t/ha		
			Irrigated	%	Rain fed	%	Total	Irrigated	%	Rain fed	%	Total	Irrigated	Rain-fed	Average
1	Boudh	Mango	--	--	1370 Ha	100%	1370 Ha	--	--	3205.8 MT		3205.8 MT	--	2.34 MT	2.34 MT
2	Kantamal	Mango	--	--	1400 Ha	100%	1400 Ha	--	--	3276 MT		3276 MT	--	2.34 MT	2.34 MT
3	Harabhanga	Mango	--	--	1341 Ha	100%	1341 Ha	--	--	3137.94 MT		3137.94 MT	--	2.34 NT	2.34 MT
4	Boudh	Banana	120 Ha	100%	--	--	120 Ha	28 MT	--	--	--	28 MT	0.23 MT	--	0.23 MT
5	Kantamal	Banana	75 Ha	100%	--	--	75 Ha	17.5 MT	--	--	--	17.5 MT	0.23 MT	--	0.23 MT
6	Harabhanga	Banana	100 Ha	100%	--	--	100 Ha	23.3MT	--	--	--	23.3MT	0.23 MT	--	0.23 MT
7	Boudh	Onion	446 Ha	100%	--	--	446 Ha	6338 MT	--	--	--	6338 MT	14.21 MT	--	14.21 MT
8	Kantamal	Onion	150Ha	100%	--	--	150Ha	2131 MT	--	--	--	2131 MT	14.20 MT	--	14.20 MT
9	Harabhanga	Onion	350 Ha	100%	--	--	350 Ha	4969 MT	--	--	--	4969 MT	14.19 MT	--	14.19 MT

Source: ADH, Boudh

Table shows that mango is the major fruit crop of the district followed by banana and lemon. The climate is conducive for fruits and vegetables. Other crops like onion has huge potential of the district. More area to be covered under onion, mango and banana in all three blocks.

Table 35, Area, Production and Productivity Trend of Main Crops in the District (Area – ha, Production–q, productivity –q/ha)																
Sl. No.	Name of Crop	2012-13(Actual)			2013-14 (Actual)			2014-15 (Actual)			2015-16 (Projected)			2016-17 (Projected)		
		A	P	Y	A	P	Y	A	P	Y	A	P	Y	A	P	Y
1	Banana	234	53.55	0.22	295	68.8	0.23	274	62	0.22	30	67.8	0.22	350	79.20	0.22
2	Potato	157	6497	41.3	175	1324.6	7.56	361	103	28.7	40	1148	28.70	450	12916.62	28.7
3	Tomato	1950	19145	9.81	210	21452	10.2	237	328	13.8	25	3460	13.84	255	35292.17	13.8
4	Onion	890	12646	14.2	920	1063.7	1.15	946	134	14.2	10	1421	14.21	105	14920.88	14.2

Source: ADH, Boudh

Table shows that during 2012-13 and 2013-14 maximum area covered under Banana, Potato, Tomato and onion in the district. Less areas have been planned for the year 2015-16 and 2016-17.

Table 36, Planning of Agriculture Inputs in the District –Seed			
Sl.No	Name of the Crop	Area under Crop (ha)	Present Seed Replacement Ratio %
1	Paddy	58470	42.54
2	Maize	530	--
3	Ragi	55	--
4	S. Millets	25	--
5	Pulses	14195	--
6	Oil Seed	3200	--
7	Fibre	275	--
8	Vegetable	7620	--
9	Spices	810	--

Source: Kharif Strategy 2015

Table shows that SRR is paddy is significantly higher than other crops in the district. More care need to be taken up for other crops. Availability of non-paddy seeds must be provisioned at block level to meet farmers demand. Local pulse variety are having higher adoptability by the farming community in the district.

Table 37, Crop wise NPK Consumption during 2014-15 (95.9 Kg/ Hect)						
Sr.No	Block	Major crops	Fertiliser Consumption (MT)			
			N	P	K	Total
1	Boudh	Paddy	1955.60	809.50	371.10	3136.20
2	Harabhanga		1419.10	633.95	278.50	2331.55
3	Kantamal		1693.70	704.25	302.40	2700.35
Total			5068.4	2147.7	952.0	8168.10

Source: Agriculture Statics, Boudh Rabi 2014-15

Table shows that district fertilizer consumption rate is more than state average. Steps must be ensured for efficient utilization of all applied fertilizer. Wholesale (go-downs) points of both government and private sector must be renovated and properly maintained. Loss of nitrogenous fertilizer due to high go-down temperature. High humidity liquefies diff. fertilizer owing to their hygroscopic nature. Presently there are 4 private wholesale point, 2 at each Boudh and Kantamal block and 2 government wholesale point at Boudh- one belongs to MARKFED and another OAIC. Steps must be ensured to enhance the capacity of existing godown.

Particularly this is a problem in peak Kharif season when due to lack of sufficient storage capacity our district lose a monthly quota of fertilizer from central allocation. But in later period we face a shortage of fertilizer.

Table 38, of Fertiliser Requirement during Kharif							
Sl.No	Block	Fertiliser Grade	Use of fertiliser (tonnes) During 2012-13(Actual)	Use of fertiliser (tonnes) During 2013-14(Actual)	Use of fertiliser (tonnes) During 2014-15(Actual)	Projected Use of fertilizer (tonnes) 2015-16	Projected Use of fertilizer (tonnes) 2016-17
1	Boudh	Urea	-	-	-	3280.00	-
		DAP	-	-	-	945.00	-
		MOP	-	-	-	495.00	-
		SSP	-	-	-	295.00	-
		Total complexes	-	-	-	1415.00	-
		Total mixtures	-	-	-	-	-
		GrandTotal	-	-	-	6430.00	-
2	Harabhanga	Urea	-	-	-	2330.00	-
		DAP	-	-	-	720.00	-

		MOP	- - -	- - -	- - -	370.00	- - -
		SSP	- - -	- - -	- - -	275.00	- - -
		Total complexes	- - -	- - -	- - -	1125.00	- - -
		Total mixtures	- - -	- - -	- - -		- - -
		Grand Total	- - -	- - -	- - -	4820.00	- - -
3	Kantamal	Urea	- - -	- - -	- - -	2810.00	- - -
		DAP	- - -	- - -	- - -	795.00	- - -
		MOP	- - -	- - -	- - -	415.00	- - -
		SSP	- - -	- - -	- - -	260.00	- - -
		Total complexes	- - -	- - -	- - -	1300.0	- - -
		Totalmixtures	- - -	- - -	- - -		- - -
		GrandTotal	- - -	- - -	- - -	5580.00	- - -
4	Boudh District Total	Urea	4423.45	7484.95	5558.20	8420.00	9260.00
		DAP	1075.40	1330.40	1486.55	2460.00	2706.00
		MOP	709.90	800.20	701.85	1280.00	1408.00
		SSP	21.05	2.50	0	830.00	913.00
		Total complexes	3147.31	4240.35	4655.5	3840.00	4220.00
		Totalmixtures					
		GrandTotal	9377.11	13858.40	12402.1	16830.00	18507

Table shows that district fertiliser demand needs to be enhanced through effective planning at district level. The current distribution system of fertilizer need to be strengthened across the district for timely availability of fertiliser to the famers.

Sl. No.	Block	Pesticides used	Actual Use			Requirement	
			2012-13	2013-14	2014-15	2015-16	2016-17
1	Boudh	Liquid, WP, Granule	-	-	-	19210	-
2	Harabhanga	-	-	-	-	12485	-
3	Kantamal	-	-	-	-	16170	-
Total		-	-	-	-	-	-

Source: DDA, Boudh

Table shows that the demand of plant protection chemical is significantly higher in Boudh and Kantamal block during 2015-16. Requirement of plant protection chemicals are increasing every year due to more infestation of diseases and pests. Retail sale points of pesticides should be increased in Harabhanga Block where it is less than other two blocks of the district.

Sl.No	Name of Implement	Name of Improved farm implements and farm machineries (Proposed)	2015-16 (In Nos.)	2016-17 (In Nos.)
1		Tractor	100	130
2		Power Tiller	100	80
3		Paddy Reaper	8	25
4		Trans planter	8	10
5		Rotavator	50	80
6		Power Operated Implement	65	80
7		Spl. Power Driven Implement	95	150
8		Combine Harvester	5	5
9		Post-Harvest Machineries	10	25
10		Pump Set	1050	2000

Source: DDA, Boudh

Table shows that farm mechanisation has significantly increased in all three blocks. More awareness programme on utilization of farm machineries should be created among the farming community for economical improved agricultural practices, reduction of drudgery in time operation for better & higher crop production.

Crops	Actual coverage up to March 2012 (ha)		Area coverage in 2012 – 2013 (ha)		Area coverage in 2013 – 2014 (ha)		Area coverage in 2014 – 2015 (ha)		Proposed Area Coverage 2015-16		Proposed Area Coverage 2016-17	
	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin
Mango, Banana & Vegetables			7338.92	114.55025	474.09	156.26989	182.2	92.90013	300	150.000000	300	150.00000

Source: ADH Boudh

The table shows that during 2015-16, 300 ha land will be covered under micro irrigation. The farmers should be educated on adoption of micro irrigation system for economical & efficient use of water for raising horticultural crops. Therefore, organising awareness campaign on micro irrigation is essential at potential villages for more adoption.

Sl.No	Name of Block	No. of institutions					Total
		Commercial Banks	RRBs	Cooperative	PACS	Others	
1	Boudh	22	3	2	14	-	41
2	Harabhanga	5	3	1	13	-	22
3	Kantamal	3	4	2	15	-	24
Total		30	10	5	42	-	87

Source: Lead Bank

It reveals from the above table that the district is having 42 PACS followed by 30 commercial bank, 10 RRBs and 5 Cooperatives. Most of the agril. Loans are disbursed by Co-operative Society. Role of Commercial Bank is not up to mark though their number is high. Non agriculture loans are significantly higher and collection of loan amount is very poor. Maximum agril. loan accounts are NPA. There must be a co-ordination and connection between the loan point (Bank) and swelling point (Mandi) to check NPA through auto debit system. Infrastructure & Computerisation of PACs is essential.

Table 43, Crop Loan Disbursement in District (short term credit) (Rs. In lakh)

Block	Loan disbursed in 2015-16					
	Coop. Banks		Commercial Banks		RRBs	
	No. of loans	Amount	No. of loans	Amount	No. of loans	Amount
Total	333781	8422.36	6877	3240.11	4063	1573.16

Source: BCCB, Boudh

It reveals from the above table that 333781 numbers of loan were disbursed by Coop. Banks followed by 6877 numbers by commercial banks and 4063 by RRB. Similarly Coop. Banks disbursed highest amount of Rs. 8422.36 lakh followed by commercial banks Rs. 3240.11 lakh and RRBs Rs. 1573.16 lakh.

Table 44, Loan Disbursement for investment credit during XII Five Year Plan (Rs. In lakhs)

Sl.No	Block	Loan disbursed during 2012-13		Loan disbursed during 2013-14		Loan disbursed during 2014-15		Disbursement Target during 2015-16		Disbursement Target during 2016-17	
		No. of farmer	Amount	No. of farmer	Amount	No. of farmer	Amount	No. of farmer	Amount	No. of farmer	Amount
1	BCCB					399	50.72	2000	1000.00	3000	1500.00

Table 45, Agriculture Insurance Status (Phy.-ha area)

Sr. No.	Block	Insurance Coverage during 2012-13		Insurance Coverage during 2013-14		Insurance Coverage during 2014-15		Insurance Target during 2015-16		Insurance Target during 2016-17	
		No. of farmer	Area in Ha	No. of farmer	Area in Ha	No. of farmer	Area in Ha	No. of farmer	Area in Ha	No. of farmer	Area in
								33770			

Source: BCCB, Boudh

Name of the Block	Watershed No	Geographical area of Watershed		Area surveyed till March 2015		Area to be deleted from survey area		Area to be surveyed in year 2015-16 to 2016-17	
		No of Villages	Area (Ha)	No of Villages	Area (Ha)	No of Villages	Area (Ha)	No of Villages	Area (Ha)
Boudh	27	89	21039.51	89	17168	-	-	81	13203
Harabhanga	16	54	9010.43	54	8100	-	-	22	4400
Kantamal	19	69	11445.14	69	10800	-	-	81	11244

Source: P. D. Watershed, Boudh

Name of the Block	Geographical Area (ha)	Area not Suitable for watershed (ha)	Area available for w/s development (ha)	Area treated so far (ha)	Balance Area (ha)	Progress During 2012-13	Progress During 2013-14	Progress During 2014-15	Target During 2015-16	Target During 2016-17
Boudh	106496	40596	65900	17168	48732	1157 Ha	1701.7 ha	2216.8 ha	1886 ha	1800 ha
Harabhanga	125076	55326	69750	8100	61650	853.5 ha	938.6 ha	1301.6 ha	628 ha	700 ha
Kantamal	126720	43520	83200	10800	72400	909.3 ha	1068.6 ha	1395.5 ha	1606 ha	1650 ha

Source: P. D. Watershed, Boudh

Name of Activity	Total area covered (ha) up to 2011-12	Progress during 2012-13	Progress During 2013-14	Progress During 2014-15	Target During 2015-16	Target During 2016-17
Contour Cultivation	101	220	273	305	500	600
Dead Furrows	82	75	94	126	200	300
Ridges & Furrows	107	125	203	219	400	500
Other	-	-	-	-	-	-

Item	No of Villages			Total Samples to be analysed			Total Soil Health cards to be			Remarks
	Progress till March	Target 2015-16	Target 2016-17	Progress till March 2015	Target 2015-16	Target 2016-17	Progress till March 2015	Target 2015-16	Target 2016-17	
General Soils sample	4	8	16	152	1000	1000	152	1000	1000	No soil testing laboratory
Special Soil sample										
Micro Nutrient Soils sample										
Soil Survey sample										
Water sample										
Tissue (leaf & Petiole) sample										
Total										

Block	Production of Organic inputs (q)						Other activities			
	Biofertilizers	Vermi Compost	Biodynamic Compost	Bio-pesticides Group	Botanical pesticides	Organic farming seeds	O.F. Groups	Organic Certification Group	District Level Activities (Number)	Required Amount (in lakh)
KVK, Boudh	-	30	-	-	-	-	2	2	1	1.00
ADH, Boudh	-	50	-	-	-	1500 Ha	-	1500 Hect	10	2.00

Source: KVK, Boudh and ADH, Boudh

Name of crop	Average Area/demonstration (ha)	Present Area under IPM (ha)	IPM Demonstrations Conducted						IPM Demonstration Projections			
			2012-13		2013-14		2014-15		2015-16		2016-17	
			No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	Phy.	Fin. (in lakhs)	Phy.	Fin. (in lakhs)
Paddy	0.5 ha	-	10	5	-	-	-	-	-	-	-	-
Pulses	0.5 ha	-	30	15	20	10	20	10	10	0.5	10	0.5
Oil Seeds	0.5 ha	-	20	10	20	10	20	10	10	0.5	10	0.5
Vegetables	0.2 ha	-	10	2	10	2	10	2	2	0.2	2	0.2
Vegetable & Spices	1.0 ha	60 ha	-	-	-	-	65	65	80	1.20	100	1.50
Paddy	-	-	-	-	-	-	-	-	300	3.81	300	3.81
Pulses	-	-	-	-	-	-	-	-	100	1.27	100	1.27

Source: KVK, Boudh, ADH Boudh, DDA Boudh

It could be seen from the above table that the IPM demonstration is much important to know the occurrence of difference pest & diseases in crop. The pest population build up can also be efficiently studied to create alertness among the farmers. Therefore, all the G.P.'s should be involved under this programme to reduce pest incidence in the district. To do this farmers portal system should be strengthened.

Name of crop	Average Area/demonstration (ha)	Present Area under INM (ha)	INM Demonstrations Conducted						INM Demonstration Projections			
			2012-13		2013-14		2014-15		2015-16		2016-17	
			No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	Phy.	Fin. (In lakhs)	Phy.	Fin. (In lakhs)
Cereals	0.5	-	10	5	-	-	-	-	10	0.5	10	0.5
Pulses	0.5	-	20	10	20	10	20	10	10	0.5	10	0.5
Oil Seeds	0.5	-	20	10	30	15	20	10	10	0.5	10	0.5
Vegetables	0.2	-	-	-	-	2	20	4	2	0.2	2	0.2

Table 52, INM Demonstrations in Next Two Years (Phy – Area covered in ha) (Fin – Rs. In lakh)													
Name of crop	Average Area/demonstration (ha)	Present Area under INM (ha)	INM Demonstrations Conducted						INM Demonstration Projections				
			2012-13		2013-14		2014-15		2015-16		2016-17		
			No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	Phy.	Fin. (In lakhs)	Phy.	Fin. (In lakhs)	
Mango, Banana & Oil Palm	1.0	60	-	-	-	-	65	65	80	1.20	100	1.50	
Paddy	-	-	-	-	-	-	-	-	300	22.50	300	22.50	
Pulse	-	-	-	-	-	-	-	-	200	10.00	200	10.00	

Source : KVK, Boudh, DDA Boudh

Table shows that the INM demonstration is strictly based on soil test recommendation. The farmers can be well educated regarding balance use of difference plant nutrient instead of using fertilizer indiscriminately. Therefore, numbers of INM demonstration should be organised at village level to save money and environmental hazards.

Table 53, Varietal Demonstrations in Next Two Years (Phy – Area covered in ha) (Fin – Rs. In lakh)													
Name of crop	Average Area/demonstration (ha)	Present Area under Varietal Demon. (ha)	Varietal Demonstrations Conducted						Varietal Demonstration Projections				
			2012-13		2013-14		2014-15		2015-16		2016-17		
			No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	No. of Demos conducted	Area covered (ha)	Phy.	Fin. (In lakhs)	Phy.	Fin. (In lakhs)	
Cereals	1	-	10	10	-	-	20	20	5	0.5	5	0.5	
Pulses	1	-	-	-	-	-	-	-	5	0.5	5	0.5	
Oil Seeds	1	-	-	-	-	-	-	-	5	0.5	5	0.5	
Vegetables	0.5	-	20	10	30	15	10	5	2	0.5	2	0.5	
Others	0.5	-	-	-	10	5.0	-	-	-	-	-	-	
Scented	0.4	-	-	-	-	-	-	-	-	-	-	-	

Source : KVK Boudh/ADH Boudh

It reveals from the above table that the important factor of crop production drive to conduct varietal demonstration is difference crops with an ambition to know the most suitable variety for this district. More numbers of varietal demonstration are to be taken on more numbers of varieties of different crops.

Table 54, Crop Diversification Plan in Next Two Years											
Existing Cropping Pattern 2015-16		Actual Crop Diversification (Area in ha.)						Crop Diversification Proposed			
		2012-13		2013-14		2014-15		2015-16		2016-17	
Crop Group	Area	Area under crop	Change in area with reference to 11-12 (+/-)	Area under crop	Change in area with reference to 11-12 (+/-)	Area under crop	Change in area with reference to 11-12 (+/-)	Area under crop	Change in area with reference to 11-12 +/-	Area under crop	Change in area with reference to 11-12 (+/-)
Hyv.		200	-	180		180	0	300		300	
Pulse		1100		730		730	0	830		930	
Oil Seed		260	-	180		180	-5	180		200	
Cotton		40		0						50	
Vegetable		60		60		60	0	60		50	
Chilly		40		0							

Source: DDA, Boudh

Table 55, Farmers Field Schools Projection in Next Two Year														
Name of crop	TO Trained Available Man power (Nos.)	FFS Conducted in last three year (Added)			Yield obtained under FFS in 12-13 q/ha	Normal average yield obtained in 12-13 q/ha	Yield obtained under FFS in 13-14 q/ha	Normal average yield obtained in 13-14 q/ha	Yield obtained under FFS in 14-15 q/ha	Normal average yield obtained in 14-15 q/ha	Proposed during 2015-16		Proposed during 2016-17	
		No. of FFS conducted	No. of villages Covered	Area Covered (ha)							No. of FFS	No. of villages to be covered	No. of FFS	No. of villages to be covered
Paddy		35	60	350	51.25	40.04	48.05	38.42	52.25	39.02	21	40	24	48
Non Paddy		6	10	60	-	-	-	-	-	-	-	-	15	25
Total		41	70	410	-	-	-	-	-	-	21	40	39	73

Table shows that during 2015-16, 21 FFS have planned in 40 villages. Similarly for the year 2016-17 39 has been proposed in 73 villages. More Farmers Field School (FFS) should be organised at G.P level to educate farmers for their capacity building on crop production.

Table 56, AreaExpansionPlanof HorticulturalCrops. (Area inha)

Block	Cropping Pattern(2012)		Area Expansion already conducted			Proposed Area Expansion	
			2012-13	2013-14	2014-15	2015-16	2016-
	Crops	Area	Area	Area	Area	Area	Area
	Vegetables			9345	7865		

Source: ADH Boudh

Table 57, RejuvenationPlanof HorticulturalCrops (Area inha)

Block	Area broughtunderRejuvenation (2012)		Rejuvenation already conducted			Proposed Rejuvenation	
	Crops	Area	2012-13	2013-14	2014-15	2015-16	2016-17
			Area	Area	Area	Area	Area
	Mango	--	4.00	33.00	30.00	--	50.00

Source: ADH Boudh

Table 58, LivestockInformation (As per 2012 census)

Sl. No	Block	Areaunder Fodders(ha)		Cattle(Nos.)			Buffaloes(Nos)			Sheep(No.)			Goats(No.)			Poultry(Nos)			Others (Nos)	Total (Nos)
		Fodder crops	Grazing Land	Cross Bred	Indigenou	Total	Improv ed	Indi genou	Total	Impro ved	Indige nous	Total	Impro ved	Indig enous	Total	Broiler	Layer	Ducks		
1	Boudh	32 acres (Seasonal)		4884	60838	65722		4954	4954		36134	36134		29879	29879					
		2.5 acre (Perennial)																		
2	Kantamal	20 acres (Seasonal)		3524	52257	65781		7047	7047		19364	19364		26861	26861					
3	Harabhanga	22.5 acre (Seasonal)		5268	47449	52717		4663	4663		28550	28550		28884	2884					

Source: Animal census 2012 and CDVO, Boudh

Table 59, Blockwise Existing of Veterinary Institutions

Block	No. of GPs	Institutions (Nos)									No. of GPs without AI facilities	No. of GPs without any Vety institutions
		VH	VD	LAC	MVU	AI centre (Govt.)	Gomitra (Functional)	Gomitraa (Non-functional)	Pvt. AI Centres (BAIF/ JKT)	Total		
Boudh	21	1	2	10	1	7	3	0	19	43	-	-
Harabhanga	18	0	2	7	1	6	4	0	10	30	-	-
Kantamal	24	0	2	9	1	8	2	0	16	38	-	-

Source: CDVO, Boudh
 VH-Veterinary Hospital, VD-Veterinary Dispensary, MVU – Mobile Veterinary Units,

Table 60, Production Plan of Livestock during the Next Two Years

Sl. No.	Name of commodity	Baseline (2011-12)			2012-13 (Actual)			2013-14 (Actual)			2014-15 (Actual)		
		Nos	Production	Productivity	Nos	Production	Productivity	Nos.	Production	Productivity	Nos.	Production	Productivity
1	Milk	-	-	-	-	-	-	-	19.76 MT	-	-	18.2 MT	-
2	Eggs	-	-	-	-	-	-	-	12.08	-	-	13.55	-
3	Broiler	-	-	-	-	-	-	-	-	-	-	-	-
4	Meat (including Broiler)	-	-	-	-	-	-	-	4.08 MT	-	-	4.62 MT	-

2015-16 (Proposed)						2016-17 (Proposed)					
Nos.	Production		Productivity			Nos.	Production		Productivity		

Table 61, Proposed Physical and Financial Programmes of Animal Husbandry Dept. for Next Two Years Phy – Number Rs. Inlakh

Name of Activity	Unit cost (Rs)	2012-13 (Actual)		2013-14 (Actual)		2014-15 (Actual)		2015-16 (Proposed)		2016-17 (Proposed)		Total	
		Phy.	Fin	Phy.	Fin	Phy.	Fin	Phy.	Fin	Phy.	Fin	Phy.	Fin
ASCAD	-	7	0.24	0	0	8	0.48	15	0.72	-	-	-	-
MVU (started from 24.06.2014)	-	0	0	0	0	15477 (Cases treated)	3.575	19115 (Cases treated)	2.627	-	-	-	-
PDE	-	0	0	26	0	21	0	-	-	-	-	-	-
NMPS	-	6	3.12	0	0	10	12.5	-	-	-	-	-	-

Table 62, Fisheries Information

Sl. No	Block	Details of Fisheries Units																	
		Inland Ponds						Rivers					Reservoirs						
		Nos Units	Species Cultured	Average yield per ha.	Expected yield per ha.	Gap in Yield (kg)	Reasons for gap in yield	Boat & Net Units	Species Harvested	Average Catch per boat (kg)	Gap in catch per boat	Reasons for gap in yield	Nos.	No. of boat and net units	Species Harvested per boat unit (kg)	Average catch per boat in kg	Expected catch per boat	Gap in yield per boat	Reasons for gap in yield
1	Boudh	371	Rohu, Katla, Mirigal, CC, Grass Carp	20 qt/ha	30 qt/Ha	10 qt/Ha	Improper management of water bodies	232	Chansa Sps, Major Carps, Minor Carps, Cat Fishes, Misc Fishes Prawn	5 Kg	2 kg	River remain dry	NIL						
2	Harabhanga	355						181											
3	Kantamal	489						91											
Total		1215						50											

Table 63, Sourcewise Water Spread Area (WSA) in the District

Block	Grama Panchayat Tanks < 40 ha		Department Tanks > 40 ha		Reservoirs		Rivers	
	No	W.S.A (ha)	No	W.S.A (ha)	No	W.S.A (ha)	No	km
	Boudh	371	386.07	-	-	-	-	Mahanadi
Harabhanga	355	322.47	-	-	-	-	Tel	40 Km
Kantamal	469	450.66	-	-	-	-	Bagh	40 Km
Total	1215	1159.20	-	-	-	-	Salunki	40 Km

Source: Fisheries Dept.

