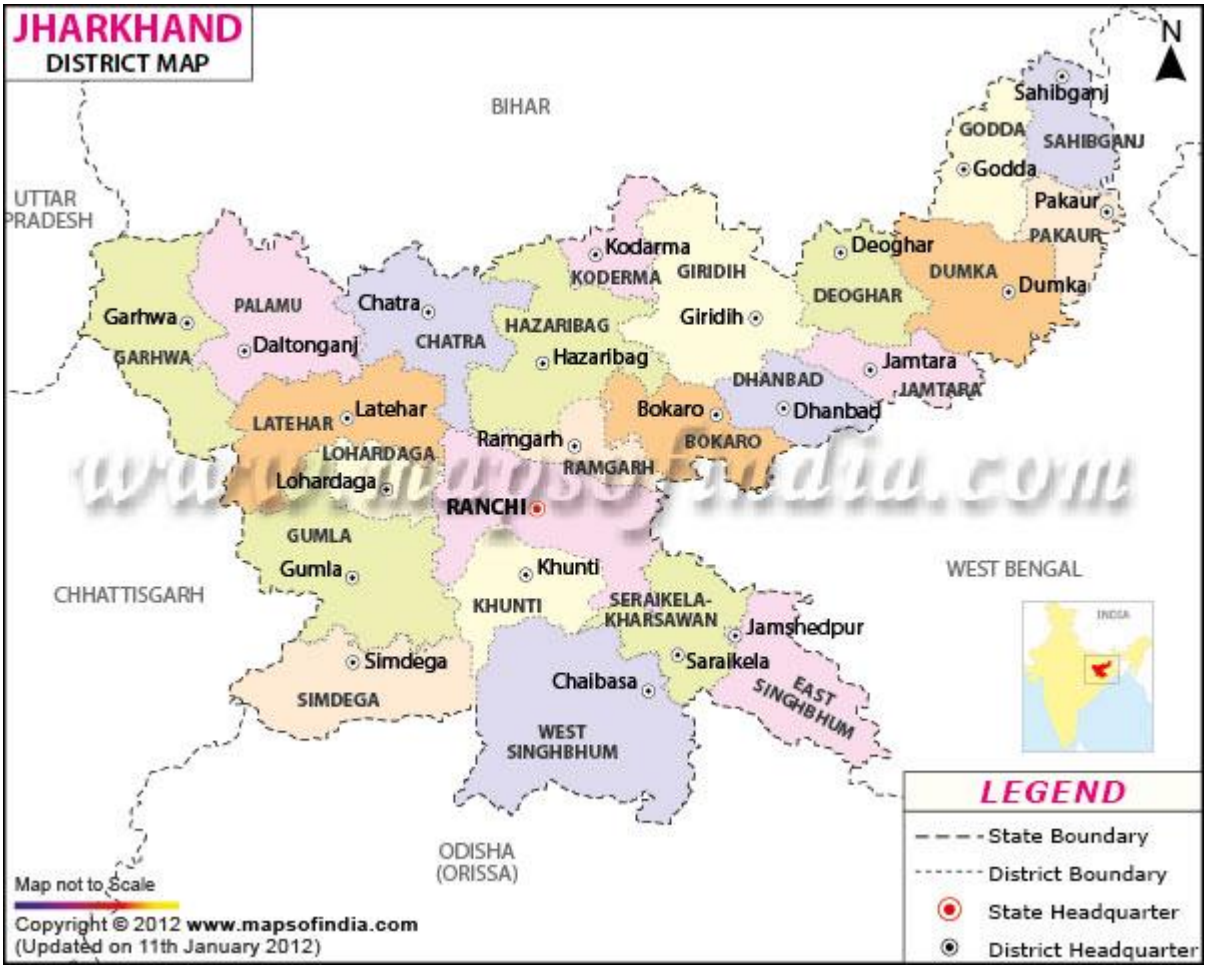
Report of the Joint Inspection Team on their inspection visit to Ranchi,Gumla, Lohardaga and Seraikela districts of Jharkhand including report on enquiry on field activities of MIDH during September 2014 (7th September to11th September, 2014).



National Horticulture Mission
Department of Agriculture and Cooperation (DAC),
Krishi Bhavan, New Delhi

Summary

Observation

1. Nurseries established with the support of MIDH are not properly managed. SHM procured planting material through tender process from outside State and distributed to the farmers through NGO. It may be indicated here that SHM has accredited nurseries within the state. Nurseries established and accredited in the State need to be given priority to support area expansion activities.