Table 64, Projections for Fish Production, Seed to be Stocked and Hatchery Requirement for Plan

a) Fish Production (in Tonnes)				
Year	Production at different yields from different areas			
	@2000kg/hect for 500 hect	@500kg/hect for 2000 hect	@100kg/hectare 6000 hectare	Total
2012 (Base Year)	3657.70	-	-	3657.70
2012-13 (Actual)	4136.80	-	-	4136.80
2013-14 (Actual)	4175.13	-	-	4175.13
2014-15 (Actual)	5167.60	-	-	5167.60
2015-16 (Proposed)	6000.00	-	-	6000.00
2016-17 (Proposed)	6500.00	-	-	6500.00
b) Seed to be stocked advance fingerlings 50 mm size in lakhs				
Present (2015)	60 lakhs	-	-	60 lakhs
2015-16	141 lakhs	-	-	141 lakhs
2016-17	144 lakhs	-	-	144 lakhs
Table H. Hatchery required (Assumption 0.6 ha of hatchery can produce 20 lakh fingerlings and 40 lakh fingerlings required per ha)				
Present (2015)	1 hatchery functioning (1.8 ha) production 45 lakhs fry			
2015-16	50 lakhs			
2016-17	70 lakhs			

Table 65, Financial Targets and Achievements during XII Plan for Fisheries Development in the District

Schemes	2012-13		2013-14		2014-15		2015	2016
	Target	Achievement	Target	Achievement	Target	Achievement	Target	Target
FFDA	-	140005/-	-	323580/-	-	1233850/-	794400/-	1500000/-
NMPS	-	-	-	175000/-	-	890000/-	1075000/-	1500000/-
NFDB	-	61250/-	-	108625/-	-	-	-	-
MUY	-	174500/-	-	707500/-	-	262000/-	-	700000/-
Matysjibi Basagraha	-	-	-	-	1500000/-	675000/-	3075000/-	3000000/-

Table 66, Projected Outlay for Fisheries Development during XII Plan (Rs.inlakh) Budget required in the existing schemes

Sl. No	Name of the Schemes	Financial Outlay for the Year					Total
		2012-13 (Actual)	2013-14 (Actual)	2014-15 (Actual)	2015-16 (Proposed)	2016-17 (Proposed)	
1	FFDA	140005/-	323580/-	1233850/-	1500000/-	1600000/-	4797435/-
2	NMPS	-	175000/-	890000/-	1500000/-	1600000/-	4165000/-
3	NFDB	61250/-	108625/-	-	-	-	169825/-
4	MUY	174500/-	707500/-	262000/-	700000/-	700000/-	2544000/-
5	Matysjibi Basagraha Yojana	-	-	675000/-	3000000/-	3000000/-	6675000/-

Table 67, Group Organizations in the District (Existing)

S.No	Block	Farmers Clubs		Pani Panchayats		Commodity groups /FIG/FOs		Self Help Groups (SHGs)		Any Other	
		Nos.	Members	Nos.	Members	Nos.	Member	Nos.	Member		
1.	Boudh	-	-	-	-	619	5809	155	2012	95	651
2.	Harabhang	-	-	-	-	14	168	102	1324	80	548
3.	Kantamal	-	-	-	-	68	816	120	1558	91	625

Source: P. D. Watershed, Boudh

Table 68, Group Organizations in the District (Proposed for next Two Years)

S.No	Block	Farmers Clubs		Pani Panchayats		Commodity groups /FIG/Fos		Self Help Groups (SHGs)		Any Other	
		Nos.	Members	Nos.	Members	Nos.	Member	Nos.	Member		
1.	Boudh-	5	150	-	-	320	3520	110	770	40	240
2.	Harabhanga	-	-	-	-	15	180	45	315	28	168
3.	Kantamal	-	-	-	-	35	420	90	630	35	210

Source P. D. Watershed, Boudh / KVK, Boudh

Table 69, Financial Targets and Achievements during XII Plan Period in the District Under District Sector Schemes in Agriculture and Allied Sector.

Sl. No	Name of the Scheme	Head of Account	Amount Rs. In lakh							
			2012-13 (Actual)		2013-14 (Actual)		2014-15 (Actual)		2015-16 (Proposed)	2016-17 (Proposed)
			Target	Achievement	Target	Achievement	Target	Achievement	Target	Target
1.	DPAP	232501	89.26	89.26	Funds not received		74.75	74.75	-	-
2.	IWMP		400.50	350.38	500.00	445.07	600.00	589.63	510.00	530.00

Source: P. D. Watershed, Boudh

Table 70, Financial Targets and Achievements during XII Plan period of the District Under State Sector Schemes in Agriculture and Allied Sector.

Sl. No.	Name of the Scheme	Head of Account	Amount in Rs. Lakhs							
			2012-13 (Actual)		2013-14 (Actual)		2014-15 (Actual)		2015-16 (Proposed)	2016-17 (Proposed)
			Target	Achmt	Target	Achmt	Target	Achmt	Target	Target
1.	DPAP	232501	89.26	89.26	-	-	74.75	74.75	-	-
2.	IWMP		400.50	350.38	500.00	445.07	600.00	589.63	510.00	530.00
3	State Plan	23241	42.41762	42.41762	46.73974	46.73974	50.34901	50.34901	55.00	60.00

Source: P. D. Watershed, Boudh / ADH Boudh

Table 71, Physical and Financial Programme Proposed under CDAP during XII Plan (Rs. In lakh)

Name of Work	Unit cost (Rs)	2012-13(Actual)		2013-14(Actual)		2014-15(Actual)		2015-16(Proposed)		2016-17(Proposed)		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
Agriculture													
1. Line Sowing / Line Transplanting	7500/-							2500	187.50	3000	225.00	5500	412.50
2. SRI	7500/-							150	11.25	200	15.00	350	26.25
3. C S B Training	14000/-							21	2.94	30	4.20	51	7.14
4. Threshing Floor	550000/-							5	27.50	10	55.00	15	82.50
TOTAL								2676	229.19	3240	299.2	5916	528.39
Horticulture works in farmers land	0.50/Ha	-	-	-	-	-	-	20 Ha	10.00	30.00 ha	15.00	50.00 ha	25.00
1 Planatation (Mango)	0.10/Training	-	-	-	-	-	-	30 nos	3.00	50 nos	5.00	80 nos	8.00
2. Training													
3. Demonstration	0.05 /Demon	-	-	-	-	-	-	100	0.50	100	0.50	200	1.00
Horticulture total								150 nos.					
Watershed Development	Rs. 12,000/ ha.	2919.8 ha.	350.38	3708.9 ha.	445.07	4913.5 ha.	589.62	5250	630.00	5415	649.80	222072 ha.	2664.87
1- Watershed Development													
Total													

Chapter-VI

Overview of Agriculture Research System in the district

KVK system has successfully established itself between the research and extension systems. Research has shown promising results in on and off station trials. Technology development process as explained earlier, invariably has assessment, refinement and demonstration components. Understanding farmers and farming system is the basic and most important step in the process of technology generation assessment and refinement. But the agricultural research system under the institutional leadership of Indian Council of Agricultural Research is still stereotypical and yet to include the concept in its research agenda. There are growing doubts about the efficacy of the generalized technologies recommended by the Zonal Research Stations for a particular Agro Climate Zone. A certain technology proved to be successful with one farmer might not yield the same result with the other in the same farming system since the same commodity is grown under different situations. Therefore refining the generalized technologies into situation specific recommendations for each agro-ecological situation has become a demanding task.

Further it would not be redundant to mention that the technological development in the field of agriculture is gender blind. All the men & women farmers must be involved during the process of participatory research to identify and prioritize their problems and facilitate to finalize the strategies. The technology generated may need further testing and fine-tuning in terms of gender applicability. The researchable issues identified during anticipatory data collection have been prioritized and accordingly strategies have been formulated.

6.1 Re-synthesis of Technological Package

Each commodity is grown under different situations even within same agro-ecological situation. Therefore the generalized package recommended for all the farming situations either fails in some situations or does not yield desired result in all the situations & hence needs re-synthesis of the technological package for different farming situation of a single crop for its acceptance and adaptability by the farmers.

The resynthesized package again needs testing in farm situation to judge its suitability in the situation in collaboration with researchers, farmers, extension personal & private extension providers. All aspects of technological synthesis, farmer's involvement are the pre requisite in agricultural research.

6.2 Farmer Participatory On-farm Research

On-farm research is a set of procedures for adaptive research whose purpose is to develop recommendations for the representative group of farmers. In on-farm research, farmers participate in identifying problems and its priorities, managing experiment and evaluating results. While conducting the on-farm research, researcher should be given on top priority to the farmer's rationality and accept the following steps.

- ✦ Identification of problem
- ✦ Collection & analysis of information
- ✦ Planning for on-farm research
- ✦ Experimentation
- ✦ Assessment/evaluation of results
- ✦ Recommendation and diffusion

In any system of on-farm research extension, agents should participate in the entire process and so that he will be able to transform the recommendations to farmers with skill and confidence.

6.3 KRISHI VIGYAN KENDRA (KVK)

The Indian Council of Agricultural Research has established a wide network of Krishi Vigyan Kendras (KVKs) in the country aiming at assessment, refinement and demonstration of technology/products. Krishi Vigyan Kendra, Boudh was established by ICAR in 01.07.2005 under the control of OUAT at Paljhar farm. Boudh district is bounded by River Mahanadi & Angul District to the north, Kandhamal District to the south, Nayagarh District to the east and River Tel & Subarnapur District to the west, covering a geographical area of 3098 sq km, the district lies between 20° 22' N to 20° 50' North Latitude and 83° 34'E to 84°49' East Longitude.

KVK serves as the knowledge hub and resource centre of agricultural technologies for the farmers of the district. It operates as per mandates of ICAR for the upliftment of socio-economic condition of the farming community. KVK lies between 20°43'51.69 N to 20°45'16.66 North Latitude and 84°13'52.22 E to 84°13'56.27 East Longitude.

6.3.1 Mandates

Assessment, refinement and demonstration of proven technologies/products under different 'micro farming' situations.

6.3.2 K.V.K Activities

The specific activities to carry out this mandate are:

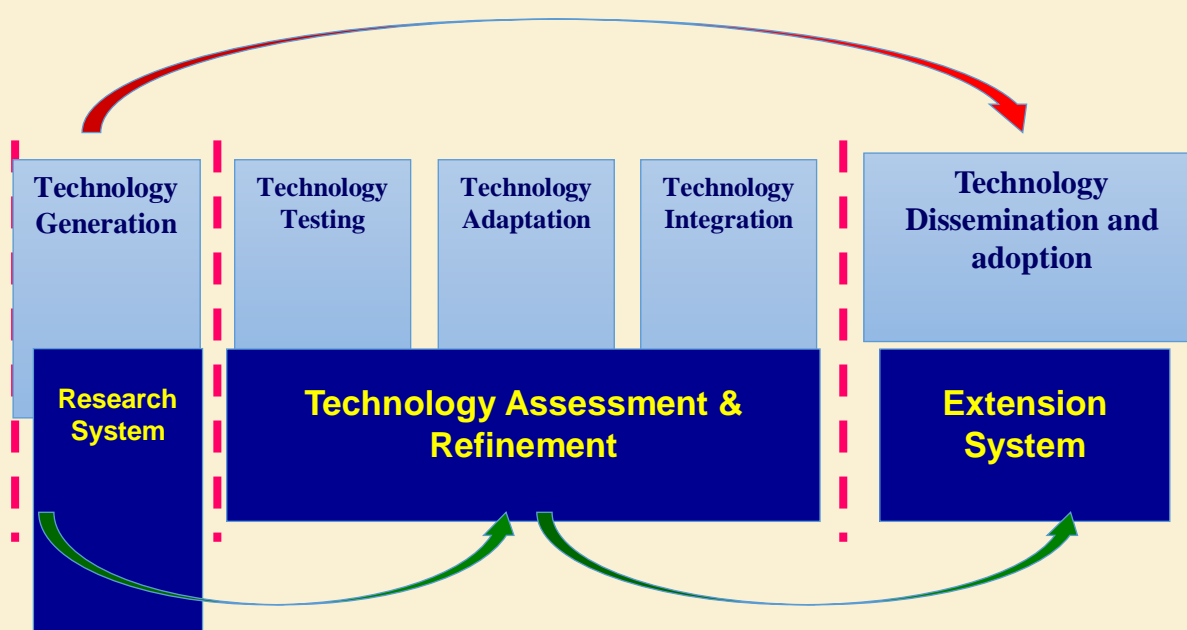
- ✦ Conducting on-farm testing to identify the location specificity of agricultural technologies under various farming systems
- ✦ Organizing frontline demonstrations to establish its production potentials of various technologies on the farmers' fields
- ✦ Conducting need based training of farmers to update their knowledge and skills in modern agricultural technologies
- ✦ Conducting training of extension personnel to orient them in the frontier areas of technology development
- ✦ Work as knowledge and resource centre of agricultural technology for supporting initiatives of public, private and voluntary sector for improving the agricultural economy of the district

- ✿ In addition, in order to speed up the process of dissemination of technology, a large number of various extension activities and production of seeds and planting materials, livestock, poultry and fisheries breeds and various bio-products are taken up by the KVKs.

6.3.3 Uniqueness.....

- ✿ Creation of valuable resources in terms of manpower and assets
- ✿ Confirmation of technologies to suit local specificity
- ✿ Showcasing the frontier technologies
- ✿ Capacity building among stakeholders
- ✿ Front runner in technological application, information and inputs
- ✿ Participatory approaches in planning, implementing, executing & evaluation

Uptake pathways for research output



6.3.4 Thrust Areas of KVK

- ✿ Crop diversification
- ✿ Varietals substitution of field crops, vegetables and fruit crops
- ✿ Commercial cultivation of fruits, vegetables and flowers
- ✿ Integrated Nutrient Management practices in crops
- ✿ Integrated Disease and Pest Management Practices in crops
- ✿ Nutritional garden to ensure nutritional security
- ✿ Farm mechanization, post-harvest and soil and water conservation measures
- ✿ Agro-forestry and bund based farm forestry
- ✿ Organic farming

- ✦ Value addition in seasonal fruits and vegetables
- ✦ Drudgery reduction & Farm mechanization in agriculture
- ✦ Scientific management of Goatery, Fishery, Dairy and poultry
- ✦ Entrepreneurship development in Poultry, duckery, Pisciculture, goatry, dairy and mushroom

6.3.5 Major Bottlenecks of Boudh District

- ✦ Drought
- ✦ Improper Nutrient Management in crops
- ✦ Poor Commercial Horticulture
- ✦ Low Productivity of Diary, Goatery, Poultry and Pisciculture
- ✦ Low family income
- ✦ Deforestation and less availability of fuel wood & fodder
- ✦ More infestation weed
- ✦ Severe attack of crop diseases and pests
- ✦ Erratic rainfall
- ✦ Poor irrigation facility
- ✦ Poor availability of agri-inputs
- ✦ Lack of up to date farming and weather based information
- ✦ Poor risk bearing capacity of farmer
- ✦ Shortage of labour
- ✦ Seasonal Migration
- ✦ Small size of land holding
- ✦ Poor soil & water conservation measures
- ✦ Soil Acidity

6.3.6 Mode of Action

Before execution of any programme, survey is conducted in different potential villages by using PRA tools to know the socio-economic profile, problems and intervention action points selected for executing the programmes either through training, demonstration or On Farm Testing. After execution of works, impact study is conducted to know the changes in knowledge, skill and attitude, adoption of appropriate technology, increase in productivity, income and ultimately improvement in socio-economic status of farmers and village community.

6.3.7 Facilities Available

To achieve the most important mandates of KVK, vocational training and campus farm units have been developed where the skill oriented trainings are imparted on the principle of **“Learning by doing”** and **“Seeing is believing”**. The basic facilities available at KVK institutional farm are detailed below:

- ✦ Demo unit of seed production of Arhar and Dhaincha seed
- ✦ Mango progeny orchard with LLDP mulching
- ✦ Nutritional garden of different vegetables and fruits
- ✦ Medicinal plants for primary health hazards
- ✦ Mushroom spawn production unit for selling spawn bottle
- ✦ Vermi-compost unit- production of vermicompost and vermin

- Poultry unit
- Azolla multiplication unit
- Poly house for seedling and sapling of fruits and vegetables
- Demo unit of Agro-tech Museum
- Low cost shednet for nursery raising of vegetables and saplings
- Agroforestry unit
- Nursery of vegetables seedlings and fruit sapling
- KVK Newsletter-KVK research findings
- Booklet on different crops and vegetables

6.3.8 Major Recommendations

1. Varietal Replacement in Paddy

Paddy variety Pratikshya was assessed and demonstrated in the farmer's field and recorded 28% higher yield over the farmer's variety *Swarna* and the variety spread to 600 ha in the district. Similarly the variety *Manaswini* recorded 18% higher yield over farmer's variety *Lalata* and spread an area of 150ha in the district.

2. Transplanting Technique in Watermelon

Transplanting of 10-15 days old seedlings of watermelon raised in poly bag reduces the mortality of plant from 24% to 4% and increases yield by 18 percent over farmers practices i.e. direct sowing of seed and applying flood irrigation. This technology spread over an area of 120 ha in the district.

3. Cultivation of Hybrid Sunflower-KBSH-I

Sunflower is one of the important oilseed crop grown in the district of an area of 260ha during Rabi season. Low yield of the crop is due to use of composite variety. Sunflower variety KBSH-I was demonstrated in farmer field and recorded 50 percent increases in yield over composite variety (modern) and the variety spread to 80 ha in the district.

4. Cultivation of Onion Variety Agri Found Light Red

Onion is cultivated in an area of 380ha in the district. Major problem of onion is low yield due to use of small size of Nasik red variety. K.V.K. assessed the variety Agri found light red in farmer's field which recorded 19 percent more yield from Nasik Red. This variety spread to an area of 80 ha in the district.

5. Wilt Management in Pointed Gourd

Wilting of plant was a major problem in pointed gourd in the district. K.V.K. demonstrated the technology of root cutting treatment with solution of *Pseudomonas* + *Trichoderma* @2g/lit with drenching of plant base with *Ridomyl*@2g/lit, which reduced the mortality of plant from 44 % to 9 % and increased yield by 32%. This technology spread over 25 ha area in the district.

6. Chemical weed control in Paddy

Pre emergence application of weedicide Butachlor @ 2.0 lit/ha in upland paddy effectively controlled the weed and recorded 19 % higher yield and this technology spread in area of 2300 ha in the district.

7. Popularization of HYV of onion

Cultivation of onion variety N-53 in kharif has been popularized extensively throughout the district.

8. Integrated Pest Management in Cauliflower

Use of pheromone trap @ 20 no/ha and alternate application of Bt @ 1 kg/ha and Cypermethrin 10 EC @ 1 lt./ ha is most appropriate for management of pod borer in cauliflower.

9. IPM in Brinjal

Soil application of neem cake @250 kg/ha and alternate spraying of Triazophos@ 2 ml/lit and neem oil @ 5 ml/lit.is recommended for shoot & fruit borer management in brinjal.

10. Popularization of improved variety & hybrid of fruit crops

Mango hybrid Amrapalli, banana cv. Dwarf Cavendish & papaya var. Coorg Honey Dew have been popularized in farmer's field through demonstration which is horizontally spread to 18 villages.

11. Cultivation of tomato in late Kharif season

Cultivation of tomato var. BT-10(Utkal Kumari) resulted in yield of 210 qt. /ha with less wilt incidence than farmers cultivated variety. This variety is also suitable for cultivation in late Kharif season.

12. Application of ZnSO₄ in paddy

Application of ZnSO₄ @ 25 kg/ha in paddy resulted 27 % higher yield with more no. of tillers /hill than local check.

13. Introduction of scented rice variety

Introduction of high yielding scented rice variety Ketakijoha recorded yield of 23.9 qt/ha which is 18.6 % more than the local check.

14. INM in paddy

Green manuring with Dhaincha @ 25 kg/ha , soil application of Azospirillum & PSB each @ 5 kg /ha incubated with 100 kg + 75 % RDF resulted 31.5 % higher yield than local check.

15. Management of gall midge in paddy

Nursery treatment with Carbofuran @ 2.5 kg/ha & application of Chloropyriphos @ 1 lt. /ha in main field reduced infestation to 4.8 % as compared 28.9 % in local check increasing yield by 33.6 % than the local check.

16. Application of Boron in sunflower

Foliar application of Boron @ 0.5 kg/ha increased head diameter to 21.6 cm as against 13.6 cm in local check resulting 11.6% higher yield.

17. Cultivation of HYV of paddy

Introduction of newly released paddy var. Manaswini in farmer's field recorded yield of 40.4 qt /ha which is 16% higher than the farmer's cultivated var- Lalat.

18. Chemical weed control in Maize

Pre emergence application of Atrazine decreased weed population to 2.6 no /m² as against 11.4 no/m² in local check resulting 12 % increase in yield.

19. Management of Blast in paddy

Foliar application of Tricyclazole @ 300 gm/ha reduced leaf infection to 3.6 % as against 22.2 % in local check which increased yield by 16.9 %

20. Varietal evaluation of potato for changing climatic scenario

Cultivation of potato variety Kufri Surya recorded 6.25 no of tubers/plant with larger size than the farmer's variety Kufri Jyoti (5 no plant) resulting 22.9 % higher. The var. Kufri Surya also tube rise well in higher temp. Upto 20 °C while tuberisation is adversely affected beyond 18 °C in var-Kufri Jyoti.

21. Management of stem borer in paddy

Soil application of Cartap hydrochloride @ 20 kg/ha & release of *T. japonicum* egg parasite @ 50,000/ha reduced % of white ear head to 3.6 % as against 18.6 % in local check thus increasing yield by 19 %.

22. Popularization of SRI method

Transplanting of 10 days old rice seedling at 25 x 25 cm & maintenance rice field in saturated condition recorded more no of tillers/ hill (32 no) as against 9 no. in local check thus increasing yield by 31.3%

23. Introduction of hybrid rice

Cultivation of hybrid rice JKRH-401 recorded 295 no. of grains/panicle as against 168 no in HYV resulting 31.2% higher yield than local check.

24. Management of leaf folder in paddy

Foliar application of Triazophos @ 1 lt. /ha reduced no. of damaged leaf /hill to 0.6 as against 5.1 in local check resulting higher yield by 13.9 %.

25. Introduction of HYV of tomato

Introduction of wilt resistant tomato var-Utkal Pragyan & wilt tolerant var. Utkal Raja reduced % of wilting & increased yield to 239.6 & 243.8 respectively than the farmer's cultivated var-Sel-22, PKM-1

26. Management of BLB in summer paddy

Foliar application of Plantomycin @ 500 gm/ha & Blitox @ 1kg/ha reduced % of infection to 3.6 % as against 16.2 % in local check resulting higher yield by 16.1 %.

27. Chemical weed management in paddy

Post emergence application of Fenoxaprop p ethyl@1 lt. /ha + Almix @ 20 gm /ha at 20 days of transplanting reduced weed population to 9 no /m² as compared to 23 no/ m² in local checkresulting increase in yield by 24.8 %.

28. INM in groundnut

Soil application of Gypsum @ 250 kg/ha along with RDF 20:40:40 kg NPK / ha recorded 22 no. of pods / plant as against 19 no. in local check increasing yield by 15.7 %.

29. INM in cauliflower

Application of FYM @15 ton /ha ,NPK @ 125:50:75 kg NPK / ha & foliar spray of Boron @2 gm /lt recorded curd diameter of 16.4 cm as compared to 12.1 cm in local check enhancing yield by 14.3 %.

30. IPM in onion

Soil application of neem cake @ 100 kg /ha & foliar spray of Imidacloprid @125 ml /ha recorded less infestation of thrips (7 no/plant) than 38 no. plant in local check increasing yield by 19.6 %.

31. Weed management in onion

Post emergence application of Targa Super @ 1 lt./ha at 15 to 20 DAT in onion reduced weed population & increased yield 12.2 percent than the local check.

32. Weed management in groundnut

Pre emergence application of Oxyflurofen @ 100ml/ha at 2 to 3 DAS in groundnut reduced weed population & increased yield up to 21.7 qt/ha.

33. Farm Mechanization

Introduction of puddler Groundnut thresher, Paddy thresher in farmers field of the district increased work efficiency and reduced cost of cultivation resulting higher net return/ha then farmers practices.

34. Drudgery Reduction

Use of clipping knife in Okra harvesting, Paddy winnower, improved sickle,Paddy Parboiling unit, Groundnut decorticator, Mahua decorticator, Sunflower threshing bench,Mandwa weeder, Rotary peg weeder in vegetable reduced drudgery to farm women, increase work efficiency and profit and reduced cost of cultivation and over all benefiting farm family as a whole.

35. Small Scale Income Generating Enterprise

Rearing of Poultry bird Banaraja in backyard, Kitchen gardening, Cultivation of tuberose and Marigold in backyard resulted of leisure period of family members increasing income of farm family.

36. Agro-forestry Model Development

Bond plantation of Teak, Sisoo intercropping and Colocassia, Elephant foot yam in teak plantation, cultivation of hybrid napier, hill broom resulted proper utilization of resources providing additional income to farm family.

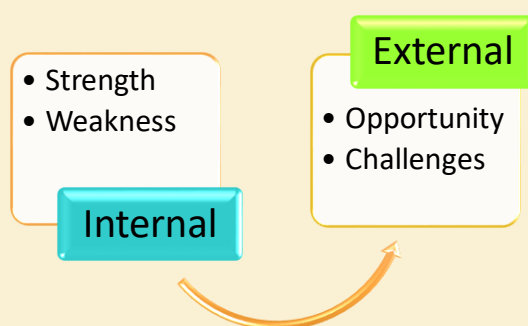
37. Promotion of Pisciculture

Productivity from fish pond has been increased through demonstration on composite fish culture, Integrated fish farming, Supplementary feeding.

Chapter-VII

SWOC Analysis of the Production Systems in the district

SWOC is mainly a flexible tool that can be used for various purposes like planning, assessing project works or business ventures, making decisions and solving problems to strategy formulation. In comprehensive district agriculture plan (C-DAP), we use it to analyse the district situation in regard to agricultural and allied sectors potential in two AESs of the three provinces, i.e., Gram Panchayat, Block and District. SWOC analysis helps us to understand the regional strengths and uncover good opportunities that can improve or cover up within a stipulated time to accelerate the development programme. It also considers the weak sides of these provinces and points out external challenges. If foreseen in advance, the factors influencing the development in a negative way can be omitted or faced with confidence and preparation. In that case they might not become big obstacles for the development of region later on. The SWOC analysis, which is presented in the figure below, contains four sections: strengths / weaknesses / opportunities / challenges which describe positive or negative, internal or external characteristics of the district.



Internal factors can influence the local decisions and actions during planning process:

(i) **Strengths** are internal attributes that add value to the district in the context of current infrastructures and facilities available. Those help the planner to make the plan more realistic and address peoples' need.

(ii) **Weaknesses** are internal factors that may detract from the district's potential. Regional needs and disparities can be addressed or mitigated by local and regional decisions through proper planning.

External factors describe broader factors, which are independent from a regional situation but might affect it:

(i) **Opportunities** are external positive factors that may assist in overcoming the weaknesses of the area and building on the strengths. Such opportunities might include the development of infrastructures in other areas, the desire for planners to invest in the area, the ability for new technology to be brought to the area, which can uncover a greater potential for agricultural and rural development.

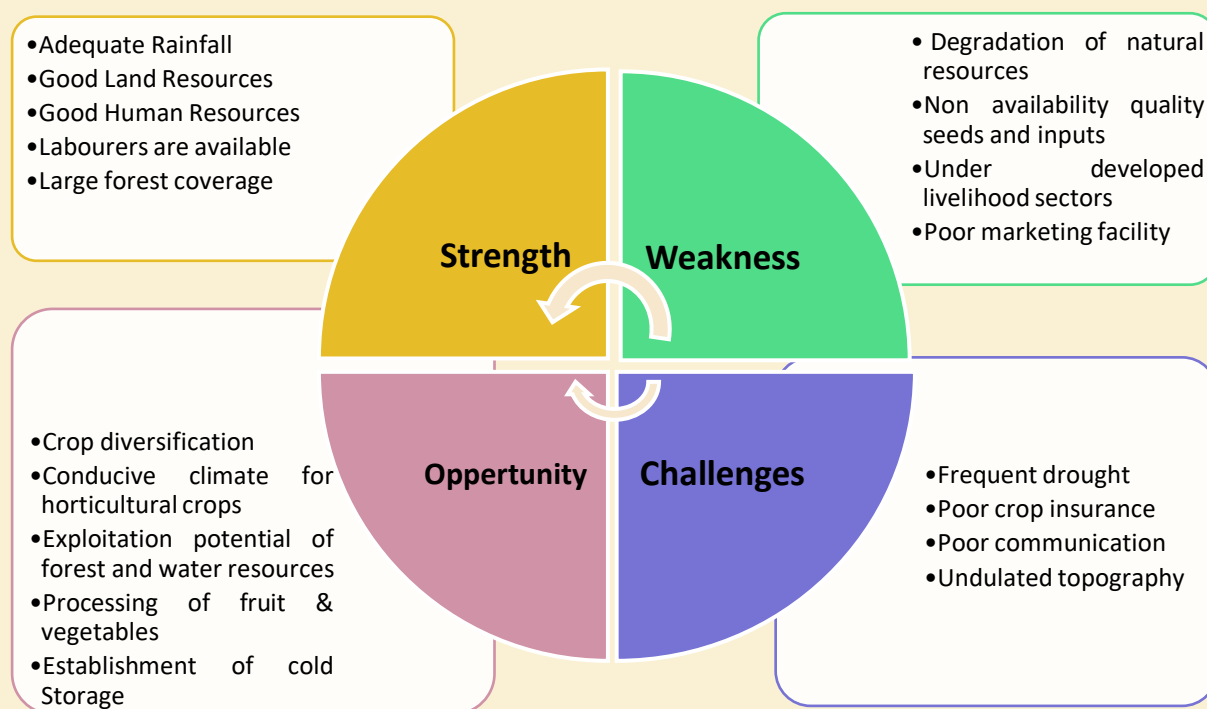
(ii) Challenges are external obstacles that are largely beyond any control. Challenges constrain the range of opportunities for change.

In this section, SWOC analysis of Boudh district is depicted with identified Strengths, Weaknesses, Opportunities and Challenges pertaining to different sectors from two different agro-ecological situation of the blocks. It is a widely recognized method for gathering, structuring, presenting and reviewing extensive planning data and extremely useful tool for understanding and decision-making for all sorts of situations in planning process. The overall purpose is to conduct a broad based SWOC analysis of the programme so that mid-course action is initiated at appropriate point of time. Based on the district status the entire plan can be formulated for integrated and holistic development of the people.

7.0 SWOC Analysis of the District

7.1 SWOC Overview of District

The strategic planning workshop for the district was conducted with the stakeholders where different aspects of district development were discussed in detail. Sector wise strength and weaknesses were identified and it was made a base for the year 2015-16 for C-DAP preparation. The overall SWOC analysis of the district is reflected below.



7.1.1 Strengths

Large forest coverage offers ample opportunities for enhancement of income and livelihood for the tribal through collection and trading of a variety of minor forest produces like bamboo, *kendu* leaf, *sal* leaves, *harida*, *bahada*, *sabai* grass, broom grass, mohua flower and seed, among the timber the

dominant species like bija, teak, sal etc. Taking into consideration of the resources both physical and human and the supporting administrative and organizational set up, the strength of the District can be listed as follows;

- 🌱 Soil health is to be conserved and utilized for crop production.
- 🌱 The vast tract of pasture land can successfully be developed to support livestock.
- 🌱 The agro-climatic condition with exploitation of irrigation resources are suitable for development of agriculture and horticultural crops.
- 🌱 Adequate availability of net shown area can be brought into agricultural and allied productivity.
- 🌱 The district receives an average rainfall of 1623.1 mm per annum, and a large quantity of that can be stored for life saving irrigation.
- 🌱 The forest coverage offers ample opportunities for enhancement of income for the tribal through collection and trading of a variety of non-timber forest produces, mostly through rural markets and neighbor state market.
- 🌱 The common people as well as the public representatives & PRI members are by and large ready to accept developmental initiatives under different programmes.

7.1.2 Weaknesses

Mainly poor infrastructure, marketing facility and storage facility are the major bottlenecks of the district. The traditional cultivation practices, use of low productive inputs, low rate of farm mechanization and fragmented land holding retard the productivity of crops. Again, the lack of agro-based industries adds woes to the sector as well.

- 🌱 Prevalence of large-scale poverty, nearly the Boudh has -2426001 HHs, Harabhanga-2426002 and Kantamal-2426003 HHs are belonging to the BPL category, limits the scope for development through private investment as well as through credit route.
- 🌱 While the level of overall literacy is low at 71.61%, that of female literacy is still lower at 59.79 %, which creates difficulty in making the target group equal partners in the development process.
- 🌱 Predominance of small and fragmented land holding poses hindrance in the process of farm mechanization in agriculture and bringing more area under irrigation.
- 🌱 Agriculture in the district is characterized by large-scale use of traditional seeds, low use of fertilizers, pesticides, lack of crop diversification and the traditional method of cultivation, inadequate marketing facilities.
- 🌱 Low level of entrepreneurship skills amongst the local people slows down the pace of industrialization despite abundance of natural resources and favorable global market.
- 🌱 Inadequate and poor agricultural infrastructure affects farmer's income and quality of life.

7.1.3 Opportunities

The district has ample scope for climate resilient agriculture, micro-irrigation and agro-based industries in the district, that can support the livelihood of many inhabitants. Moreover, the livestock component can be explored through various schematic interventions and market linkage as well as meat processing centres. The excess run-off water can be harvested at suitable sites for integrated

farming system. The predominant medicinal plants can be grown commercially and suitable marketing facilities can be developed for it. Further, the unemployed rural youth and SHG members can be trained on various need based activities under capacity building programme.

- ❖ The big reservoir or unused water bodies can be unutilized for irrigation purpose as well as pisciculture.
- ❖ The conducive agro-climatic condition is suitable for high value crops, off-season vegetables, pulses, medicinal plants, tree borne oilseeds for extraction of bio-diesel etc.
- ❖ Imparting more number of training programme for the unemployed youth and rural women on income generating activities (IGA) for self-employment.
- ❖ Micro enterprises can be promoted to strengthen the household level economy.
- ❖ More emphasis should be given on agriculture infrastructures, storage and marketing facility to sell farm produce.

7.1.4 Challenges

The frequent occurrence of drought is one of the major bottleneck of growth process. Another major threat to the district is fluoride and iron content in the groundwater aquifers and thus a large number of people are affected by fluorosis. The frequent outbreak of insect pest and diseases infestation hinders the agricultural production. Since the rivers and canals of the district are yet to be stabilized, the frequent incidence of bank cutting, flooding, flash flooding and sand casting of the adjacent agricultural fields and habitation are quite frequent.

- ❖ The abject poverty and deprivation are more than three fourth of the farm families.
- ❖ Abundant natural resource poses serious threat to the social harmony in the district.
- ❖ Unplanned agricultural growth may become a burden on existing fragile infrastructure.
- ❖ Poor connectivity throughout the district especially the dispersed settlements is a major obstacle in day-to-day life of people in the district.
- ❖ Inadequate soil health measure leads to less profit from crops.

7.2 Sector wise details of SWOC analysis of Boudh District

The district agriculture is more multifaceted and paramount importance with regard to its prevalence. It is also the mainstay of the district's economy and substance of life of the people. Evidently, agriculture plays a critical role in the economy and livelihood of majority of its populace. The district has 89,000 ha cultivated area where the cropping intensity is 163 per cent. Fertiliser consumption substantially increased in the district. Individual sectors were thoroughly studied in two AES to assess the strength, weakness, opportunities and challenges to have an insight required for sectoral development. The summary of sectoral SWOC analysis is depicted as below.

7.2.1 SWOC Overview of AES-1 District(Plain land irrigated)

Agriculture Production System

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Conducive climate and fertile soils ✦ Adequate rainfall ✦ Existence of MIP, LIP and other sources ✦ Higher participation of women in cultivation ✦ Farming system is dominated by HYVs of paddy ✦ Irrigation potential from Salki and Bagha project ✦ Adequate availability of manpower/labour 	<ul style="list-style-type: none"> ✦ Scope for development of single window delivery system ✦ Establishment of more Agril. clinic ✦ Expansion of area under cash crops ✦ Crop diversification and mixed farming ✦ Development of infrastructure for marketing ✦ Collective marketing ✦ Scope for farm mechanization ✦ Contract farming ✦ Ample scope for renewable energy
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Imbalance use of chemical fertilizers ✦ Lack of post-harvest technologies ✦ Disorganized market ✦ Lack of knowledge and skill for modern farming practices ✦ Non availability of quality seeds& fertliser ✦ Improper management of traditional WHS, FP, LIP and others 	<ul style="list-style-type: none"> ✦ Decreasing trend in use of organic manure ✦ Poorcropinsurance ✦ Non availability of timely irrigation ✦ Erratic and uneven rainfall causes drought ✦ Poor communication facility ✦ Poor extension service at isolated villages

Observation: The climatic conditions of the district is suitable for sound growth of agriculture crops and pertinent to crop diversification mainly in Boudh and Harabhanga blocks. Proper management of existing water bodies like WHS, Farm Pond and Percolation Tank can be used for lifesaving irrigation during drought. The defunct LI points can be repaired and use it for second crop. Market yard can be promoted by PPP mode to avoid distress sale of farm produce. Soil test based nutrient application can restore the soil health as well as increase more profit from farm produces. Farmer should come forward for crop insurance to minimise the crop losses in their respective areas.

Horticulture Production System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Climate is suitable for round the year production of different vegetables and fruit crops ✦ Red soil and laterite soil of the blocks are suitable for fruit crops ✦ Predominance of upland suitable for vegetable and spices ✦ Existence of Govt. horticulture nursery & private nursery ✦ Irrigation facilities from <i>Salki</i> and <i>Bagha</i> project ✦ Large coverage of mango, banana & lime 	<ul style="list-style-type: none"> ✦ Area expansion under fruit crops are possible ✦ Off season vegetable cultivation ✦ High value low volume vegetable crops can be cultivated ✦ Protected cultivation of vegetables ✦ Establishment of cold storage and cooling chamber ✦ Potential for mushroom and apiary cultivation ✦ Processing and preservation of fruit and vegetables

WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Old and senile orchard ✦ Nonexistence of farmers organization for horticulture crops ✦ Poor market infrastructure for horticulture produce ✦ Lack of cold storage facility in the district ✦ Poor processing industry in the district ✦ Non availability of mushroom spawn production unit 	<ul style="list-style-type: none"> ✦ Leasing out the cultivated land ✦ Exploitation by money lender ✦ Preponderance of middle man ✦ Fluctuation of market price of horticulture commodities

Observation: The district climate is conducive for horticultural crops. Over the years, the area under fruits and vegetables have increased significantly. Mango, banana and lime are the major dominated fruit crops in the district. Few farmers have established big orchards in the district in different location. The district has ample scope for production of fruits and vegetables across the district.

Animal Production System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Most of the farmers keep <i>deshicow</i> breed ✦ Landless and poor people keep sheep and goat ✦ Most of the farmers are still using bullock for ploughing ✦ Milk consumption trend is Increasing ✦ Fodder seeds are available ✦ Existence of LI centre in panchayat level 	<ul style="list-style-type: none"> ✦ JK are involved with artificial insemination ✦ Posting of para veterinary worker at village level by JK ✦ Farmers can be subsidized for construction of cattle shed, poultry farm and shed for goat and sheep ✦ Farmers should be trained milk processing ✦ Farmers should be trained on scientific rearing of poultry, sheep and goat ✦ Scope for backyard poultry rearing for poor and landless people
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Lack of knowledge and skill on animal husbandry ✦ Inadequate floor space for animals ✦ Higher cost of milch cow cannot afford poor farmers ✦ Occurrence of epidemic like bird flue ✦ No marketing infrastructure for animal product ✦ No processing industry of milk ✦ Un hygienic cattle shed 	<ul style="list-style-type: none"> ✦ Regularly pasture land are decreasing due to encroachment ✦ Deforestation ✦ Social and caste restriction for poultry farming ✦ Mechanization in agriculture ✦ Hesitation of farm women for taking care of cattle

Observation: The livestock is one of the major livelihood option for landless, marginal and small farmers in AES villages. Mainly the small ruminants like goat, sheep and birds are reared by the poor while the large ruminants like cattle, buffaloes etc. by medium and large farmers. The farmers are managing their livestock for drought purpose and getting negligible quantity of milk. They are lacking in **management, feeding, breeding and disease control measures**. As a result there is poor growth,

non-descript offspring and huge mortality of animals/ birds due to outbreak. The farmers are facing **difficulty to availing common minimum livestock services like restraining, wound dressing, administration of medicines, outbreak reporting etc.** As a result there is heavy loss due to frequent morbidity and high mortality of animals/birds. Provision of doorstep services for these common problems can minimize the loss significantly. But, the farmers are facing difficulties to avail such services as and when required at their doorstep due to remoteness and inadequate professional manpower in Veterinary Department.

Fish Production System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Supply of fry, fingerling and yearlings by district fishery office ✦ Existence of fish seed rearing farm at private level ✦ Good institutional support ✦ Capture and culture of fish in district ✦ Availability of fish feed and medicine in local market 	<ul style="list-style-type: none"> ✦ Encourage farmers for Rice-fish farming ✦ Subsidy for excavation of new pond ✦ Renovation of old pond and water bodies ✦ Water and soil testing before putting fingerlings ✦ Capture of fish from Mahanadi river
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Lack of ownership of community water bodies ✦ Inadequate availability of exotic breed of fish ✦ Lack of credit flow into the fishery sector ✦ Lack of marketing infrastructure ✦ Lack of refrigerated transport 	<ul style="list-style-type: none"> ✦ Fish pond poisoning ✦ Early drying of existing pond ✦ Occurrence of epidemic in fish culture ✦ Massive capture of fish from river

Observation: The fisheries sector occupies a very important place in the socio-economic development of the district. Fishery sector has recognised as a powerful income and employment source for landless, big and small farmers. Financial support is required for raising this sector for better horizon in the district. Encourage and motivate farmers for commercial fish farming and avail the govt. on-going schemes in their respective areas. Time to time organise capacity building programme for the fisherman community for better technical knowhow.

Soil and Water Conservation System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Vast area of district is covered under forest ✦ Adequate pasture land ✦ Red and laterite soil of district is suitable for fruit crops ✦ Good water sources from the major rivers like Salki and Sagada in the district ✦ Climate are suitable for round the year vegetable production 	<ul style="list-style-type: none"> ✦ Renovation of old water bodies ✦ Construction of check dam on perennial nala and rivers ✦ Development of new water bodies ✦ Proper utilization of non-timber forest products ✦ Value addition of naturally derived products
WEAKNESSES	CHALLENGES

<ul style="list-style-type: none"> ✦ Deforestation & poor conservation measures encourage more runoff and soil erosion ✦ Heavy loss of organic matter due to flash flood ✦ Poor management of natural resources 	<ul style="list-style-type: none"> ✦ Deforestation ✦ Erratic rainfall ✦ Early drying of water bodies ✦ Over exploitation of natural resources
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Observation: Our survival on earth essentially depends on three basic resources like soil, water and forest (Nature’s three valuable gifts to mankind). Nature gives protection to these resources through natural vegetation. This protective shield of land is disturbed by biotic interference, making the soil vulnerable to detachment and dislocation- a vicious process called soil erosion. A no-care attitude and gross negligence coupled with burgeoning population, conversion of forest land to agriculture land and their ever-increasing needs and demands over the years have taken the problem to threatening dimension. Strengthening local institutions for participatory decision making and building self-reliance of the local communities are also emphasized to conserve the natural resources. People awareness and social fencing can check the deforestation and save the nature.

7.2.2 SWOC Overview of AES-2(Rain fed Plateau)

Agriculture Production System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Adequate rainfall ✦ Fertile soil ✦ High women participation in cultivation ✦ Farming system dominated by HYV of rain fed paddy ✦ Adequate availability of manpower/labour ✦ Adequate availability of institutional credit / input 	<ul style="list-style-type: none"> ✦ Tel river is present within 1km distance ✦ Crop diversification and mixed farming ✦ Development of infrastructure for marketing ✦ Cultivation of low water duty crops ✦ Seed village scheme
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Less use of chemical fertilizers ✦ Lack of post-harvest technologies ✦ Unorganized market ✦ Lack of knowledge and skill on modern farming ✦ Non availability of quality seeds ✦ Rain fed farming ✦ Insufficient irrigation system 	<ul style="list-style-type: none"> ✦ Decreasing trend in use of organic manures ✦ Poor crop insurance ✦ Non availability of timely irrigation ✦ Erratic rainfall resulting drought

Horticulture Production System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Conducive climatic for round the year production of different vegetables and fruit crops ✦ Red soil, laterite soil of district are suitable for fruit crops ✦ Predominance of sloppy upland suitable for vegetable and fruits 	<ul style="list-style-type: none"> ✦ Agro forest based farming system can be developed ✦ Area expansion under fruit crops is possible ✦ Cashew nut based horticulture cropping system is to be developed ✦ Off season vegetable cultivation ✦ High value low volume vegetable crops can

<ul style="list-style-type: none"> ✦ Existence of Govt. horticulture nursery & private nursery ✦ Easy access to town market 	<ul style="list-style-type: none"> be cultivated ✦ Protected cultivation of vegetables ✦ Establishment of cold storage and cooling chamber ✦ Processing and preservation of fruits and vegetables ✦ Potential for mushroom cultivation
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Old and senile orchard ✦ No farmers organization for horticulture crops ✦ Lack of market infrastructure for horticulture produce ✦ No cold storage in the district ✦ No processing industry in the district ✦ Non availability of quality seeds ✦ Lack of assured irrigation facility 	<ul style="list-style-type: none"> ✦ Leasing out of cultivated land ✦ Exploitation by money lender ✦ Preponderance of middle man ✦ Fluctuation of market price of horticulture commodities

Animal Production System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Availability of mobile artificial insemination ✦ Marketing of milk through OMFED ✦ Abundant population of live stock ✦ Most of the farmers keep cows ✦ Landless and poor people keep sheep and goat ✦ Most of the farmers are still using bullock for ploughing ✦ Supply of fodder seeds by DVO ✦ Existence of L I centre in panchayat level ✦ Presence of vast area under forest and vegetation 	<ul style="list-style-type: none"> ✦ Encourage farmers for fodder production ✦ Desi cow can be upgraded through artificial insemination ✦ Creation of awareness for vaccination and deworming of small animals ✦ Farmers can be subsidized for construction of cattle shed, poultry farm and shed for goat and sheep ✦ Farmers should be trained for milk processing ✦ Farmers should be trained on scientific rearing of poultry, sheep and goat ✦ Scope for backyard poultry rearing for poor landless people ✦ Scope for increasing support service to people at Panchayat level ✦ Scope for Insurance of animal
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ No fodder cultivation ✦ No insurance mechanism for animals ✦ Lack of knowledge and skill on animal husbandry ✦ Inadequate floor space for animals ✦ Costliness of cross bred milch cow ✦ Occurrence of epidemic like bird flue ✦ No marketing infrastructure for animal product ✦ Un hygienic cattle shed ✦ Lack of quality feed ✦ Non availability of medicine ✦ Lack of flow of credit 	<ul style="list-style-type: none"> ✦ Decreasing of pasture land ✦ Deforestation ✦ Social and caste restriction for poultry farming ✦ Mechanization of agriculture reduce dependence on animal power ✦ Hesitation of farm women in taking care of cattle

Fish production System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ Willingness of people for fish and prawn rearing ✦ Supply of fry, fingerling and yearlings by district fishery office ✦ Good institutional support ✦ Capture and culture of fish in district 	<ul style="list-style-type: none"> ✦ Adoption of modern technology in fish farming ✦ Subsidy for excavation of new pond ✦ Renovation of old pond ✦ Sustainable capture of fish from river ✦ Insurance mechanism for fish pond ✦ Testing of water and soil sample ✦ Creation of infrastructure for refrigerated transport
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Lack of sufficient water bodies for fish culture ✦ Lack of ownership of community water bodies ✦ Inadequate availability of exotic breed of fish ✦ Lack of credit flow into the fishery sector ✦ Lack of marketing infrastructure ✦ Lack of refrigerated transport ✦ Unavailability of low cost feed 	<ul style="list-style-type: none"> ✦ Fish pond poisoning ✦ Early drying of existing pond ✦ Occurrence of epidemic in fish culture ✦ Massive capture of fish from river

Natural Resource System:

STRENGTHS	OPPORTUNITIES
<ul style="list-style-type: none"> ✦ One major river(Tel) and <i>kalar jhuli jur</i> within 1 km distance in the AES ✦ Sloppy upland is suitable for fruit crops ✦ Climate is suitable for round the year cultivation of different vegetables ✦ Vast area of district is covered under forest ✦ Adequate pasture land ✦ Red and laterite soil are suitable for fruit crops 	<ul style="list-style-type: none"> ✦ RLI project can be undertaken ✦ Assured irrigation facility can be made by check dam ✦ Sinking of dug well, ponds & other water harvesting structure for life saving irrigation ✦ Agro forestry based vast foothills ✦ Renovation of old water bodies ✦ Construction of check dam on perennial nala and rivers ✦ Construction of new water bodies ✦ Proper utilization of non-timber forest products ✦ Value addition of naturally derived products
WEAKNESSES	CHALLENGES
<ul style="list-style-type: none"> ✦ Improper use of available water ✦ Under exploration of natural resources ✦ Lack of water harvesting structure 	<ul style="list-style-type: none"> ✦ Higher rate of soil erosion ✦ Deforestation ✦ Erratic rainfall ✦ Early drying of water bodies ✦ Over exploitation of natural resources

Chapter-VIII

Value Chain Analysis of major agril-commodities in the district

The agricultural value chain concept has been used earlier for agricultural product to move from the farm to the final customer or consumer. **Value chain analysis(VCA)** is a strategy tool used to analyse internal firm activities. Its goal is to recognize, which activities are the most valuable (i.e. are the source of cost or differentiation advantage) to the firm and which ones could be improved to provide competitive advantage. Agricultural value chain is concerned with the flows of commodity to and within a value chain to meet the needs of chain actors for commodity, to secure sales, to buy inputs or produce, or to improve efficiency. The important commodities of the district have been considered and analysed with multi stakeholders for better perspective.