2. SHM needs to ensure timely supply of disease free quality planting material properly tagged and packed.

3. Mango seedlings supplied to the NGOs are not variety wise. Variety wise lot of planning material needs to be supplied for proper planting as per contour map of the field.

4. Subsidy provided for second and third year maintenance of orchard is being given to the NGOs. JIT suggests that farmers should also be involved in maintenance of orchards.

5. SHM does not have permanent staff under MIDH for monitoring & implementing the programme. NGOs staff is apparently not having requisite technical knowledge on protected cultivation and their cultivation practices. There is a need to involved technical personnel for proper implementation of the scheme.

6. Majority of the Greenhouse structure were of single span covering an area of 500 sqm / 1000 sqm, resulting loss of effective cultivable area in absence of gutter. In most of the greenhouse design orientation has not been taken into account as orientation play an important role for its success. The double door entry rooms of size 3.5 m X 3m X 2.5 m need to be provided in the Greenhouse to protect direct entry of insect, pest and other foreign materials. Beneficiaries have taken Carnation, Gerbera, Rose and marigold-floriculture initiative in Jharkhand under Greenhouse.

7. MIDH scheme provides financial assistance for Greenhouse inclusive of irrigation system alongwith fogging & misting arrangements. However, some of the

greenhouses did not have irrigation system. In some cases, irrigation system is there but has no provision of foggers/misters.Mission

8. Insect proof nets of 40 mesh size need to be used in all the vents of structure (side & top went) instead of shade net with 50% shade factor. GI pipes used in greenhouse were noticed with corrosion/rust.

9. SHM needs to constitute a State Level Technical Committee having experts from the field of protected cultivation. Principal Investigator (PI), PFDC, Birsa Agricultural University, Ranchi to be included as one the Committee member to suggest technical inputs to the implementation of protected cultivation under centrally sponsored programmes.

10. There is a need to empanel Greenhouse/Shadenet house company/firms for quality construction of Greenhouse as per SLEC approved technical specifications and have MOU between SHM, Firms and Farmers. As per MIDH guideline components used in construction of Greenhouse/Shadenet house/Plastic tunnel must conform to Indian Standards for quality assurance for availing subsidy.

11. SHM in association with PFDC, Ranchi need to develop a trainers training programme on protected cultivation which would help implementing agencies/NGOs & beneficiaries in the State.

Report of the Joint Inspection Team on their inspection visit to Ranchi, Gumla, Lohardaga and Seraikela districts of Jharkhand during September, 2014 (7th September to 11th September 2014)

Joint Inspection Team (JIT) comprising following members, visited Jharkhand during 7-11 September 2014 to assess scheme progress under centrally sponsored programmes i.e OFWM, MIDH, NVIUC etc.

3. Sri Om Prakash, Additional Commissioner (MIDH), DAC, Krishi Bhawan, New Delhi.
2. Dr. R.C. Upadhyaya, Chief consultant (MIDH), DAC, Krishi Bhawan, New Delhi.
3. Dr. R.P. Singh, Assistant Director, DAC, Krishi Bhawan, New Delhi.
4. Sri Krishna Kumar Kaushal, Joint Project Director, NCPAH, N.Delhi
5. Dr. J. Munda, State Consultant (SHM), Krishi Bhawan, Kanke Road, Ranchi-Nodal officer

The team under the leadership of Shri Om Prakash, Additional Commissioner, Dept. of Agriculture & Cooperation, Ministry of Agriculture, Govt. of India visited Gumla, Lohardagga, Ranchi and Saraikela Districts in Jharkhand to assess the status of scheme progress under MIDH wrt protected cultivation, nursery for planting materials, area expansion under Mango and new intervention – cluster based Banana cultivation & seed processing unit. The JIT team along with Mission Director, Govt. of Jharkhand & officials, State Horticulture Mission (SHM) visited Greenhouse projects under the National Horticulture Mission at village: Palma &, Tikra Toli , Nagri block and village: Manmanru, Ekaguri, Jaipur, Ratu Blocks of Ranchi District.

The matter on issues of anonymous complaint against Director, SHM was discussed with Principal Secretary, Department of Agriculture & Cane Development, Govt. of Jharkhand, Ranchi .He was appraised about the anonymous complaint and issues raised in the letter. Director, SHM also informed and appraised to the Principal Secretary regarding complaint. No enquiry has been set up by Principal Secretary, Department of Agriculture & Cane Development, Govt. of Jharkhand, Ranchi being anonymous complaint letter as per Govt. notification. However, the issues made in anonymous complaint letter were examined by JIT on the basis of information given by the office of SHM and field investigations observations are given by JIT at page No 1&2.