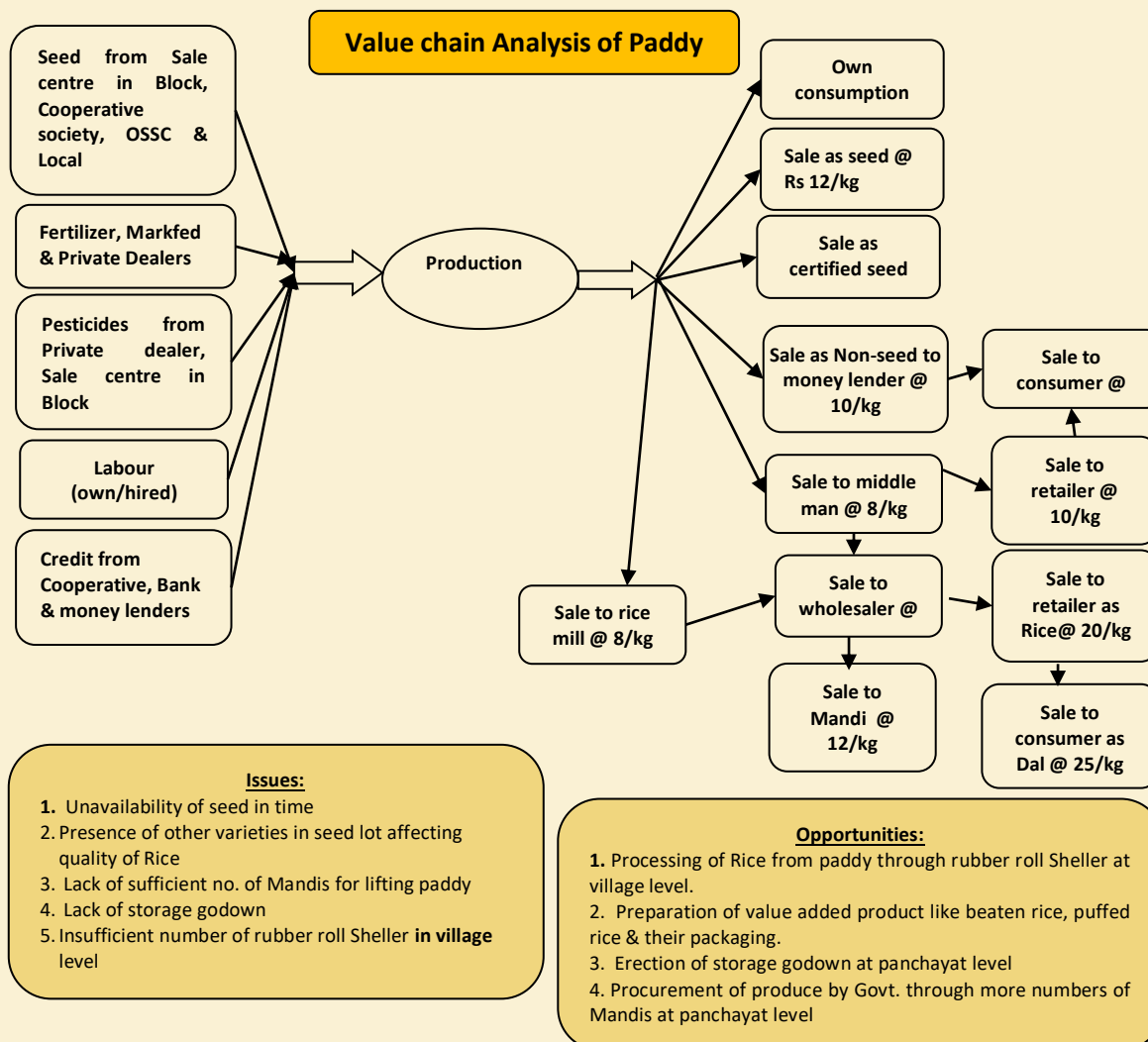
8.1 Paddy

Paddy is cultivated in 68480 ha area with a production of 266080 tons and productivity of 38.86 q/ha. Major constraint in this crop are frequent occurrence of drought especially in upland condition. Due to non-availability of sufficient number of *mandis* farmers are compelled to sale the produce to rice mill at low price presence of admixture in seed lot also affect qualitative parameters

of rice after processing. Indebted farmers are compelled to supply paddy to money lender even if in low value for repayment of loan. The establishment of rubber rollsheller at village level can processed the rice at farmers door step. Low cost parboiling unit can be popularized among farm women. The farm women should be trained on preparation, packaging & marketing of value added products like puffed rice, beaten rice. The Govt. should provide sufficient no. of *mandis* at panchayat level to avoid distress sale. The innovative farmer should be encouraged for certified seed production by providing foundation seed to them. Sufficient no. of storage godown should be constructed to store rice.

Table 72, Key Players associated with Paddy value Chain

Sl. No	Activities	Actor	Interaction
1	Seed supply	Sale centre in Block, KVK , OSSC & Local, , farmers	<ul style="list-style-type: none"> ▪ OSSC supply foundation seeds & also procure certified seed from farmer ▪ KVK purchases breeder/foundation seed from & produce foundation/certified seed which is lifted by OSSC
2	Fertilizer supply	MARKFED & Private input Dealers, , farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
3	Pesticides supply	Private input dealer, Sale centre in Block, farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
4	Credit	Cooperative ,Bank & money lenders,, farmers	<ul style="list-style-type: none"> ▪ Farmers take credit & sale the produce to money lender or supply produce as repayment of loan taken ▪ Farmers take credit from co-operative society & Paddy is procured through co-operative society
5	Sale of produce	Farmer, Middle man, rice millers Whole seller, Retailer, Consumer	<ul style="list-style-type: none"> ▪ Farmers sale directly to consumer to get more margin ▪ farmers sale to middle man for inconvenience in transport ▪ farmer sale to Mandi whole seller or retailer when there is lack of suitable storage infrastructure ▪ Farmers sell to rice miller to get direct cash payment

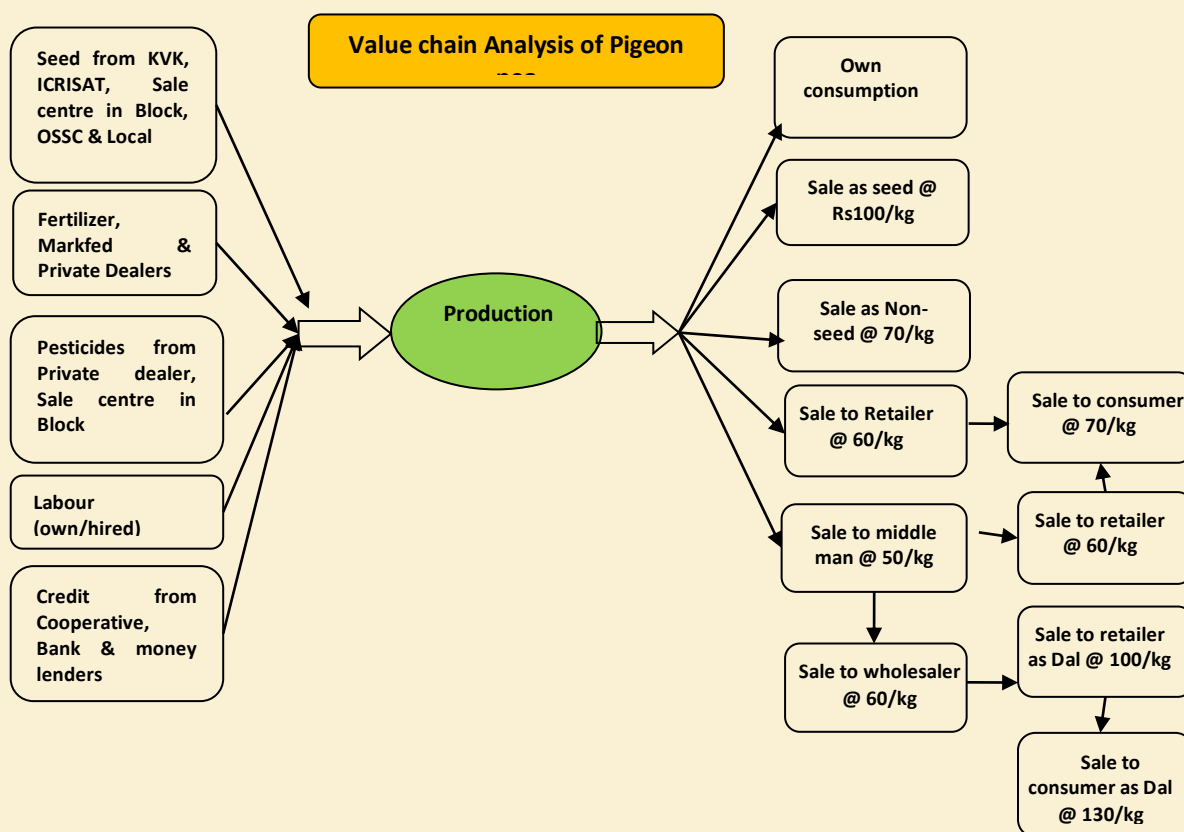


8.2 Pigeon pea

Pigeon pea is cultivated in an area of 4600 ha with production of 3270 tones in Boudh district and productivity is 7.1 qt/ha. The productivity is low because mostly marginal land is used for cultivation by farmers, high incidence of wilt and pod borer, lack of HYVs at farmers door step and predominance of rice cultivation in upland. There is scope for establishment of Dal mill in the district. Training and demonstration for preparation of mixtures, pampads, and noodles by farmers can be made. Unbunded upland area should be broad under pigeon pea cultivation.

Table 73, Key Players associated with Pigeon Pea value Chain in Boudh			
S. No	Activities	Actor	Interaction
1	Seed supply	KVK, ICRISAT, Sale centre in Block, OSSC & Local, farmers	<ul style="list-style-type: none"> ▪ OSSC supply foundation seeds & also procure certified seed from farmer ▪ KVK purchases breeder/foundation seed from ICRISAT & produce foundation/certified seed which is lifted by OSSC
2	Fertilizer supply	Markfed, Private input Dealers and farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center

3	Pesticides supply	Private dealer, Sale centre in Block, farmers	<ul style="list-style-type: none"> Farmers purchase inputs directly from the center
4	Credit	Cooperative, Bank and money lenders, farmers	<ul style="list-style-type: none"> Farmers sale the produce to money lender or supply produce as repayment of loan taken
5	Sale of produce	Farmer, Middle man, Wholesaler, Retailer, Consumer	<ul style="list-style-type: none"> Farmers sale directly to consumer to get more margin Farmers sale to middle man when there is inconvenience in transport Farmer sale to wholesaler or retailer when there is lack of suitable storage infrastructure



- Issues**
1. Low productivity
 2. No scope for Dal processing at district level
 3. Marginal land is used for cultivation
 4. Lack of knowledge of preparation of value added products

- Opportunities**
1. Scope of Establishment of Dal mill
 2. Bringing upland under Pigeon pea cultivation
 3. Scope for Value added product like *Badi*, *Pampad*, *Noodles* etc.
 4. Procurement of produce by Govt. through Mandis

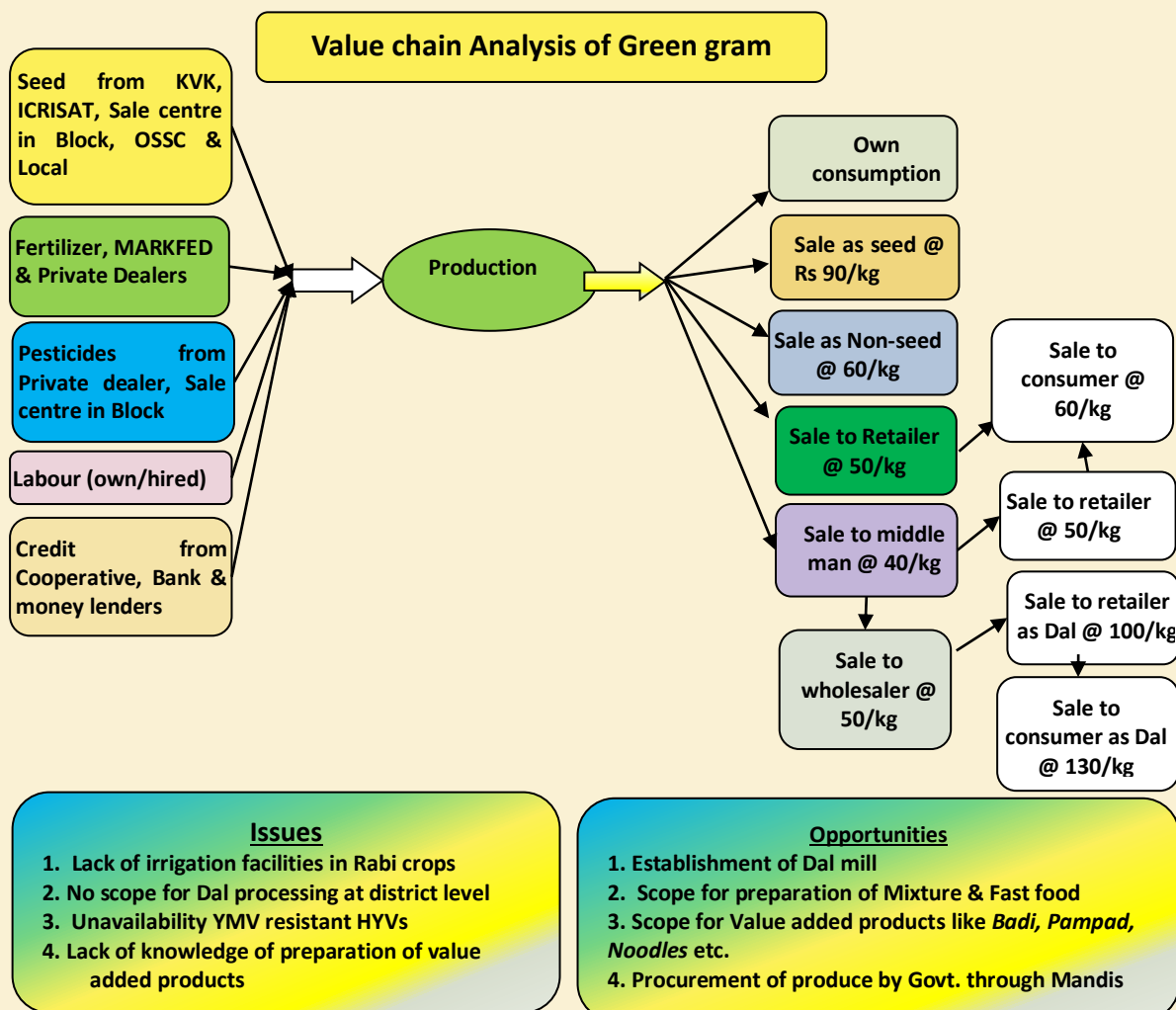
8.3 Greengram

In Boudh district, green gram grown in an area of 12900 ha where the production is 6490 tones & the productivity is 5.03 qt/ha. The major problems faced by farmers are heavy incidence to YMV, lack of irrigation in Rabi season. Farmers sale his produce to middle man or in local market at lower price. Farmers can earn a larger share from this crop by *Dal* processing. Besides that they can be trained

and provided required equipment's or machineries for preparation of value added products in their respective areas.

Table 74, Key Players associated with Greengram value Chain in Boudh

SI No	Activities	Actor	Interaction
1	Seed supply	KVK, ICRISAT, Sale centre in Block, OSSC & Local, farmers	<ul style="list-style-type: none"> ▪ OSSC supply foundation seeds & also procure certified seed from farmer ▪ KVK purchases breeder/foundation seed from ICRISAT & produce foundation/certified seed which is lifted by OSSC
2	Fertilizer supply	Markfed & Private input Dealers, farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
3	Pesticides supply	Private input dealer, Sale centre in Block, farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
4	Credit	Cooperative, Bank & money lenders, farmers	<ul style="list-style-type: none"> ▪ Farmers sale the produce to money lender or supply produce as repayment of loan taken
5	Sale of produce	Farmer, Middle man, Whole seller, Retailer, Consumer	<ul style="list-style-type: none"> ▪ Farmers sale directly to consumer to get more margin ▪ farmers sale to middle man when there is inconvenience in transport ▪ farmer sale to wholesaler or retailer when there is lack of suitable storage infrastructure



8.4 Blackgram

Black gram is grown 5700 ha area, producing 26700 tons with a productivity of 4.68 qt/ha. The major problems faced by farmers are heavy incidence to YMV and lack of irrigation in Rabi season. Farmers sale his produce to middle man or in local market in low price. Farmers can earn a larger share from this crop by Dal Processing. Besides they can be trained & provided with equipments/machineries for preparation of value added products.

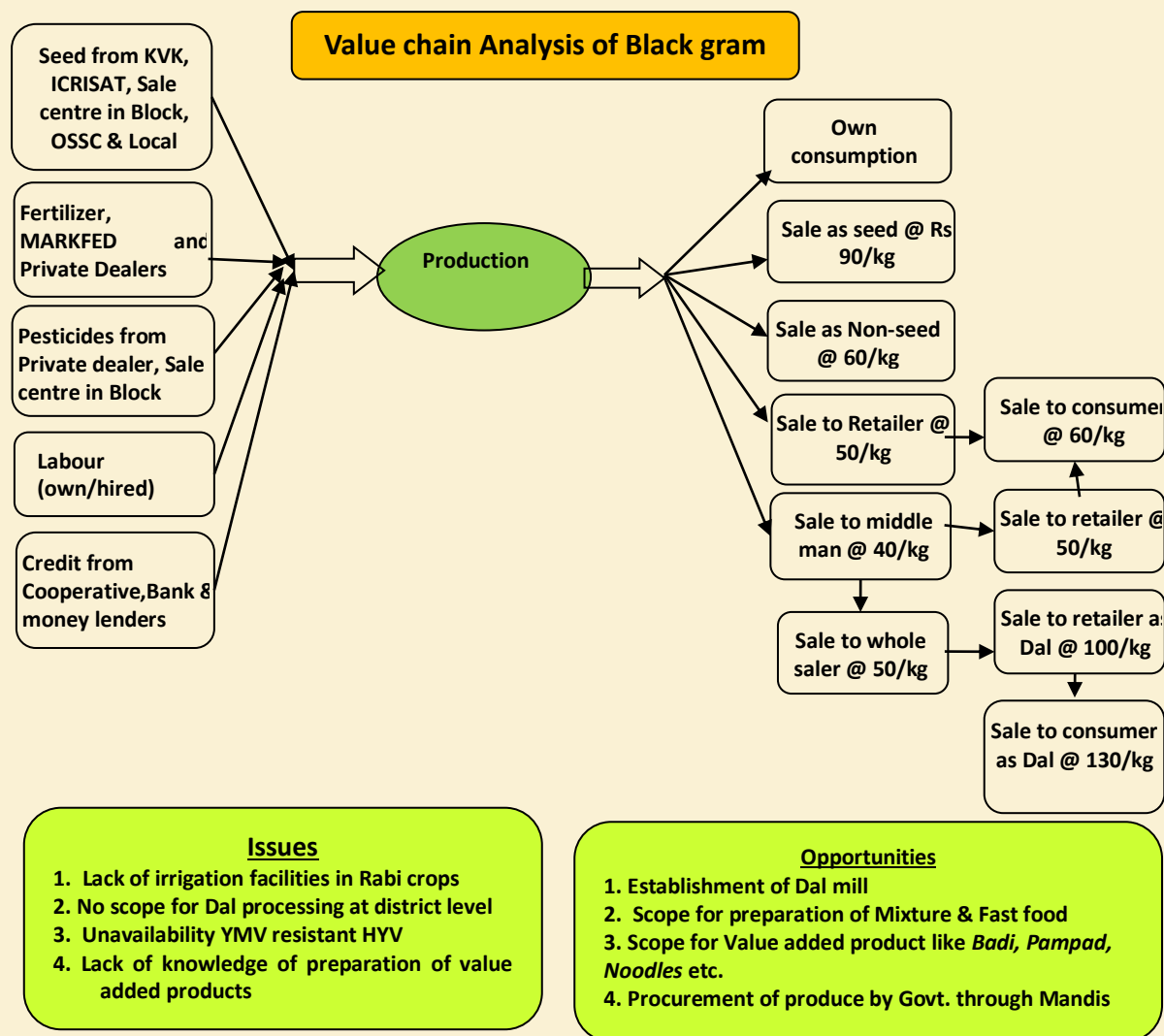


Table 75, Key Players associated with Blackgram value Chain in Boudh

SlNo	Activities	Actor	Interaction
1	Seed supply	KVK, ICRISAT, Sale centre in Block, OSSC & Local	<ul style="list-style-type: none"> ▪ OSSC supply foundation seeds & also procure certified seed from farmer ▪ KVK purchases breeder/foundation seed from ICRISAT & produce foundation/certified seed which is lifted by OSSC
2	Fertilizer supply	MARKFED & Private input Dealers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center

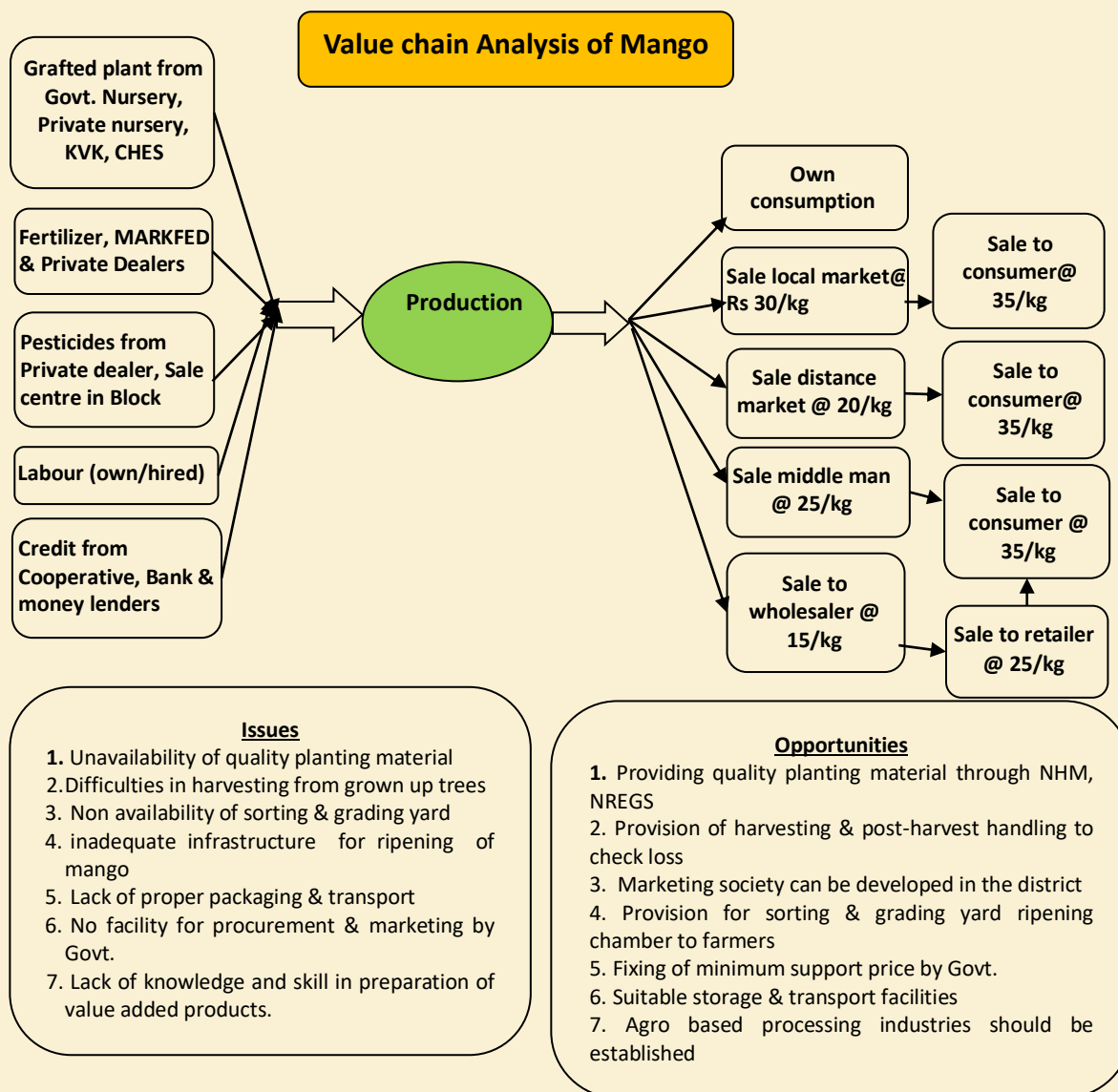
3	Pesticides supply	Private input dealer, Sale centre in Block	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
4	Credit	Cooperative, Bank & money lenders	<ul style="list-style-type: none"> ▪ Farmers sale the produce to money lender or supply produce as repayment of loan taken
5	Sale of produce	Farmer, Middle man, Whole saler, Retailer, Consumer	<ul style="list-style-type: none"> ▪ Farmers sale directly to consumer to get more margin ▪ Farmers sale to middle man when there is inconvenience in transport ▪ Farmer sale to wholesaler or retailer when there is lack of suitable storage infrastructure

8.5 Mango

Mango is one of the important fruit crop grown in an area of 2218 ha where the production is 9406 tons. The major bottlenecks faced by the farmers are lack of post-harvest technology, poor storage facility and transport facilities of perishable fruit like mango. Horticulture Dept. should encompass their support to farmers during supply of quality planting materials, provision of sorting & grading yard, ripening chamber, harvesting equipment's for larger trees, packaging tray/ carton /box, selling of saplings and subsidized transport facility. Adequate infrastructure need to be developed for marketing of produce and transport to distant market. The Govt. should fix minimum support price for mango and other fruits crops. Agro based processing industries to be established at district level to save the surplus fruits and vegetables. The farmers should be trained on modern post-harvest handling, storage methods to minimize loss, preparation of different value added products and cold chain of perishable fruits and vegetables.

S/No	Activities	Actors	Interaction
1	Supply of Grafted plant	Govt. Nursery, Private nursery, KVK, CHES and farmers	<ul style="list-style-type: none"> ▪ Horticulture Dept. to be verified the planting material of private farm & lift these to supply other farmers in NHM and MGNREGS ▪ Farmers purchase grafted plants from Horti. Dept, CHES, KVK & reputed farm ▪ KVK should organizes vocational training on quality planting material production
2	Fertilizer supply	MARKFED & Private input Dealers and farmers	<ul style="list-style-type: none"> ▪ Farmers directly purchase inputs from the Govt, farm or reliable sources
3	Pesticides supply	Private Input Dealer, Sale centre of Blocks and farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
4	Credit	Co-operative society, Bank, money lenders and farmers	<ul style="list-style-type: none"> ▪ Farmers take credit and sale the produce to money lender or supply produce as repayment of loan amount ▪ Farmers take credit from co-operative society

5	Sale of produce	Farmer, Middle man, Wholesaler, Retailer, Consumer, Jai Mataji Farmers Producer Organization	<ul style="list-style-type: none"> ▪ Farmers sale directly to consumer to get more profit ▪ Farmers sale to middle man for inconvenience in transport ▪ Farmer sale to wholesaler or retailer when there is lack of suitable storage infrastructure ▪ Farmers sale to Jai Mataji Farmers Producer Organization
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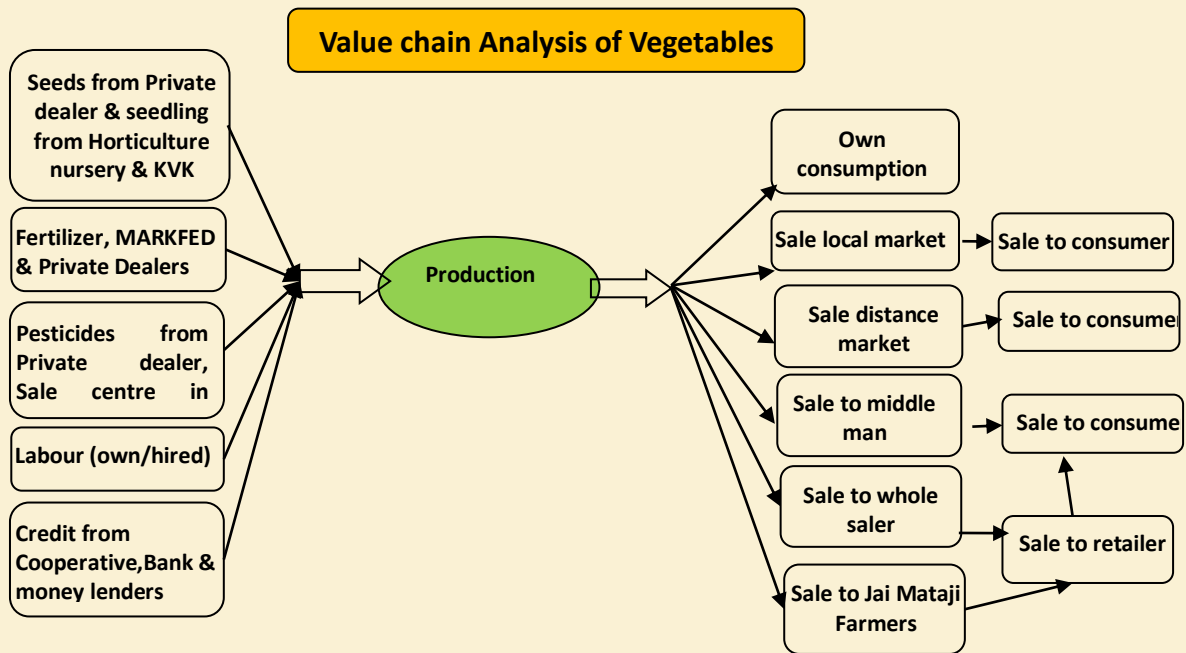
8.6 Vegetables

Different type of vegetables like brinjal (4426), tomato (2376), potato (207), cole crops (2474), onion (863), chili (972), okra (2102) and cucurbits (826) are grown round the year in Boudh district. The total vegetable production is 239883 tons from an area of 16425 ha. The major issues of vegetable cultivation are low price & market surplus. Besides perishable nature of produce result a great post-harvest loss. The minimum support price of vegetables should be fixed by Govt. to avoid distress

sale. Adequate infrastructure for marketing of vegetable should be developed at district level. Efficient storage & transport facilities should be created for avoiding fluctuation of market price and market surplus. Agro based processing unit should be established at district level. Farmer should be trained on processing and preservation methods of vegetables. Farmers are encouraged for off season vegetable cultivation for getting higher market price. Low volume and high value vegetable crops need to be popularized in the district. Farmers should be subsidized for protected cultivation of vegetables.

Table 77, Key Players associated with Vegetables value Chain in Boudh

Sl. No	Activities	Actors	Interaction
1	Supply of seed	Private dealer, seedling from Horticulture nursery, KVK farm and farmers	<ul style="list-style-type: none"> ▪ Horticulture Dept. is supplying seedlings to farmers under NHM ▪ Farmers purchase seedling from KVK & reputed farm ▪ KVK organizes vocational training for rural youth on quality planting material production
2	Fertilizer supply	MARKFED, Private Input Dealers and farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
3	Pesticides supply	Private Input Dealer, Sale centre in Blocks and farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs directly from the center
4	Credit	Cooperative, Bank, money lenders and farmers	<ul style="list-style-type: none"> ▪ Farmers take credit and sale the produce to money lender or supply produce as repayment of loan taken ▪ Farmers take credit from co-operative society
5	Sale of produce	Farmer, Middle man, Wholesaler, Retailer, Consumer, Jai Mataji Farmers Producer Organization	<ul style="list-style-type: none"> ▪ Farmers sale directly to consumer to get more margin ▪ Farmers sale to middle man for inconvenience in transport ▪ Farmer sale to wholesaler or to retailer when there is lack of storage infrastructures ▪ Farmers sale Jai Mataji Farmers Producer Organization



- Issues**
1. Unavailability of trust worthy hybrid seeds
 2. Non availability of cleaning, sorting & grading yard
 2. Inadequate infrastructure & yard for marketing
 3. Lack of proper packaging & transport
 4. No facility for procurement & marketing by Govt.
 3. Lack of knowledge and skill in preparation of value added products.
 4. Fluctuation of price & market glut
 5. Inadequate irrigation facilities in Rabi season

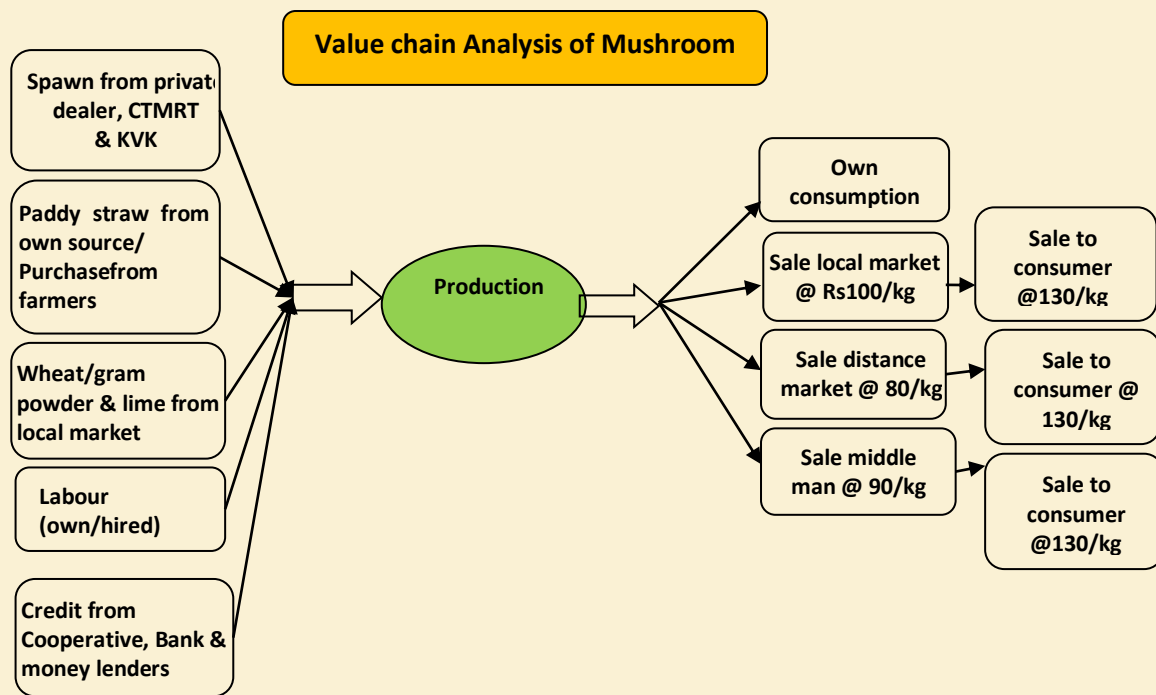
- Opportunities**
1. Providing quality seedling by Govt. nursery, KVK & Reputed private farm
 2. Provision of harvesting & post-harvest handling to check loss
 3. Marketing society for perishable product can be developed in the district
 4. Provision for cleaning, sorting & grading yard
 5. Fixing of minimum support price by Govt.
 6. Suitable storage & transport facilities
 7. Agro based processing industries should be established
 8. Bore well, Dug well should be subsidised to farmers

8.7 Mushroom

Mushroom production is an emerging business in Boudh district. The major constraints faced by farmer is unavailability of true to type spawn. There is scope for marketing. But perishable nature of produce result great post-harvest loss. Farmer should be trained on preparation of value added products like mushroom pickle. Efficient packing and transport facilities should be developed to reduce loss during transit. Institutional credit should be provided to mushroom producer. Govt. should subsidize for erection of mushroom production unit and accessories like cemented structure for soaking straw and bore well on dug well.

Table 78, Key Players associated with Vegetables value Chain in Boudh

Sl. No	Activities	Actor	Interaction
1	Spawn Supply	Private dealer, CTMRT & KVK, reputed spawn production unit, farmers	<ul style="list-style-type: none"> ▪ KVK purchase mother spawn from CTMRT & produce spawn for farmers ▪ Farmers purchase spawn from reputed spawn production unit like KVK and others ▪ KVK organizes vocational training on spawn production ▪ Private dealer purchase spawn from reputed spawn production unit & sale to farmers
2	Paddy straw supply	Other Farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs from other farmer
3	Wheat/gram powder & lime	Local grocery shop , farmers	<ul style="list-style-type: none"> ▪ Farmers purchase inputs from local grocery shop
4	Credit	Cooperative ,Bank & money lenders, farmers	<ul style="list-style-type: none"> ▪ Farmers take credit and sale the produce to money lender or supply produce as repayment of loan taken ▪ Farmers take credit from co-operative society
5	Sale of produce	Farmer, Middle man, Retailer, Consumer	<ul style="list-style-type: none"> ▪ Farmers sale directly to consumer to get more margin ▪ farmers sale to middle man for inconvenience in transport ▪ Farmer sale to retailer to save time to sale in market



Issues

1. Unavailability of true to type spawn from private dealer
2. Non availability cement structure for soaking of straw
2. Inadequate infrastructure & yard for marketing
3. Lack of proper packaging & transport
4. No facility for procurement & marketing by Govt.
5. Lack of knowledge and skill in preparation of value added products like mushroom pickle
6. Fluctuation of price & market glut
7. Difficulty in getting institutional credit for mushroom cultivation

Opportunities

1. Providing quality spawn by Govt., KVK & Reputed private spawn unit
2. Provision of post-harvest handling to check loss
3. Marketing society for mushroom developed in the district
4. Fixing of minimum support price by Govt.
5. Suitable transport facilities
6. Processing of mushroom should be encouraged
7. Bore well, Dug well should be subsidized to farmers for soaking straw

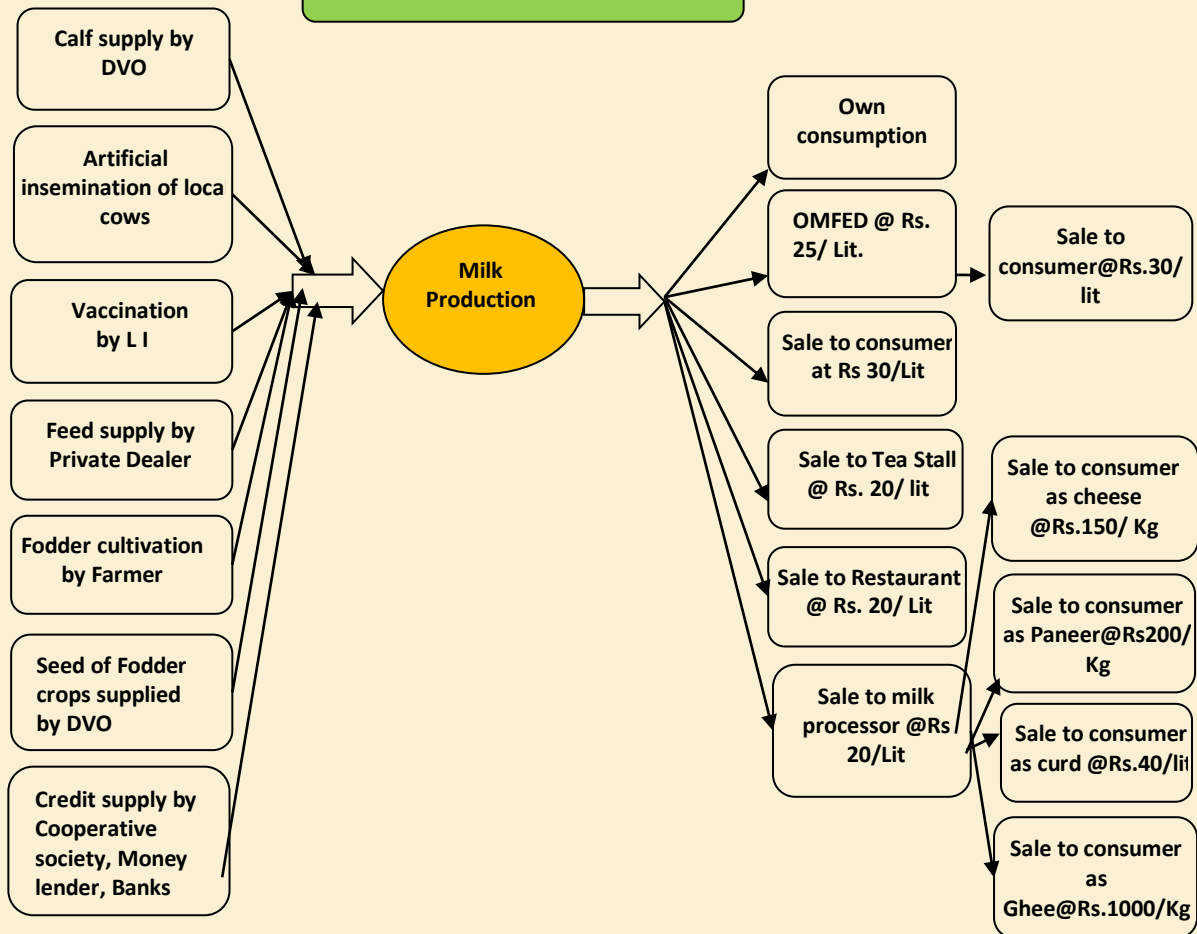
8.8 Dairy

Dairy sector is neglected in Boudh district. The contribution from the sector to economic of the district is negligible because farmers are still continuing with Desi cow having poor milk productivity. Crossed bred milch calves should be provided by district veterinary office. Artificial insemination should be practiced in Desi Cow improve their productivity. Seeds of fodder crops are supplied by DVO to dairy farmers to encourage them. Cattle feed are also available in local market. Dairy farmers usually sale milk to OMFED, Tea stall, Restaurant & local consumer. But they can gain larger amount of share from milk production by processing it. Different processed product like Cheese, Ghee, Paneer and Curd can be prepared from milk. Farmers should be trained on the method of processing milk to get higher income. Milk processing should be established at district level. Milk produced society should be formed. Govt. should provide suitable transport facility of milk of distance places.

Table 79, Key Players associated with Dairy value Chain in Boudh

Sl. No	Activities	Actor	Interaction
1	Calf supply	CDVO, farmers	<ul style="list-style-type: none"> CDVO provide cross bred calf to dairy farmer through different schemes
2	Artificial insemination of local cows	L I, Private agency (JK Group) , farmers	<ul style="list-style-type: none"> Desi cows are inseminated to improve their productivity
3	Vaccination	L I, CDVO, farmers	<ul style="list-style-type: none"> Farmers ask for vaccine to veterinary surgeon & L I do it
4	Credit	Cooperative society, Money lender, Banks, farmers	<ul style="list-style-type: none"> Farmers take credit & sale milk to money lender or supply milk as repayment of loan taken Farmers take credit from co-operative society
5	Supply of Seed of Fodder	CDVO, farmers,	<ul style="list-style-type: none"> Seeds of fodder crops supplied by DVO to farmers
6	Feed supply	Private Dealer, farmers	<ul style="list-style-type: none"> Farmers purchase feed from private dealer
7	Sale of produce	Farmer, OMFED, Tea stall, Restaurant and Consumer	<ul style="list-style-type: none"> Farmers sale directly to consumer to get more margin farmers sale to OMFED for inconvenience in transport Farmer sale to Tea stall ,Restaurant to save time to sale in market

Value chain Analysis of Dairy



Issues

1. Unavailability cross bred milch cows
2. Inadequate supply of seeds of fodder crops
3. Lack of awareness to supply feed to cows
4. No facility for procurement & marketing by Govt.
5. Lack of knowledge and skill in preparation of value added products like Cheese, Paneer, Ghee, Curd
6. There is no milk processing unit in the district

Opportunities

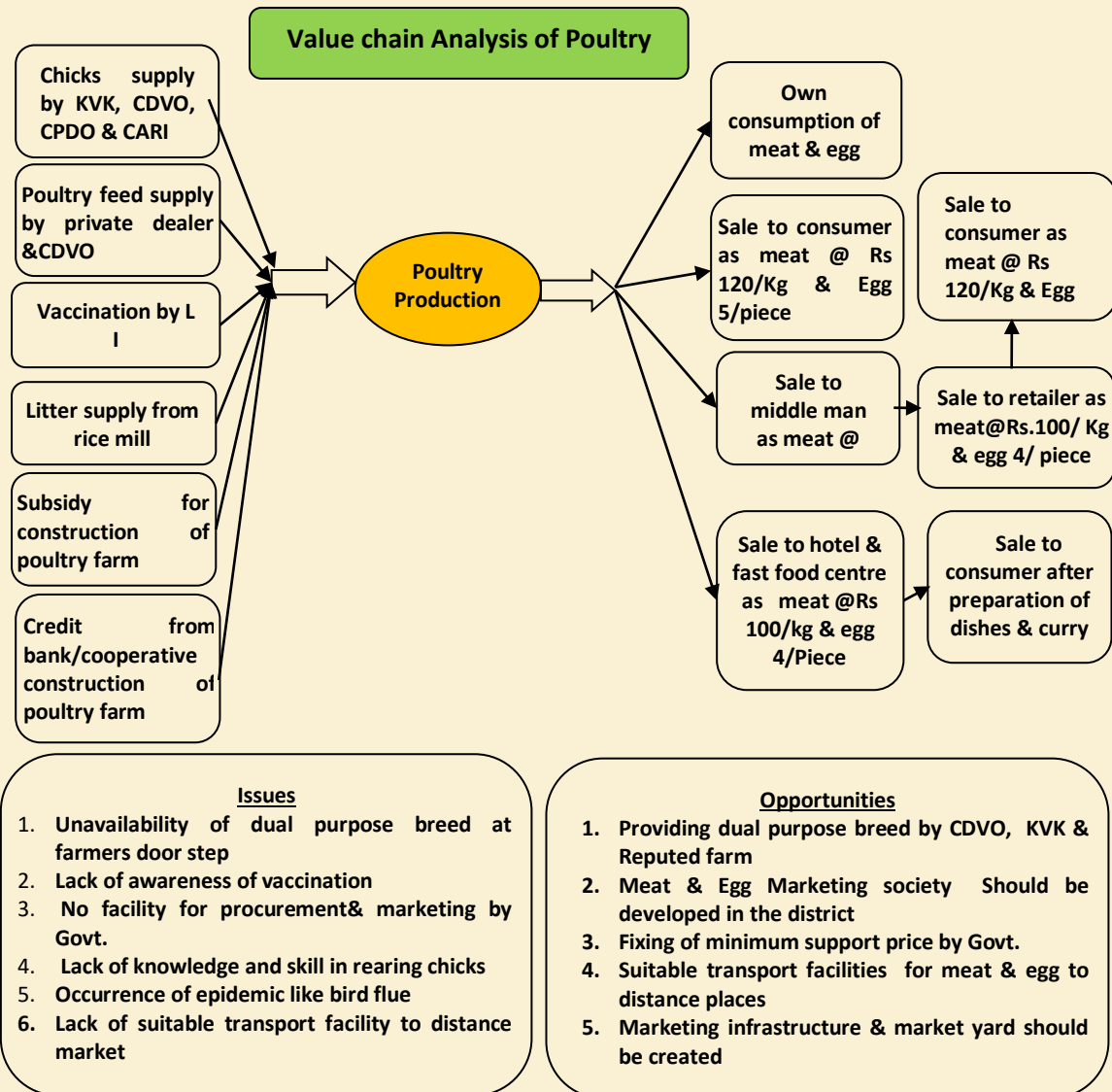
1. Providing cross bred milch cows by Govt., KVK & Reputed private farm
2. Milk Marketing society Should be developed in the district
3. Fixing of minimum support price by Govt.
4. Suitable transport facilities of milk to distance places
5. Processing & value addition of milk should be encouraged at farmer's level.
6. Milk processing unit should be established in the district

8.9 Poultry

Poultry rearing is one of the important sectors of Boudh district. But most of the poultry farmers rear birds in a traditional way. Dual purpose breeds like Banaraja and Giriraj should be introduced for backyard poultry rearing. The chicks after vaccination are sold to farmers by KVK. District veterinary offices should provide dual purpose breeds to farmers through different schemes. Now poultry feeds are also available in the local market. Besides CPDO, BBSR and CARI, BBSR is also involved in research and development activities in poultry farming. Farmers can rear dual purpose poultry initially for egg production and later for meat. The subsidy should be available from DVO for the construction of poultry farms and their scientific management. Creation of awareness among farmers for proper vaccination to control epidemics in poultry. Emphasis should be given on backyard poultry rearing for poor, marginal and landless farmers.

Table 80, Key Players associated with Poultry value Chain in Boudh

Sl. No	Activities	Actor	Interaction
1	Chicks supply	CDVO, CPDO, KVK, CARI and farmers	<ul style="list-style-type: none"> ▪ KVK procure one day old chicks from CPDO, CARI & sale 21 days old chicks after proper vaccination ▪ CPDO, CARI also provide one day old chicks to reputed poultry farmers who after vaccination sale to other farmers ▪ CDVO also supplies chicks to farmers
2	Poultry feed supply	Private dealer, CDVO and farmers	<ul style="list-style-type: none"> ▪ Farmers purchase poultry feed from private dealer
3	Vaccination	L I, CDVO and farmers	<ul style="list-style-type: none"> ▪ Farmers ask for vaccine to veterinary surgeon & L I do it
4	Credit	Cooperative society, Money lender, Banks and farmers	<ul style="list-style-type: none"> ▪ Farmers take credit & sale to money lender or supply as repayment of loan taken ▪ Farmers take credit from co-operative society
5	Litter supply	Rice mill, farmers	<ul style="list-style-type: none"> ▪ Farmers purchase rice husk from mill
6	Construction of poultry farm	CDVO and farmers	<ul style="list-style-type: none"> ▪ farmers should be subsidized for construction of poultry farms
7	Sale of produce	Farmer, Restaurant, Consumer and fast food center	<ul style="list-style-type: none"> ▪ Farmers sale directly to consumer to get more margin ▪ farmers sale to OMFED for inconvenience in transport ▪ Farmer sale to Tea stall, Restaurant to save time to sale in market

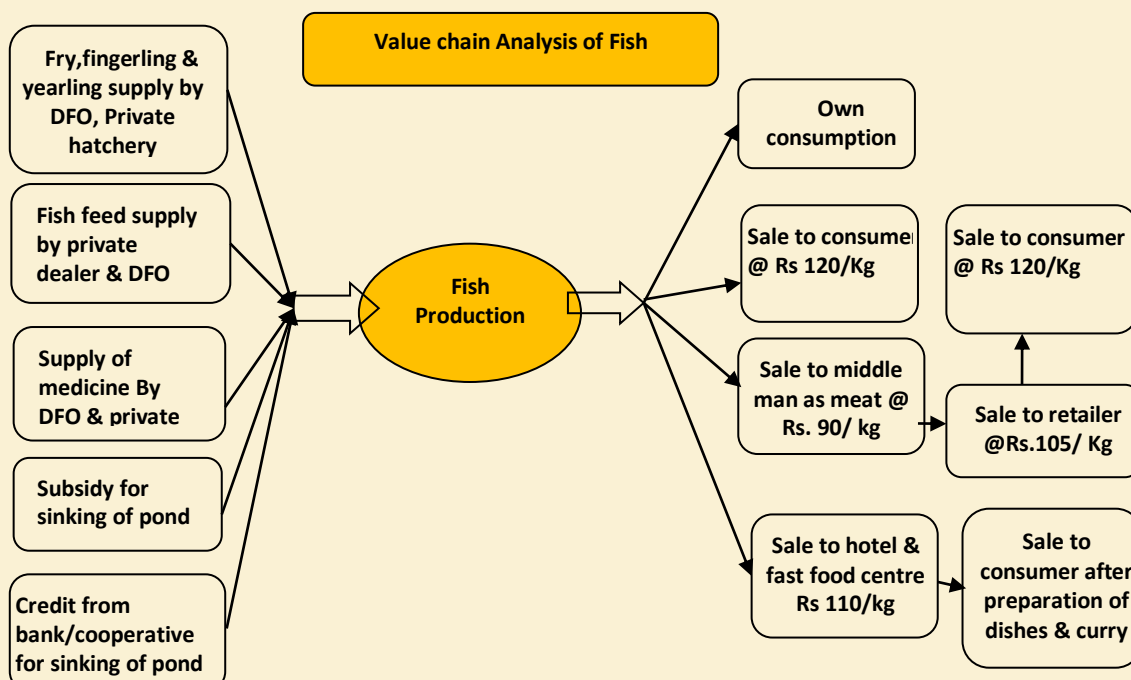


8.10 Fishery

Inland fisheries (Capture & culture) is one of the important sector in economy of Boudh district. Framers can get fry, fingerlings and yearlings from district fishery office and private farm. Private hatchery is also operating in our district to supply fry in fish farmers. Fish feed and medicine are also available in local market. But farmers are producing in traditional way. Introduction of different exotic breed of fish by fishery Dept. is essential besides farmer should be trained on supplementary feeding, stocking density, stocking ratio, renovation of old pond, maintenance of depth. Awareness should be created among farmer for testing of soil and water of pond. District fisheries office should plan for execution of more no. of pond with subsidy from Govt. Beside sufficient infrastructure for marketing and refrigerated transport facility should be created farmer usually sale fish in local market, hotel and fast food center. They can fetch more price by catching distant market. Farmer should be trained on value addition of fish and its scientific packaging and handling.

Table 81, Key Players associated with Fishery value Chain in Boudh

Sl.No	Activities	Actor	Interaction
1	Fry ,fingerling & yearling supply	DFO ,Private hatchery, farmers	<ul style="list-style-type: none"> Farmers purchase fry , fingerling from private hatchery DFO also supplies fry , fingerling to farmers
2	Fish feed supply	Private dealer & DFO, farmers	<ul style="list-style-type: none"> Farmers fish feed from private dealer
3	Supply of medicine	DFO & private dealer, farmers	<ul style="list-style-type: none"> Farmers ask for medicine to DFO & purchase from private dealer
4	Credit	Cooperative society, Money lender, Banks, farmers	<ul style="list-style-type: none"> Farmers take credit & sale to money lender or supply as repayment of loan taken Farmers take credit from co-operative society, bank
5	Sinking of pond	DFO , farmers	<ul style="list-style-type: none"> Farmers should be subsidized for sinking of pond
6	Sale of produce	Farmer, Restaurant, Consumer, fast food center	<ul style="list-style-type: none"> Farmers sale directly to consumer to get more margin farmers sale to middle man for inconvenience in transport Farmer sale to fast food center, Hotel, Restaurant to save time to sale in market



Issues:

1. Unavailability of quality Fry ,fingerling & yearling at farmers door step
2. Lack of awareness of supplementary feed & use of medicine in fish pond
3. No facility for procurement & marketing by Govt.
4. Lack of knowledge and skill in fish farming
5. Occurrence of fish epidemic
6. Lack of suitable transport facility to distance market

Opportunities:

1. Providing quality Fry ,fingerling & yearling
2. Fish Marketing society Should be developed in the district
3. Fixing of minimum support price by Govt.
4. Refrigerated transport facilities for distance places should be developed
5. Marketing infrastructure & market yard should be created

Chapter-IX

AES Wise Gap Analysis of Agri-enterprises

9.0AES-1 Plain Land Irrigated

9.1Agriculture Production System

Table 82, Major Field Crops Gap Matrix (Max. GAPS = 10, No GAP = 0)

Particular	Rice	Maize	Black gram	Green gram	Arhar	Sunflower	Groundnut	Sesamum	Niger	Mustard	Sugarcane	Fiber
Technology	2	3	2	2	2	2	4	3	3	3	3	2
Input	2	3	3	3	3	4	4	5	5	4	3	2
Market	4	5	2	2	2	4	5	5	4	5	9	9
Services	2	2	2	2	2	2	2	3	2	3	2	2
Infrastructure	6	6	6	5	5	6	6	5	6	6	5	6
Total	16	19	15	14	14	18	21	21	20	21	22	21

Issues	Opportunities
<ul style="list-style-type: none"> ■ Predominance paddy cultivation in rain fed upland ■ Interference and exploitation by middle man is more ■ Non-availability of timely credit for purchase of inputs ■ Distress sale & post-harvest loss ■ Non-availability of quality seeds ■ Non-availability of climate resilient variety ■ Low seed replacement rate ■ Decreasing trend in organic manure ■ Decline of organic matter content in soil ■ Non-availability of bio-fertilizers ■ Lack of rain water harvesting structure ■ Lack of knowledge on IPM and INM ■ Low adoption of technologies ■ Non-availability of organized markets ■ Rise in production cost & risk involving technologies ■ Low yield from traditional & old high yielding varieties 	<ul style="list-style-type: none"> ■ Crop diversification in rainfed upland ■ Procurement of food grains through <i>mandis</i> at panchayat level ■ Scope for development of marketing infrastructure and storage godown ■ Timely availability of credit to farmers by cooperative societies & bank ■ Expansion of area under seed village programme with provision of processing plant at block level ■ Backyard composting and green manuring /biogas plant/vermi composting ■ Setting of bio-fertilizer production unit at district levels ■ Pani panchayat/WHS /MIPs/LIPs ■ Existence of KVKs/NGOs/Line Depts./ ICT dealing with agriculture ■ Existence of SHGs/ Cooperative societies/Banks/ NABARD ■ Existence of MARFED/ producer cooperatives ■ Product based Community farming, adoption of low cost technologies ■ Expansion of area under different hybrids

9.2 Horticulture Production System

Table 83, Major Horticultural crops (Max. GAPS = 10, No GAP = 0)

Particular	Fruits	Spices	Vegetables
Technology	4	2	2
Input	4	8	2
Market	2	9	4
Services	5	4	4
Infrastructure	5	5	5
Total	20	28	17

Issues	Opportunities
<ul style="list-style-type: none"> ✦ Timely non-availability of inputs ✦ Lack of quality planting material ✦ Lack of micro irrigation potentials ✦ Lack of knowledge and skill on improved production technologies ✦ Non-adoption of IPM and INM practices ✦ High cost hybrid seeds of vegetables ✦ Indiscriminate use of pesticides in vegetables ✦ Improper care and management of crops ✦ Lack of infrastructure for value addition & processing ✦ Lack of cold storage ✦ Huge post-harvest losses ✦ Disorganized market/infrastructures ✦ Lack of farmer groups/ organizations/producer groups ✦ Interference of middle man ✦ Inadequate field staffs ✦ Non-adoption of commercial technology ✦ Lack of crop insurance ✦ Lack of alternate viable livelihood options ✦ Low income of farm family 	<ul style="list-style-type: none"> ✦ Availability of public sector hybrid & HYV of crop seeds by Hort. Dept. ✦ Outreach for Horticulture Dept. to <i>Panchayat</i> level ✦ Establishing of nursery for production of quality planting materials ✦ Increasing irrigation potential by WHS/MIPs/LIPs <i>Pani panchayat</i> ✦ Existence of KVKs/NGOs/ Line Depts. ✦ Commercial seed production of vegetables ✦ Training & demonstration on IDM & IPM ✦ Establishment of food processing unit ✦ Scope for establishing cold storages & cooling chamber ✦ Establishment of community nursery for production quality planting materials ✦ Commercial cultivation of onion ,chili and garlic ✦ Expansion of area under hybrid vegetables ✦ Formation of different producer groups ✦ Commercial cultivation of fruit crops ✦ Active role of RMCs ✦ Insurance of horticultural crops ✦ Area expansion under fruit crops in upland ✦ Promotion of dry land horticulture in rain fed areas ✦ Scope for mushroom production ✦ Commercial cultivation of floriculture with marigold,tube rose and rose

9.3 Livestock Production System

Table 84, Major Animals (Max. GAPS = 10, No GAP = 0)

Particular	Dairy	Backyard Poultry	Broiler Poultry	Goatery
Technology	3	3	3	3
Input	6	5	4	6
Market	5	6	7	6
Services	3	4	6	4
Infrastructure	7	8	7	8
Total	24	26	27	27

Issues	Opportunities
<ul style="list-style-type: none"> ✦ No fodder cultivation ✦ Unhygienic housing ✦ Poor vaccination and deworming ✦ Unavailability of medicines ✦ Non-availability of quality feeds ✦ Lack of knowledge and skill on animal husbandry ✦ Limited insurance facility ✦ Lack of marketing infrastructure for livestock products ✦ Fluctuation of price of livestock products ✦ Improper nutrition ✦ Frequent occurrence of epidemic ✦ Limited encouragement to farmers through subsidy ✦ Predominance of desi breeds of cows, poultry and goats 	<ul style="list-style-type: none"> ✦ Encouragement for round the year of fodder production ✦ Existence of veterinary Dept. <i>GOMITRA</i> & JK Group extension worker ✦ Outreach through veterinary Dept. to <i>Panchayat</i> level. ✦ Artificial insemination of <i>Deshi</i> cow ✦ Fodder seeds, Feed supply through Veterinary Dept. ✦ Capacity building of farmers ✦ Extending insurance for livestock ✦ Creation of marketing infrastructure through cooperative societies & farmers producer organization ✦ Scope for milk processing ✦ Suitable transport facility for livestock product ✦ Capacity building of extension personnel ✦ Vaccination and deworming by LI ✦ Providing credit through cooperative society & Bank

9.4 Fishery Production System

Particular	Fishery
Technology	2
Input	7
Market	8
Services	7
Infrastructure	8
Total	32

Issues	Opportunities
<ul style="list-style-type: none"> ✦ Traditional production practices ✦ Poor managements of existing water bodies ✦ Lack of ownership of community water bodies ✦ No excavation of new water bodies ✦ Unavailability of sufficient fry, fingerling & yearling ✦ Lack of knowledge & skill of the farmers ✦ Lack of credit flow into fishery sector ✦ No insurance coverage of fish farmer ✦ Non-availability of exotic breed of fish 	<ul style="list-style-type: none"> ✦ Capacity building of farmers through training & demonstration ✦ Renovation of old water bodies ✦ Encouragement to farmers for sinking of new water bodies ✦ Supply of sufficient fry, fingerling & yearling by fishery Dept. & private hatchery ✦ Extending insurance facilities to fish farmers ✦ Introduction of exotic species of fish in the district ✦ Proper treatment of water bodies after soil & water testing

<ul style="list-style-type: none"> ■ No treatment of pond water ■ Lack of refrigerated storage & transport ■ Poor processing facility ■ No organization of fish producers 	<ul style="list-style-type: none"> ■ Creation of infrastructure for refrigerator transport & short term storage of fish ■ Establishment of processing industries ■ Formation of fish producer organization
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9.5AES-II Rain fed Plateau

9.5.1 Agriculture Production System

Table 86, Major Field Crops Gap Matrix (Max. GAPS = 10, No GAP = 0)

Particular	Rice	Black gram	Green gram	Arhar	Sesamum	Niger	Mustard
Technology	6	9	9	8	9	9	9
Input	3	5	5	7	5	6	9
Market	2	5	5	9	7	8	8
Services	6	9	9	9	9	9	9
Infrastructure	9	10	10	8	9	9	10
Total	26	38	38	41	39	41	45

Issues	Opportunities
<ul style="list-style-type: none"> ■ Occurrence of drought in upland ■ Broad casting of rice in upland ■ Insufficient application FYM ■ Unavailability of quality seeds at farmers door steps ■ Deterioration of soil health ■ Unavailability of seeds of YMV resistant Greengram Varieties ■ Low price of pulses in local market ■ No processing plant for seed production of pulse crops ■ Impurity of quality seed during threshing ■ Lack of storage space for food grain ■ Predominance paddy cultivation in rain fed upland ■ Interference and exploitation by middle man is more ■ Non-availability of timely credit for purchase of inputs ■ Distress sale & post-harvest loss ■ Non-availability of quality seeds ■ Non-availability of climate resilient variety ■ Low seed replacement rate ■ Decreasing trend in organic manure 	<ul style="list-style-type: none"> ■ Popularization of drought tolerant HYV of rice ■ Developing fruit crop plantation with drip irrigation ■ Line sowing & SRI method of cultivation ■ Providing quality seeds through sale centre & private agency ■ Improving soil health by crop rotation, addition of organic matter & soil reclamation ■ Introduction of YMV resistant HYV of Greengram ■ Seed processing centre for pulse should be established ■ Establishment of community threshing floor ■ Establishment of community ware house of storage go down ■ Procurement of pulses, oilseeds through cooperative societies ■ Encouragement to farmers for composting & vermicomposting etc. ■ Crop diversification in rainfed upland ■ Procurement of food grains through mandis at panchayat level ■ Scope for development of marketing infrastructure, storage go down ■ Timely availability of credit by cooperative societies & bank ■ Expansion of area under seed village programme

<ul style="list-style-type: none"> ✦ Decline in organic matter content of soil ✦ Non-availability of bio-fertilizers ✦ Lack of rain water harvesting structure ✦ Lack of knowledge of IPM and INM ✦ Low adoption of technologies ✦ Non-availability of organized markets ✦ Rise in production cost & risk involving technologies ✦ Low yield from traditional & old high yielding varieties 	<p>with provision of processing plant at block level</p> <ul style="list-style-type: none"> ✦ Backyard composting and green manuring /biogas plant/vermi composting ✦ Setting of bio-fertilizer production unit at district levels ✦ Pani panchayat/WHS /MIPs/LIPs ✦ Existence of KVKs/NGOs/line depts./ ICT dealing with agriculture ✦ Existence of SHGs/ Cooperative societies/ Banks/ NABARD ✦ Existence of MARFED/ producer cooperatives ✦ Product based Community farming, adoption of low cost technologies ✦ Expansion of area under different hybrids
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9.5.2 Horticulture Production System

Table 87, Major Horticultural crops(Max. GAPS = 10, No GAP = 0)

Particular	Spices	Vegetables
Technology	No crop	6
Input	-	3
Market	-	2
Services	-	9
Infrastructure	-	9
Total	-	29

Issues	Opportunities
<ul style="list-style-type: none"> ✦ Lack of information on characteristics of var. & hybrid marketed by public sector ✦ Timely non-availability of inputs ✦ Lack of quality planting material ✦ Lack of micro irrigation potentials ✦ Lack of knowledge and skill in improved production technologies ✦ Non-adoption of IPM and INM practices ✦ High cost hybrid seeds in vegetable ✦ Indiscriminate use of pesticides in vegetables ✦ Improper care and maintenance of crops ✦ Lack of infrastructure for value addition & processing ✦ Lack of cold storage ✦ Huge post-harvest losses 	<ul style="list-style-type: none"> ✦ Availability of public sector hybrid & HYV by Hort. Dept. ✦ Outreach for horticulture dept. to <i>panchayat</i> level ✦ Establishing of nursery for production of quality planting materials. ✦ Increasing irrigation potential by WHS /MIPs/LIPs <i>Pani panchayat</i> ✦ Existence of KVKs/NGOs/ Line Depts. ✦ Commercial seed production in vegetables ✦ Training & demonstration on IDM & IPM ✦ Establishment of food processing unit ✦ Scope for establishing cold storages & cooling chamber ✦ Establishing of nursery for production quality planting materials

<ul style="list-style-type: none"> ✦ Disorganized market/infrastructure ✦ Lack of farmer groups/organizations/producer groups ✦ Interference of middle man ✦ Inadequate field staffs ✦ non-adoption of commercial technology ✦ Lack of crop insurance ✦ Lack of alternate viable livelihood options ✦ Low income of farm family 	<ul style="list-style-type: none"> ✦ Commercial cultivation of onion ,chili, garlic ✦ Expansion of area under hybrid vegetables ✦ Formation of different producer groups ✦ Commercial cultivation of fruit crops ✦ Active role of RMCs ✦ Insurance of horticultural crops ✦ Area expansion under fruit crops in upland ✦ Promotion of Dry land horticulture in rain fed uplands ✦ Scope for mushroom production ✦ Commercial floriculture with marigold, tube rose and rose
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9.5.3 Livestock Production System

Particulars	Dairy	Backyard Poultry	Broiler Poultry	Goatery
Technology	2	8	-	5
Input	6	9	-	9
Market	2	2	-	2
Services	8	9	-	8
Infrastructure	9	9	-	9
Total	27	37	-	33

Issues	Opportunities
<ul style="list-style-type: none"> ✦ No fodder cultivation ✦ Unhygienic housing ✦ No vaccination, deworming etc. ✦ Unavailability of medicines ✦ Non-availability of quality feeds ✦ Lack of Knowledge and skill of animal husbandry ✦ Limited insurance facility ✦ No marketing infrastructure for livestock products ✦ Fluctuation of price of livestock products ✦ Improper nutrition ✦ Frequent occurrence of epidemic ✦ Limited encouragement to farmers through subsidy ✦ Predominance of desi breeds of cows, poultry, goats 	<ul style="list-style-type: none"> ✦ Encouragement of fodder production round the year ✦ Existence of veterinary dept. GOMITRA & JK Group in extension work ✦ Outreach through veterinary Dept. to <i>Panchayat</i> level. ✦ Artificial Insemination of desi cow ✦ Fodder seeds, Feed supply through veterinary dept. ✦ Capacity building of farmers ✦ Extending insurance for livestock ✦ Creation of marketing infrastructure through cooperative societies & farmers producer organization ✦ Scope for milk processing ✦ Suitable transport facility for livestock product ✦ Capacity building of extension personnel ✦ Vaccination and deworming by LI ✦ Providing credit through cooperative society & Bank

9.5.4 Fishery Production System

Issues	Opportunities
✦ Traditional production practices	✦ Capacity building of farmers through training & demonstration
✦ Poor managements of existing water bodies	✦ Renovation of old water bodies
✦ Lack of ownership on community water bodies	✦ Encourage farmers to excavate new water bodies
✦ No excavation of new water bodies	✦ Supply of sufficient fry, fingerling & yearling by Fishery Deptt. & private hatchery
✦ Unavailability of sufficient fry, fingerling & yearling	✦ Extending insurance to fish farmers
✦ Lack of knowledge & skill of the farmers	✦ Introduction of exotic species of fish in the district
✦ Lack of credit flow into fishery sector	✦ Proper treatment of water bodies after soil & water testing
✦ No insurance coverage to fish farmer	✦ Creation of infrastructure for refrigerator transport & short term storage of fish
✦ Non-availability of exotic breed of fish	✦ Establishment of processing industries
✦ No treatment of pond water	✦ Formation of fish producer organization
✦ Lack of refrigerated storage & transport	
✦ No processing facility	
✦ No organization of fish producers	

Chapter-X

AES specific Issues and Opportunities for development of different production systems

Various issues, problem and opportunities have been identified on the basis of primary and secondary information, along with results of the SWOC analysis of the existing farming system available under different AES. This was done with a view to develop need based extension and research strategies for the district. It is grouped under six categories such as agriculture production system, horticulture production system, animal production system, fish production system, natural resource management and participatory research. Each issue was gain categories as E, R & P where E = Extension, R= Research & P= Policy. A summary statement of issues with relevance to different AES is given in the following table.

10.1 AES-I Plain Land Irrigated

Management of Technologies	<ul style="list-style-type: none"> ■ Decreasing trend in use of organic manures in rural pocket ■ Knowledge and skill gap in INM, IPM, IDM, IWM & ICM ■ Crop diversification from paddy to non-paddy gaps in rain fed high lands ■ Expansion of area under cash crops ■ Non availability of improved seeds materials for tuber crops ■ In-adequate staff position in all Departments ■ Gap in skill and production technology of all crops. ■ Commercial cultivation of floriculture and mushroom ■ Scope for plantation crops and of medicinal plant ■ Establishment of processing plant in horticultural sector ■ Improper health care, poor sanitation measures in cowshed of livestock ■ Opportunity for expansion of Goatery for landless farmer. ■ Technological gap in adoption of scientific production ■ Practices for a good yield in fishery sector ■ Poor technological infrastructures ■ Scope for intensive Pisciculture in ponds/tanks, MIPS etc. ■ Poor knowledge on soil and water conservation technologies ■ Strengthening the work of Pani panchayat and renovation of field channels of all water sources
Management of Inputs	<ul style="list-style-type: none"> ■ Non availability of designed and improved variety of seeds and seed materials both in agriculture & horticulture sector ■ Non-availability of Bio-fertilizer ■ Lack of water storage structure for rain water harvesting to save the crop at the time of critical period ■ Expansion of area under seed village programme of paddy and pulses ■ Expansion of area on vegetable seeds production. ■ Non availability of poultry feeds and livestock medicines for animals in rural areas ■ Steps to be taken to make it available in rural areas

	<ul style="list-style-type: none"> ■ Non availability of low cost feed for Pisciculture ■ Renovation of MIPs, LIPs & its field channel for better management of input like irrigation water in this district
Management of Markets	<ul style="list-style-type: none"> ■ Day by day production cost of both field and horticultural crops are rising which renders low profit to the farmers ■ Excess post-harvest loss (specially in vegetables and fruits) due to unorganized market in all sectors ■ Interference and Exploitation by middlemen. ■ Formation of more number of Farmers Interest Group(FIG),Commodity Interest Group (CIG) at village level ■ Scope of establishment of cold storage ■ Lack of agro processing and post-harvest handling technique
Management of Services(Credit & Insurance)	<ul style="list-style-type: none"> ■ Non availability of timely credit for purchase of inputs for any production system in all sectors. ■ The insurance facilities should be simplified and expanded in all sector
Management of Infrastructure	<ul style="list-style-type: none"> ■ Steps to be taken to establish soil lab, agro-clinic and cold storage at Gram Panchayat and Block level. ■ The network of irrigation water management should be strengthen for judicious water use

10.2 AES-II Rain fed Plateau

PRIORITIES ISSUES AND OPPORTUNITIES

Management of Technologies	<ul style="list-style-type: none"> ■ Line sowing of short duration paddy varieties ■ Introduction of low water duty crops ■ Use of agricultural waste for composting ■ Skill oriented training for development of horticulture nursery ■ Promotion of drip and sprinkler irrigation in horticultural crops ■ Improvement of desi cows by artificial insemination ■ Exchange of box among village to prevent inbreeding depression in goat ■ Popularization of SRI, LT and LS method ■ Training and demonstration on use of herbicide ■ Development of entrepreneurship through skill oriented training ■ Promotion for commercial cultivation of onion ■ Value addition of milk ■ Backyard poultry rearing ■ Cultivation perennial fodder crops
Management of Inputs	<ul style="list-style-type: none"> ■ Supply of tissue culture banana plantlet ■ Subsidization on drip and sprinkler irrigation ■ Supply of fodder seeds to farmers ■ Supply of seeds of non-paddy crops ■ Supply of seeds of different vegetables ■ Demonstration on agriculture implement and machinery ■ Supply of fry and fingerlings of fish
Management of Markets	<ul style="list-style-type: none"> ■ Cooperative system of marketing for pulse and oilseed crops ■ Preponderance of middle man has to be restricted ■ Fixation of minimum support price for crops, fruits and vegetables

	<ul style="list-style-type: none"> ■ Community approach in milk and meat marketing ■ Tie up OMFED, Big Bazar, ICT and Reliance Fresh
Management of Services(Credit & Insurance)	<ul style="list-style-type: none"> ■ Insurance coverage for all crops ■ Agril. loan availability to farmers and farm women ■ Availability of credit to rural youth for entrepreneurship development ■ Availability of credit for establishment of processing plant for paddy, pulse ,oilseeds, vegetables and fruits ■ Establishment of rice mill for preparation of different value added product from rice ■ Availability of credit for cultivation of fruit crops ■ Extending insurance to livestock
Management of Infrastructure	<ul style="list-style-type: none"> ■ RLI establishment to avail sufficient water ■ Construction of community threshing floor ■ Construction of storage godown and ware house ■ Excavation of community compost pit ■ Construction community centre for training activities ■ Provision for gobar gas plant to individual/community ■ Construction of community godown for storage of agriculture implements ■ Construction of shed for goat/sheep for individual /community basis ■ Subsidization for sinking of dug well ■ Creation of infrastructure for processing of pulse, oilseeds fruits and vegetables ■ Establishment of Govt. nurseery for supply quality planting material ■ Construction of check dam irrigation project on Kalara jhuli perineal stream and Tel river

10.3 Agriculture and Allied Production System

SI No	Issues, Problems, Opportunities	Relevance to the AES	
		AES-1	AES-2
1.	Considerable Yield gap in crops like Paddy, Greengram, Blackgram, Groundnut, Chickpea due to.		
	Non availability of desired variety of seeds	Y	Y
	Low seed replacement rate	Y	Y
	Decreasing trend in use of organic manure	Y	Y
	Non availability of bio fertilizer	Y	Y
	Lack of irrigation & rain water harvesting	Y	Y
	Soil acidity	Y	Y
	Poor adoption of technology	Y	Y
	Knowledge and skill gap in INM & IPM	Y	Y
	Non availability for timely credit for purchase of inputs.	Y	Y
2	Low profit from Agricultural crops due to		
	Lack of organized market	Y	Y
	Rise in production cost	Y	Y

SI No	Issues, Problems, Opportunities	Relevance to the AES	
		AES-1	AES-2
	Exploitation by the middle men	Y	Y
	Low quality of the produce	Y	Y
3	Resurgence of pest population and environmental degradation due to		
	Application of wrong and over/under dose of P.P chemicals	Y	Y
	Non adoption of IP practices	Y	Y
	Inadequate field staff		
	Opportunities		
1	Crop diversification from paddy to Non-paddy crops in rain fed high lands.	Y	Y
	Expansion of area under sunflower	Y	Y
2	Expansion of area under sugarcane	Y	Y
	Expansion of area under paddy	Y	Y
	Expansion of area under seed village programme of paddy and pulses	Y	Y

HORTICULTURE PRODUCTION SYSTEM

SI No	Issues, Problems, Opportunities	Relevance to the AES	
		AES-1	AES-2
1	Significant yield gap in vegetable & fruit crop due to <ul style="list-style-type: none"> ■ Timely non-availability of inputs ■ Lack of irrigation potential ■ Knowledge and skill gap in improved production technology ■ Non adoption of IPM and INM practices ■ Excess post-harvest loss ■ Inadequate research recommendation based on farming situation 	Y	Y
2	Low profit in vegetables due to <ul style="list-style-type: none"> ■ Lack or organized market infrastructure ■ Want of farmers group/organization ■ Lack of cold storage facilities ■ Interference of middle men ■ Lack of agro-processing and post-harvest handling technique 	Y	Y
3	Low yield in root and tuber crops due to <ul style="list-style-type: none"> ■ Non availability of improved seed materials ■ Gap in skill & knowledge in production technology 	Y	Y
4	Inadequate field staff	P	Y
	OPPERTUNITIES		
1	Expansion of area under Hybrid vegetable	Y	Y
2	Scope of introduction of Mushroom	Y	Y
3	Commercial cultivation of floriculture	Y	-
4	Expansion of area on vegetable seed production	Y	-

SI No	Issues, Problems, Opportunities	Relevance to the AES	
		AES-1	AES-2
5	Expansion of area on mango, lemon, guava etc	Y	Y
6	Scope for plantation of medicinal plant	Y	-
7	Establishment nurseries for production of quality planting materials	Y	Y
8	Dry land horticulture in rain fed upland	Y	-
9	Establishment of processing plant	Y	-
LIVE STOCK PRODUCTION SYSTEM			
1	Low productivity in dairy animals due to <ul style="list-style-type: none"> ✦ In adequate green fodder ✦ Improper health care, like vaccination, deworming etc. ✦ Non-availability of service in the rural areas of the time of need ✦ Poor sanitation and housing ✦ Non availability of medicines inn rural areas ✦ Natural crossing by stra bulls ✦ Knowledge & skill gap among farmers ✦ Limited insurance facility 	Y	Y
2	Low profit in dairy product due to <ul style="list-style-type: none"> ✦ Un organized market ✦ Distress sale of milk in local market 	Y	Y
3	Low productivity of poultry birds due to <ul style="list-style-type: none"> ✦ Technological gap in nutrition management and housing etc. ✦ Serious disease problem ✦ Low adoption of improved breeds ✦ Non availability of poultry feeds in rural areas. 	Y	Y
OPPORTUNITIES			
1	Artificial Insemination in dairy and goats	Y	Y
2	Opportunity for expansion of goatery by land less farmers	Y	Y
3	Scope for establishment of chilling plant	Y	Y
4	Scope for establishment of processing plant for milk	Y	Y
5	Scope for green fodder cultivation	Y	-
6	Scope for introduction of improved backyard poultry	Y	Y
FISH PRODUCTION SYSTEM			
1	Low productivity of fish is due to <ul style="list-style-type: none"> ✦ Technological gap in adoption of scientific production practices ✦ Improper management and maintenance of tanks ✦ Lack of ownership of community water bodies ✦ Non availability of low cost feed ✦ Inadequate availability of fish seed/finger lings ✦ Lack of adequate credit flow into fishery sector 	Y	Y
2	Low profit due to	Y	Y

SI No	Issues, Problems, Opportunities	Relevance to the AES	
		AES-1	AES-2
	<ul style="list-style-type: none"> ✦ Lack of growers organization ✦ Lack of storage & processing facilities ✦ Exploitation by middle men 		
3	Lack of interdepartmental co-ordination for extension programme in fishery sector	Y	Y
OPPORTUNITIES			
1	Scope for intensive pisciculture in ponds/tanks, MIPs with organization support	Y	Y
2	Establishment of fish seed hatchery & fish seed production units	Y	Y
3	Establishment of fish feed plant	Y	-
NATURAL RESOURCE MANAGEMENT			
1	Degradation of land due to <ul style="list-style-type: none"> ✦ Excess run off and raindrop impact ✦ Loss of organic matter from soil ✦ Loss of vegetative cover 	Y	Y
2	Depletion of soil nutrient is due to <ul style="list-style-type: none"> ✦ Excess run off of rain water and soil erosion ✦ Inadequate application of organic matter ✦ Indiscriminate use of chemical fertilizers 	Y	Y
3	Poor water management is due to <ul style="list-style-type: none"> ✦ Lack of skill in rainwater harvesting ✦ Un-bunded upland ✦ Lack of co-ordination& awareness among the members of pani panchayat (WUAs) 	Y	Y
4	Loss of vegetative cover due to <ul style="list-style-type: none"> ✦ Cultivation of pasture lands and over grazing ✦ Keeping the land fallow 	Y	Y
5	Soil acidity due to <ul style="list-style-type: none"> ✦ Leaching of base material due to soil erosion ✦ Non-use of soil amendments 	Y	Y
OPPORTUNITY			
1	Soil conservation measures by <ul style="list-style-type: none"> ✦ Agronomic practices ✦ Mechanical measures ✦ Biological measures ✦ Integrated watershed management 	Y	Y
2	Adoption of appropriate agro forest system in degraded soil by <ul style="list-style-type: none"> ✦ Alternate land use ✦ Plantation of field bonds 	Y	Y
3	Development of water resources for irrigation through <ul style="list-style-type: none"> ✦ WUAs/Pani Panchyats 	Y	Y

SI No	Issues, Problems, Opportunities	Relevance to the AES	
		AES-1	AES-2
4	ISSUES IN R-E-F LINKAGE		
	1) Fund constraints for conducting participatory research to evolve location specific recommendation	Y	Y
	2) Lack of specialized man power for participatory research	Y	Y

Chapter-XI

Strategies for Development of Production Systems (AES specific)

Based on the primary information and secondary information collected by the AES teams from the selected representative villages SWOC analysis of the existing farming systems was conducted to identify the strengths, weakness, opportunities and threats. Taking in to consideration the four component of SWOC, crucial issues, problems and opportunities were identifies for developing need based and feasible strategies for each AES. The strategies have been grouped under six major heading such as:

1. Diversification and productivity and income of existing farming system.
2. Improvement in productivity and income of existing enterprise/commodities within the existing farming system.
3. Improvement in sustainability of productivity/income.
4. IT and Mass media.
5. Marketing and value addition
6. Community and organization.
7. Sustainability of the Project.
8. Human Resource Development.

11.1 Diversification and Intensification of the Existing Farming System

Major farming systems of the district are Agriculture, Agriculture-Horticulture, Agriculture-Animal Husbandry, and Agri-Hort-Fishery etc. under which different commodities are grown under different situation. The production or productivity of the commodities may not be remunerative always. Particularly in case of agricultural and horticultural production system such crops either need to be substituted or the land need to be diverted to more remunerative crops. Therefore the suitability of the crops for the district have been assessed using Relative Spread Index (RSI) and Relative Yield Index (RYI) on the principle adopted by the Kanwar(1972) as illustrated and indicated below.

Net cropped area of other district is - 85,000 ha.

Total cultivated area of other district is - 89,000 ha

Net cropped are of the state - 5,424,000 ha

Total cultivated area of the state - 6180,000 ha.

Relative spread Index (RSI) = $\frac{\text{Crop area expressed as percentage of Total cultivated area of the district.} \times 100}{\text{Crop area expressed as percentage total cultivated area of the state.}}$

Relative Yield Index (RYI) = $\frac{\text{Mean yield of the crop in the district} \times 100}{\text{Mean yield of the crop in the state}}$

Relative spread Index (RSI)

Relative Yield (RYI)		High	Low
	High	HH	HL
	Low	HL	LL

It is evident from the above matrix that four quadrants indicate. A situation quadrant (1) where yield is low and spread is also low, the crops are undesirable and needs diversification. The situation in quadrant (2) where yield is low but spread is high, the crops are either to be substituted or the productivity can be increased through input and technological intervention. But the situation with high yield spread quadrant (3) needs to be sustained through various interventions like agro-processing, marketing and value addition. The situation with high yield and low spread quadrant (4) needs area expansion.

11.2 Improvement in productivity/income of existing enterprise/commodities within the existing farming system.

The productivity of different commodities grown under different farming situations of the district is very low in comparisons to the state and national averages. The yield gap between potential farm yield and actual farm yield is due to some biological, environmental and socio-economic factors. The concept of such yield gap is illustrated below.

From the above illustration it is evidence that it may not be possible to bridge up the yield gap- I since the yield in experimental condition and adoption of appropriate technology. However to bridge up the yield gap- II, necessary strategies have been suggested for improvement in productivity and income of the existing enterprise/community.

11.3 Improvement in sustainability of productivity/income

Degradation of natural resources such as land degradation, soil erosion and indiscriminate deforestation are very common in the district because of the physiographic the problems relating to such natural resource management in addition to IPM and INM have been identified and suitable strategies have been suggested for conservation of natural resource and their generation.

11.4 Information Technology and Mass Media

The information received from different areas reveals that some improvement is necessary to update on recent technical information among the farmers .Therefore suitable strategies have been developed for the district on information technology and mass media.

11.5 Marketing and Value Addition

Farmers don't obtain remunerative prices of their produce due to inadequate facilities. Besides, value addition and preservation at the peak period of harvest of agricultural produce are required. Hence basing on the need of the problem some extension strategies have been suggested.

11.6 Community organization

Analysing the pros and cons of the present individualistic type of extension service, the reforms in extension is designed to provide a better extension service to the target group. Therefore, it is felt mandatory to organize the farmers/farming community under several banners like Farmers Interest

Group (FIG), Women Interest Group (WIG), Farmers Organization (FO), for ensuring people better participation and management of available resources.

It is not denied that such group's do not exist, but more groups particularly women groups need to be encouraged in addition to revitalizing the dormant ones, since their contribution in the field of agriculture and allied sectors is significant. Therefore basing upon the need of the situation various strategies have been developed under community organization component of the AES of the district.

11.7 Sustainability of the project

Generally most of the project do not sustain because of several reasons such as withdrawal of donor support. Later arrival of funds from donor, lack of access to new donors, change of donor policies and above all the political instability etc. Therefore for sustainability of the project, it is desirable to build up a revolving fund by ATMA within the project period. Cost sharing by farmers for different research and extension activities should be ensured to create such revolving fund and accordingly strategies have been evolved to operationalise this concept under the AES.

11.8 Human Resources Development

Experience and expertise counts on every steps of materializing the concept and thoughts. Even though a lot of experienced ones are available, but required expertise is very much desired to act efficiently upon the strategies developed. Herein HRD plays a vital role and makes it compulsory for the planners and programmers to develop the present talent available through training, workshop, seminar, symposium, exposure visit, participatory research etc. Therefore, to operationalise the concept of reforms in extension in the desire manner all the stake holders at different levels including Pvt. Extension Providers, NGOs and input handing agencies need to be trained on various aspects to enable them to discharge their role and responsibilities in a more systematic manner.

A summary statement of strategies under each component and their relevance to specific agro-ecological situation is given in the following table.

11.9 Proposed Strategies

Sl. No	Strategies	Relevance to the AES	
		AES-I	AES-II
A.	Diversification and intensification of existing farming system Agriculture Production system		
1.	Substitution of upland rice with oil seed and pulses	Y	Y
2.	Increasing cropping intensity in the areas having assured irrigation by introducing mustard in between two paddy crops	Y	Y
3.	Improvement in rain fed farming	-	Y
4.	Cultivation of aromatic rice for export	Y	Y
5.	Adoption of scientific crop rotation	Y	Y
6.	Expansion of area under sugarcane and sunflower	Y	-
7.	Adoption of pulses of oilseeds as a second crop with residual moisture	Y	Y
8.	Cultivation of organic paddy, groundnut and pulses	Y	Y
9.	Adoption of farm mechanization practices	Y	Y

Sl. No	Strategies	Relevance to the AES	
		AES-I	AES-II
A.	Horticultural Production system		
1.	Expansion of area under off-season vegetable with assured irrigation by crop substitution	Y	Y
2.	Cultivation of flowers as alternate land use	Y	Y
3.	Expansion of area under high density mango plantation with Amrapalli and others	Y	Y
4.	Encouraging lime and guava plantation in upland	Y	Y
5.	Introduction/Expansion of mushroom cultivation in urban and semi-urban area	Y	Y
6.	Cultivation of organic spices like chili and ginger	Y	Y
7.	Commercial cultivation of pointed gourd, sweet potato and yam	Y	Y
8.	Post harvesting technology and value addition in fruit and vegetables	Y	Y
9.	Introduction of backyard nutritional; garden	Y	Y

Sl. No	Strategies	Relevance to the AES	
		AES-I	AES-II
A.	Livestock Production system		
1.	Breeding up gradation in dairy and Goatery through artificial insemination	Y	Y
2.	Encourage improved backyard poultry with Banaraj, Giriraj species	Y	Y
3.	Establishment of commercial broiler/layer poultry unit	Y	Y
4.	Renovation of village pasture with fodder	Y	Y
Fish Production System			
1	Expansion of composite Pisciculture in the available water bodies	Y	Y
2.	Introduction of o multiple stocking and repeated harnessing	Y	Y
3.	Introduction of integrated fish farming	Y	Y
4.	Renovation of village tanks for Pisciculture	Y	Y
5.	Introduction of monoculture of fresh water prawns	Y	Y
6.	Introduction of polyculture with fish & prawn for additional income generation	Y	Y
Sl.No	Strategies	Relevance to the AES	
	Plantation Crops	AES-I	AES-II
1.	Plantation of be, Jamun, subabul and amla in cultivable waste land	-	-
2.	Introduction of medicinal and aromatic plants in fallow lands	Y	Y
3.	Plantation of jatrofa in cultivable waste land	Y	Y
4.	Alternate land use with agro-forestry, silvi-pasture and farm forestry	Y	Y
5.	Plantation of cashew nut and casuarinas in cultivable waste land	-	Y

Sl. No	Strategies	Relevance to the AES	
		AES-I	AES-II
B.	Improvement in productivity and income of existing enterprise/commodities within existing farming system Agriculture Production system		
1.	Overcoming technological gap in major agricultural crops	Y	Y
2.	Decentralized seed production programme of preferred varieties under the concept of seed village programme	Y	Y
3.	Value addition and agro processing in pulse and oilseeds	Y	Y
4.	Farm mechanization for timely and effective agricultural operations	Y	Y
5.	Adoption of IPM technology with local resources like neem seed etc. for pest management`	Y	Y
6.	Overcoming technological gap in post harvesting technology	Y	Y
7.	Adoption of integrated crop management technology in irrigated paddy areas	Y	-

Sl. No	Strategies	Relevance to the AES	
		AES-I	AES-II
	Horticultural Production system		
1.	Overcoming technological gap in vegetable/fruit production	Y	Y
2.	Encouraging vegetable seed production programme	Y	Y
3.	Post-harvest technology, value addition, processing. Preservation of fruit and vegetable	Y	Y
4.	Rejuvenation of old orchards	Y	Y
5.	Popularization of drip/sprinkler irrigation system in fruit crop and vegetables	Y	Y
6.	Agro processing and value addition in spices like chili and ginger	Y	Y
	Livestock Production system		
1.	Improved management practices in diary animals	Y	Y
2.	Improved health care in livestock and poultry	Y	Y
3.	Encouraging artificial insemination in goat for breed improvement	Y	Y
4.	Processing and preservation of milk and milk product	Y	Y
5.	Encouraging cultivation of green fodder for improved nutrition of diary animals	Y	Y
6.	Encouraging establishment of hatchery for broiler and layer chicks	Y	Y
	Fish Production System		
1.	Overcoming technological gap in fish farming	Y	Y
2.	Adoption of pre-stocking and post stacking technology and management in fishery	Y	Y
3.	Decentralized production of fish seed and finger lings	Y	Y
4.	Introduction of integrated fish farming	Y	Y
5.	Encouragement for raising of fingerlings from fry stage through rural youth/NGO/SHG	Y	Y

Plantation Crops			
1.	Overcoming technological gap for improving productivity in mango, lemon, guava etc.	Y	Y
2.	Encouraging rural youth for production of quality planting material for agro forestry	Y	Y
3.	Entrepreneurship development for value addition to non-timber minor forest products	-	Y

Sl. No	Strategies	Relevance to the AES	
C.	Improvement in sustainability of productive/income	AES-I	AES-II
1.	Integrated watershed development for conservation of soil, water and natural resources	-	Y
2.	Conservation of bio diversity	Y	Y
3.	Adoption of INM and IPM practices in field crops and vegetables	Y	Y
4.	Establishment of biological control of laboratory	Y	Y
5.	Harnessing ground water potential through private L.I.Ps	Y	Y
6.	Establishment of mobile soil testing unit	Y	Y
7.	Conservation of natural open water fishery resources	Y	Y
8.	Extension of milk route to rural areas	Y	Y
9.	Establishment of veterinary ambulance, clinical service	Y	Y

Sl. No	Strategies	Relevance to the AES	
D.	IT and mass media	AES-I	AES-II
1	Training on IT and cyber extension to G.B,M.C,BTT & FAC members	Y	Y
2.	Developing technical literature & audio visual aids at ATMA level	Y	Y
3.	Documentation of success stories/ITK (Process and content) for replication	Y	Y
E.	Marketing and Value addition		
1.	Opening of mandis /Krisak bazaar at G.P level	Y	Y
2.	Involvement of community based co-operative for better marketing	Y	Y
3.	Establishment of E-Marketing facilitate by regulated marketing authorities	Y	Y
4.	Value addition of major agricultural produce	Y	Y
5.	Preservation during peak harvest	Y	Y
F.	Community organization		
1.	Encouraging formation of commodity oriented groups for milk, egg, vegetables, fruits, mushrooms and other agricultural commodities for better access to information , technology, input and market	Y	Y
2.	Activating the existing pani panchayat and organizing new one	Y	Y
3.	Strengthening and promoting available women SHGs to take up economic activities	Y	Y

4.	Revitalizing the dormant groups available in fishery sector	Y	Y
5.	Organization of district level farmers' federation	Y	Y
Sl. No	Strategies	Relevance to the AES	
G.	Sustainability of Project	AES-I	AES-II
1.	Cost sharing by farmers for A.I., soil testing and vaccination etc for building revolving fund at ATMA	Y	Y
2.	Opening of agro-clinic/agro service centre/consultancy for farmers on payment basis	Y	Y
3.	Building up revolving funds of ATMA & FIAC level by collecting cost of service for various services	Y	Y
4.	Developing linkage between district level farmers' federation and sartorial groups at block level with ATMA through affiliation	Y	Y
H.	Human Resource Development		
1.	Training need assessment for extension functionaries, NGOs and public service providers	Y	Y
2.	Project orientation to G.B.,M.C,B.T.T. & F.A.C.	Y	Y
3.	Awareness campaign on the project at G.P level	Y	Y
4.	Need based training to BTT & NGOs	Y	Y
5.	Exposure visit of public and private extension workers including FIGs	Y	Y
6.	Skill up gradation training to grass root level workers and FIGs	Y	Y
7.	Training on leadership development and group dynamics to different commodity oriented groups	Y	Y

Chapter-XII

Strategies for development of Agri-Marketing System (AES specific)

Production and marketing aspects of agricultural produce are intertwined with each other. Market-driven production rather than production-propelled marketing is the order of the day. Under the present dispensation, the agriculture and allied departments dealing with production enhancement are totally dissociated from the marketing setup. This has led to conspicuous absence of integration in planning and implementation of different schemes at district level. The need of the hour is to bring convergence amongst agriculture and allied departments in marketing of agricultural produce. This calls for convergence of schemes and resources therein to explore the synergies for the benefit of farmers. Efforts have been made to realize this objective through ATMA platform at the district level.

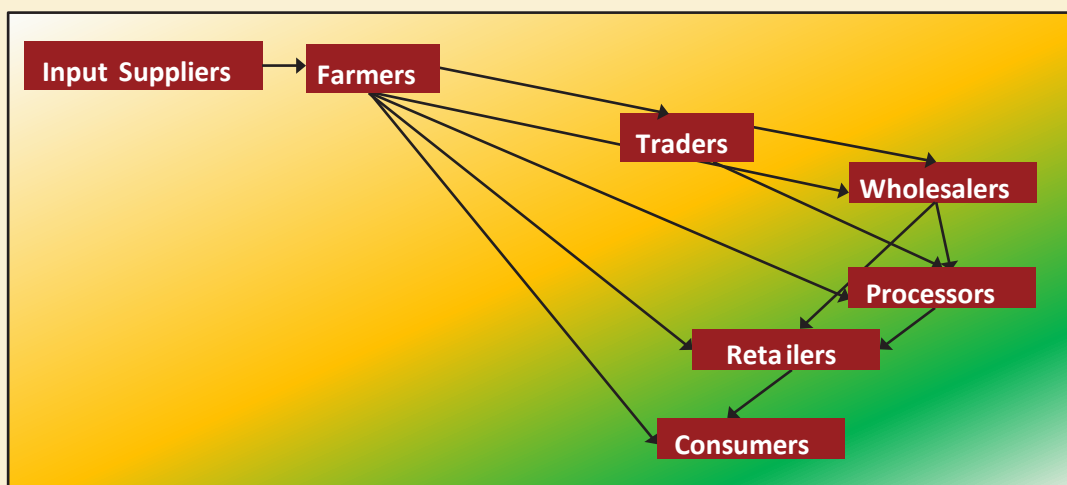
The efficacy of the agricultural marketing system has to be assessed in terms of both the infrastructure facilities (hardware) and different ongoing marketing practices (software). An analysis of the existing system reveals that the existing gaps on the marketing front are mainly due to absence of coordination between the production departments and marketing departments. It is also observed that the present agricultural policy/plans are basically production-focused, relegating the marketing aspects to the back burner.

The agricultural marketing system is no more confined to regulated market only and the change in the dynamics in the agricultural economy has brought about changes in the marketing systems in the form of different alternative marketing systems such as value chain, Contract Farming, Direct Market, Futures Market, Spot markets, Group Marketing, Hub and Spoke model of terminal markets etc. These instruments have the potential to measure up to the challenges of modern agricultural production system. Hence, there is a need to tune the marketing system to the needs of the production system. This calls for concerted efforts of both the agencies i.e., production and marketing, through an integrated planning process.

Value chains play an important role in transforming agriculture commodities from raw material to end products demanded by the consumers. There are number of stakeholders involved in the agricultural commodity value chains and the partitioning of gains among the stake holders along the chain is often debated and analyzed. Farmers, traders, wholesalers, retailers, big retail chains and consumers are major actors of the vale chain. With the collective enlightenment of all stakeholders.

- The value addition in different phases of production can be mapped into a value chain map for easy understanding, which depicts interlinkages between successive stages in the value chain. A simplified value chain map as shown in figure.
- As markets develop, the value chains will become more complex with more competing channels both for inputs and outputs.

- A wide range of participants from smallholder farmers to transnational retailers with a wide range of technologies such as small-scale juice vendors to large sugar manufacturing plants will participate in value chains.
- Understanding the value chain is important as it explores why farmers choose a particular type of input like type of seeds they purchase given the institutional and market infrastructure and demand.
- The value chain maps are helpful in understanding these chain actions throughout the value chain.
- The market map is an analytical tool that helps in understanding policy issues that affect the functioning of the chain and also the institutions and organizations providing the services (eg, market information, quality standards) that the different chain actors need in order to make better informed decisions.

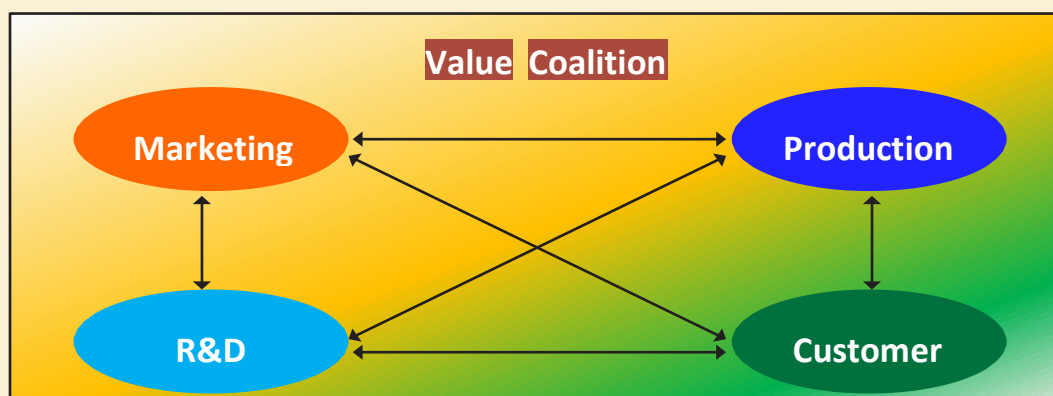


Market Map is made up of three interlinked components

- Value chain actors (farmers, traders, consumers)
- Enabling environment (infrastructure and policies, institutions and processes that shape the market environment)
- Service providers (the business or extension services that support the value chains' operations).

12.1 Value Coalitions

- Often, a single work process can concurrently involve several units in the value chain and might be more accurately thought of as value coalitions.
- The value coalition model recognizes that value is often created by the simultaneous interaction of several stakeholders.



- In figure R&D, Marketing, Production and Customers are all viewed as working together to add value.
- Problems arising in the value coalition model thus involve several units and require their simultaneous participation to find solutions.

12.2 How producers, contracting firms will benefit from efficient value chains

- The concept of agricultural value chain includes the full range of activities and participants involved in moving agricultural products from input suppliers to farmers' fields, and ultimately, to consumers.
- Each stakeholder in the chain has a link to the next in order to form a viable chain. By understanding the complete production to consumption system of dryland crops, it is possible to determine how the marketing and value-addition activities take place and who shares how much benefit from such activities.
- It has been argued that linking of farmers to the markets through efficient value chains would reduce the use of intermediaries in the chain, and strengthen the value-adding activities by better technology and inputs, upgraded infrastructure, processing and exports.
- This process can raise the income of farmers and will provide an incentive for improving their management practices towards higher farm productivity.
- The income of the farmers can be enhanced by increasing production, value addition, and better marketing options.
- The marketing factors are marketable surplus, marketing channels, numbers of players at each level, profit margin of respective players, cost reducing innovations along the value chain and value addition by different value chain players.
- The strengthening of value chains by some sort of contract between producers and firms will benefit both producers and firms that are involved in input/technology supply and output marketing.

12.3 Contract Farming

Contract farming is generally defined as farming under an agreement between farmers and processing and or marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices. Within this broad frame work there are different variants of contracts depending on the intensity of contractual arrangements.

Variations of contracts

- **Market provision:** -Terms & conditions of future sale: price, quality, quantity and timing etc.
- **Resource provision:** -selected inputs, extension or credit including on occasions land preparation and technical advice
- **Management specifications:** -The grower agrees to follow recommended production methods, inputs regime, and cultivation and harvesting specifications.

Contract farming- a crying need

- Addresses traditional ills
- Fragmented holdings, long chain of market intermediaries.
- Producer's ignorance about buyers' requirements- marketing concept

- ✦ Low farm mechanization
- ✦ Inadequacy of capital and distress sale
- ✦ Contract farming;- scale economy, corporate mgt, reduce transaction costs, vertical integration

Crops suitable for Contract Farming

- ✦ **Perishable:** cannot be stored for long periods and needs to find market immediately
- ✦ **Bulky:** and therefore costlier to transport
- ✦ **Plantation crops:** Growers cannot abandon the plantations or the estates and are locked into relationship with processor
- ✦ **Processable:** Need for processing created inter-dependence between growers and processors, vulnerable to exploitation
- ✦ **Variations in quality:** Where crops vary in quality and quantity, is important for processing
- ✦ **Unfamiliar:** Medicinal plants like Safed musli, Ashwagandha etc. and new products for new markets like gherkins etc

Contract Farming Status In Odisha		
State	Crop	Company/ Corporate
Odisha	Seeds (paddy, Ragi, Green gram, arhar, ground nuts etc), Vegetables, Milk, Sugar, Eucalyptus	Orissa State seeds Production Corporation, Nature Fresh, Vegi cart, OMFED, Shakti Sugar, J.K.Paper

12.4 Group Marketing

- ✦ Farmers form group for marketing of their produce
- ✦ Take advantage of common transportation, storage, access to information, bargaining,
- ✦ Group can go in for backward linkage and forward linkage
- ✦ Group can directly sell to hotels, hostels, restaurants etc
- ✦ Groups can take advantage of Government schemes.

12.5 Retail Chain Linkage

- ✦ Retail chains like Wall Mart, Reliance, Spencer etc. do backward linkage and forward linkage
- ✦ Enter into contract farming mode, providing advisory services, quality inputs and assured market for the produce and also assured price to the farmers for their produce
- ✦ Provide safe food to the consumers, by promoting good agricultural practices (GAP) at the pre-harvest stage (insecticide and pesticide residue)
- ✦ Save the farmers from being exploited by unscrupulous middlemen

12.6 DIRECT MARKETING

- ✦ In regulatory marketing system, the state APMC Acts did not permit direct purchase from the farmers' field and the farmers were supposed to come to the market yard for selling their produce
- ✦ This was discouraging processing, export and contract farming etc.
- ✦ Now after the reforms direct marketing is permitted in the states which have amended their state acts as per Model Act of the central Government.

- ✦ Under direct marketing provision, a trader, exporter, and processor can directly buy from the farmers and enter into buy back arrangement with them.
- ✦ Now under direct marketing a number of farmer markets (Rythu Bazar of Andhra Pradesh, Uzvar Santhaigal of Tamil Nadu, Apni Mandis of Punjab) have been set up in different states. These markets facilitate direct linkage between farmers and consumers and other end-users.
- ✦ This is a model to eliminate middlemen and improve farmer's share in consumer's rupee.

12.7 Support Price Marketing

- ✦ Under the system, MSP is provided to the farmers for a number of food grains and other fiber crops.
- ✦ During the harvest season a number of procurement centres are set up for this.
- ✦ These procurement centres are equipped with requisite quality assessment equipment during the harvest season, as prices are linked to the grade of the produce based on different quality parameters. e.g moisture content for paddy.
- ✦ The procurement centres are supposed to have infrastructure for weighment, storage, transportation etc.

12.8 Processor Marketing

- ✦ A processor of a certain produce need certain processible varieties of certain quality and quantity with assured supply throughout the year / season.
- ✦ A processor, of necessity, has to go in for buy-back arrangement
- ✦ Those states which have amended their APMC Acts (17 till now) very much promote and encourage processing
- ✦ Processing leads to crop diversification and better income to farmers.

12.9 Spot Marketing

- ✦ A spot exchange (say National Spot Exchange) provides an electronic platform, an alternative to regulated marketing, for online transaction throughout the country(like stock market)
- ✦ Spot Exchanges like NSE, NCDEX Spot exchanges etc have now outlets in different market yards.
- ✦ Thus the farmer is not confined to a particular market yard or not under compulsion to sell through only a particular commission agent.

12.10 Export Marketing

- ✦ Exporters directly procure from the farmer field
- ✦ Enter into buy-back arrangement with farmers
- ✦ Set up their own procurement centres and other infrastructure like storage, cold storage facilities in the production pockets.
- ✦ Thus provide the farmers access to markets, marketing infrastructure, quality control, remunerative price for their produce etc.

12.11 Futures Market and Commodity Exchanges

- ✦ A future exchange is a financial market where different groups of participants trade commodity – linked contracts, with the underlying objective of transferring exposure to commodity –price risks.

12.12 Agricultural Marketing Development

Well-functioning marketing systems necessitate a strong private sector backed up by appropriate policy and legislative frameworks and effective government support services. Such services can include provision of market infrastructure, supply of market information and agricultural extension services able to advise farmers on marketing.

12.13 Agricultural Advisory Services and the Market

Promoting market orientation in agricultural advisory services aims to provide for the sustainable enhancement of the capabilities of the rural poor to enable them to benefit from agricultural markets and help them to adapt to factors which impact upon these.

12.14 Market Infrastructure

Efficient marketing infrastructure such as wholesale, retail and assembly markets and storage facilities is essential for cost-effective marketing, to minimize post-harvest losses and to reduce health risks. Markets play an important role in rural development, income generation, food security, developing rural-market linkages and gender issues. Rural assembly markets are located in production areas and primarily serve as places where farmers can meet with traders to sell their products.

12.15 Market Information

Efficient market information can be shown to have positive benefits for farmers and traders. Up-to-date information on prices and other market factors enables farmers to negotiate with traders and also facilitates spatial distribution of products from rural areas to towns and between markets. The service provided is often insufficient to allow commercial decisions to be made because of time lags between data collection and dissemination. Modern communications technologies open up the possibility for market information services to improve information delivery through SMS on cell phones and the rapid growth of FM radio stations in many developing countries offers the possibility of more localized information services. In the longer run, the internet may become an effective way of delivering information to farmers. Market information services but these have largely been targeted at traders, commercial farmers or exporters.

12.16 Farmer's Producer Organization

Farmer's producers organizations refer to independent, non-governmental membership based rural organization of part or full time self-employed small holders and family farmers. FOs are essential institutions for the empowerment, poverty alleviation and advancement of farmers and the rural poor politically, FOs strengthen the political power of farmers, by increasing the likelihood that their needs and opinions are heard by policy makers and the public. FOs can help farmers gain skills, access inputs form enterprises, process and market their products more effectively to generate higher incomes. By organizing, farmers can access information needed to produce, add value market their commodities and develop effective linkages with input agencies such as financial service providers, as well as output markets. FOs can assists their members purchase input and equipment, meet quality standards and manage the drying, storage, grading, cleaning, processing, packing, branding, collection and transportation of produce. Organize farmers have greater bargaining power than individual and are better able to negotiate with other more powerful market players.

The participant farmers will be supported to identify appropriate crops relevant to their context, provided access to modern technology through community based processes including farmers field schools, their capacities will be strengthened and they will be facilitated to access forward linkages with regard to technology for enhanced productivity, value addition of feasible products and market tie up.

Chapter-XIII

Formulation and Dovetailing of Schemes & Programs

The Comprehensive District Agriculture Plan (C-DAP) is an integrated one which comprises of Agriculture & Allied Activities, like (i) Crop Husbandry, (ii) Horticulture, (iii) Soil and Water Conservation, (iv) Animal Husbandry, (v) Dairy Development, (vi) Fisheries, (vii) Plantations, (viii) Food Storage & Warehouse, (ix) Agriculture Research & Education, (x) Agricultural Financial Institutions, (xi) Cooperation, (xii) Other Agricultural Programmes like Agricultural Marketing and others.

Agriculture is the mainstay of district's economy followed by growing industries. A large proportion of district population depend on agriculture as their primary source of livelihood as well as building up economic stability. Therefore, the Agricultural Policies of the government are aiming at bringing an all-round development of agriculture. The C-DAP is based on the following objectives for its wide spread relevance and sustainability of contents.

- To evolve comprehensive action plan to address issues of food security, sustainable agricultural growth and wellbeing of farming community. To prepare an integrated and participatory action plan keeping in view of local needs and resources.
- To focus on development of local area in general and agriculture along with allied -sectors in particular.
- To assess the infrastructure requirement to support the agricultural development
- To ensure judicious use of natural, physical and financial resources for efficient output mobilization.
- To establish potential linkage between institutions such as research, extension, credit, Community Based Organizations (CBOs) and Information Communication Technology (ICT).

Agriculture has been accepted as industry because about 70% of the State's people virtually depend on agriculture. The unpredictable weather, ever increasing population and lacklustre government policies have made dependence on agriculture a losing position. Agriculture needs massive investments to develop primary infrastructure to meet the basic need of farmers. Extension of innovative ideas, availability of quality inputs, eco-friendly approach and marketing of farm produce makes agriculture a viable livelihood option to fulfil the fundamental need of the rural people. This broad sector comprises Crop Husbandry, Horticulture, Soil & water conservation, Animal Husbandry & Dairy, Fisheries, Rashtriya Krishi Vikas Yojana (RKVY) as a component of all these aforesaid sub-sectors and Co-operation. A total credit outlay of Rs.1361.03lakh has been planned for the financial year 2015-16 and Rs.1443. 78 lakh has been proposed for 2016-17 in Boudh district.

Sl.No	Name of the Scheme	Head of Account	Amount in Rs.Lakh							
			2012-13(Actual)		2013-14(Actual)		2014-15(Actual)		2015-16(Proposed)	2016-17(Proposed)
			Target	Achmt	Target	Achmt	Target	Achmt	Target	Target
1.	DPAP	232501	89.26	89.26	-	-	74.75	74.75	-	-
2.	IWMP		400.50	350.38	500.00	445.07	600.00	589.63	510.00	530.00
3	State Plan	23241	42.41762	42.41762	46.73974	46.73974	50.34901	50.34901	55.00	60.00

Name of Work	Unit cost (Rs)	2012-13 (Actual)		2013-14 (Actual)		2014-15 (Actual)		2015-16(Proposed)		2016-17 (Proposed)		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
		Agriculture											
5. Line Sowing / Line Transplanting	7500/-	3250	137.11134	1500	52.31260	1000	60.74533	2500	187.50	3000	225.00	5500	412.50
6. SRI	7500/-	500	37.50000	400	16.31050	0	0	150	11.25	200	15.00	350	26.25
7. C S B Training	14000/-	11	1.54	18	2.52	12	1.68	21	2.94	30	4.20	51	7.14
8. Threshing Floor	550000/-	5	36.05	0	0	0	0	31	170.50	40	220.00	50	275.00
Agriculture Total		3766	212.20134	1918	71.1431	1012	62.42533	2676	372.19	3240	464.2	5916	720.89
Horticulture works in farmersland	0.50/Ha	-	-	-	-	-	-	20 Ha	10.00	30.00 ha	15.00	50.00 ha	25.00
1. Planatation (Mango)	0.10/Training	-	-	-	-	-	-	30 nos	3.00	50 nos	5.00	80 nos	8.00
2. Training													
3. Demonstration	0.05 /Demon	-	-	-	-	-	-	100 nos.	0.50	100 nos.	0.50	200 nos.	1.00
Horticulture total								150 nos.	13.50		20.50		34.00
Animal Husbandry													
1. Training hall in 3 blocks With all accessories								3 no.	40	--	---	3 no.	40
2. Community cattle shed								10 no.	100	10 no.	100	20 no.	200

Table 90, Physical and Financial Programme Proposed under CDAP of Boudh during XII Plan (Rs. In lakh)

Name of Work	Unit cost (Rs)	2012-13 (Actual)		2013-14 (Actual)		2014-15 (Actual)		2015-16 (Proposed)		2016-17 (Proposed)		Total	
		Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.	Phy.	Fin.
3. Shed for sheep/Goats		-	-	-	-	-	-	300 no.	90	300 no.	90	600 no.	180
4. Backyard poultry Demo. Unit		-	-	-	-	-	-	200 no.	10	200 no.	10	400 no.	20
5. Chick mother unit for backyard poultry		-	-	-	-	-	-	6 no.	12	--	---	6 no.	12
6. Calf rearing prog. for AI borned Calves		-	-	-	-	-	-	500 no.	50	500 no.	50	1000 no.	100
A.H. TOTAL		-	-	-	-	-	-	1019	302	1010	250	2029	552
Fishery		-	-	-	-	-	-						
1. FFDA									27.55		30.3		27.55
2. NFDB									72.8		80.08		72.8
3. NMPS									4.0		4.4		4.0
4. MGNREGS									3.99		4.3		3.99
Total		-	-	-	-	-	-		108.34		119.08		108.34
Watershed													
1. DPAP			89.26		-		74.75						164.01
2. IWMP			350.38		445.07		589.63		510.00		530.00		2425.08
3. State Plan			42.41		46.73		50.34		55.00		60.00		254.48
Total			482.05		491.8		714.72		565.00		590.00		2843.57
Grand Total									1361.03		1443.78		4258.8

As the annual credit plan has to be in tune with the plans of government developmental agencies, due emphasis has been laid on various government sponsored schemes viz. Agriculture and allied activities, SGSY, PMRY, SJSRY, NFS, Khadi Gram Udhog schemes etc. The successful implementation of plan is possible only through the active co-ordination amongst the various financial institutions and govt. development departments.

Credit plays an important role in exploring the potentials available and paves the way for development. An adequate and timely credit flow from different financial institutions to the entrepreneurs accelerates the process of development by strengthening the economic standard of the population. To facilitate the flow of credit, planning is being initiated stages and as per RBI Guidelines Credit Planning is being initiated at grass root level i.e. Block & Bank Branches. According to the Annual plan of Boudh District is prepared segregating the Branch credit plans at two stages i.e. Block level & finally District level.

Table 91, Sector-wise PLP Projections for the 2015-16 (Rs. in lakh)		
Sl.No	Activity(Sector & sub Sector)	Revised Projections(2015-16)
1.	Crop Production, Maintenance and Marketing	18983.27
2.	Water Resources	914.94
3.	Land Development	224.26
4.	Farm Mechanisation	1968.08
5.	Plantation and Horticulture	530.83
6.	Forestry and Wasteland Development	134.67
7.	Animal Husbandry-Dairy	774.42
8.	Animal Husbandry-Poultry	1096.43
9.	Animal Husbandry-Sheep, Goat & piggery	555.53
10.	Fisheries	870.48
11.	Storage Godown and Market Yard	2477.48
12.	Renewable Sources of Energy and Waste Management	67.10
13.	Other Activities	68.67
	Total Term Loans for Agriculture (2 to 13)	9682.89
	Total Agricultural Credit (Term Loans and Crop Loans (1 to 13))	28666.16
14.	MSME Capital	5275.16
15.	Food & Agro Processing	1193.17
	MSME Total	6468.33
16.	Other Priority Sectors	8739.23
	Grand Total (Total Priority Sector i.e. Agriculture + MSME + Other Priority Sectors)	43873.72

Table 92, Broad Sector- wise PLP Projections – 2016-17 (Rs. Lakh)		
No	Particulars	PLP Projections 2016-17
A	Farm Credit	
i	Crop Production, Maintenance and Marketing	21025.50
ii	Term Loan for agriculture and allied activities	8963.19
	Sub Total	29988.69
B	Agriculture Infrastructure	2368.89

C	Ancillary activities	1997.87
I	Credit Potential for Agriculture (A+B+C)	34355.45
II	Micro, Small and Medium Enterprises	12679.50
III	Export Credit	360.00
IV	Education	630.00
V	Housing	3645.00
VI	Renewal Energy	64.05
VII	Others	1086.75
VIII	Social Infrastructure involving Bank credit	298.20
	TOTAL PRIORITY SECTOR (I to VIII)	53118.95

Table 93, Summary of Sector / Sub-sector wise PLP Projections – 2016-17 (Rs. Lakh)		
Sl. No	Particulars	PLP Projections 2016-17
I	Credit Potential for Agriculture	
A	Farm Credit	
i	Crop Production, Maintenance and Marketing	21025.50
ii	Water Resources	1160.14
iii	Farm Mechanization	2605.29
iv	Plantation and Horticulture (Including sericulture)	598.69
v	Forestry and Waste Land Development	172.29
vi	Animal Husbandry- Dairy	1080.28
vii	Animal Husbandry- Poultry	1271.78
viii	Animal Husbandry- Sheep, Goat, Piggery etc.	655.00
ix	Fisheries (Marine, Inland, Brackish water)	1300.91
x	Others- Bullock, Bullock cart etc.	118.81
	Sub Total	29988.69
B	Agriculture Infrastructure	
i	Construction of storage facilities (Ware houses, Market yards, Godowns ,Silos, Cold storage units/ Cold storage chains)	1995.00
ii	Land development, Soil conservation, Watershed development.	230.25
iii	Others (Tissue culture , Agri bio-technology, Seed production, Bio pesticides/fertilizers, Vermin composting)	143.64
	Sub Total	2368.89
C	Ancillary activities	
i	Food and Agro Processing	1493.87
ii	Others (Loans to Cooperative Societies of farmers for disposing of their produce, Agri Clinics/ Agri Business Centers, Loan to PACS/FSS/LAMPCS, Loans to MFIs for on lending)	504.00
	Sub Total	1997.87
	TOTAL AGRICULTURE (A+B+C)	34355.45
II	Micro, Small and Medium Enterprises	
i	MSME- Working Capital	1950.00
ii	MSME-Investment Credit	10729.50
	Total MSME	12679.50

III	Export Credit	360.00
IV	Education	630.00
V	Housing	3645.00
VI	Renewable Energy	64.05
VII	Others (Loans to SHGs/JLGs, Loans to distressed persons to prepay non Institutional lenders, PMJDY , loans to state sponsored organizations for SC/ST)	1086.75
VIII	Social Infrastructure involving bank credit	298.20
	TOTAL PRIORITY SECTOR(I to VIII)	53118.95

Chapter-XIV

Conclusion

For increasing agricultural productivity and accelerating agricultural growth of the State, public investments in agriculture sector need to be stepped up substantially. Keeping in view the importance of agriculture in creating employment, generating income and ensuring self-sufficiency in food production, share of agriculture in total plan outlay is considerably enhanced. Emphasis is laid upon providing appropriate rural infrastructure and services along with agricultural inputs for production and marketing. Irrigation facility is to be extended to dry land and rain-fed areas. Instead of constructing big dams and reservoir canal projects, ground water development should be encouraged by providing subsidised credit for construction of wells and tube wells and for purchase of diesel or electric pump sets with ground water recharge option. Other infrastructural facilities like rural road, transport, power supply, marketing and storage should be improved. Agricultural credit would be made available to the needy farmers in time and as per their requirement. For better recovery of crop loans group-lending may be encouraged. Effective extension services would be provided to the farmers.

Farmers would be motivated to diversify their cropping pattern by cultivating more remunerative and cash crops, which include oilseeds, fibre crops, vegetables and fruits. It is expected that state government would provide all-out support for cultivation of crops having export potential. In this regard thrust would be given on development of floriculture and horticulture in the district. District is having vast potential for development of horticulture [different agro-climatic zones have been identified for development of specific fruits, vegetables and spices]. Hill tracts of Boudh district would be suitable for intensive horticultural activities. Cultivation of commercial fruits, use of hybrid vegetable seeds, propagation of off-season vegetable cultivation, establishment of “bio-centres” for production of quality planting materials, use of quality potato seeds, installation of drip irrigation / micro irrigation system etc. are the major thrust areas in horticulture. Cluster approach by horticultural product typology may be adopted for propagating horticultural activities. This would help in developing the market and also facilitate establishment of food processing and other downstream activities.

Farmers would be encouraged to follow intensive and mixed farming. Along with cultivation, farmers would undertake complementary activities like dairy, poultry, goatery and piggery to supplement farm income. A mixed farming system is more desirable from the view point of ensuring better utilisation of family labour and farm by-products and also to meet the increasing demand for nutritious food and farm-yard manure.

Also, for adding value to agricultural produce, agro-processing industries would be set up in rural areas. Agricultural inputs like quality seeds, chemical fertiliser, pesticides would be made available to the farmers in time and as per their requirement at reasonable prices. It is most important that all the inputs should be supplied to the farmers under one roof and through one window, so that transaction costs can be minimised. Farmers would be motivated to undertake joint farming and to form user groups for efficient, equitable and sustainable management of irrigation system and

watershed. Micro-financing through formation of self-help groups and farmers club would be given due importance. The coverage of crop insurance would be extended and instead of “defined area approach” individualistic assessment of crop loss would be made and accordingly indemnities be paid. Land leasing and contract farming may be thought of legalising with proper regulation of its terms and conditions for achieving efficient production and equitable distribution of production gains. Employment opportunities in the nonfarm / off-farm sector would be created by accelerating the pace of agro-industries promotion in the district so that growing pressure on limited land and declining size of land ownership holding can be supplemented through agro-based enterprises.

For the purpose of conducting performance appraisal, the TSI engaged for formulation of the Comprehensive District Agriculture Plan 2015-16 and 2016-17 in the district has contacted different implementing agencies and obtain their feedback relating to the physical and financial performance of their plan programmes for the years 2014-15 and 2015-16 the reasons for shortfalls in their physical and financial performances. OUAT, the Technical support Institute (TSI) prepared the report of Comprehensive District Agriculture Plan (CDAP) of Boudh District for the year 2015-16 and 2016-17.