Poly house/ shade net visit by JIT. Government of India
Day 1, Date-08.9.2014 (2011-12 & 2012-13)

1. Shri Shyamdhani Mahto Village-Palma, Block-Nagri, District-Ranchi

(a) Poly house-550 sq.mtr.x2

(b) Shade net-1000 sq.mtr.

Cultivating Rose & Gerbera in the poly house and given employment to the unemployed youth especially women.

2. Shri Nirjal Mahto (2013-14) Village-Tikra Toli, Block-Nagri, District-Ranchi

(a) Poly house-1000 sq.mtr

Cultivating Gerbera in poly house and Marigold in open filed in one ha. approximate.

3. Shri Sandeep Bhagat (2013-14) Village-Jaipur, Panchayat-Saparom, Block-Ratu Nagri, District-Ranchi.

(a) Poly house-1000 sq.mtr

Newly constructed poly house for floriculture.

Day 2, Date-09.09.2014

1. Shri Anil Munda (2013-14), Village-Manmanru, Block-Ratu, District-Ranchi

(a) Poly house-1000 sq.mtr

Package of practices for poly house cultivation, training etc. required to the farmers.

2. PFDC, B.A.U., Kanke, Ranchi

Package of practices for poly house cultivation, training on erection of poly house/ shade net etc. are required to the PFDC offices.

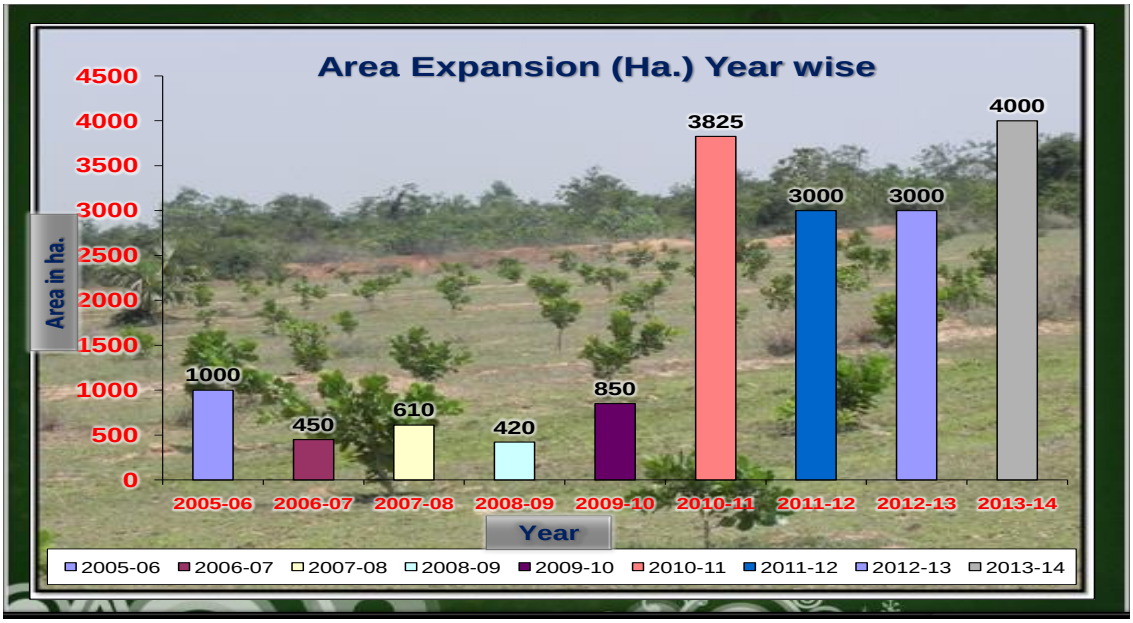
Day 3, Date-1.09.2014 (2013-16)

1. Shri Bipin Gupta, Village-Ekaguri, Block-Ratu, District-Ranchi

(a) Poly house-3400 sq.mtr

cultivation of Gerbera and Rose in poly house.

Glimpses of Photographs – JIT Jharkhand



Components of NHM, RKVY, NMMI, and other programmes:

- Crop specific cluster at district level.
- Nurseries management and progress including accreditation of nurseries.
- Vermin compost units under SHM.
- Flowers and vegetable production under protected conditions.
- Micro irrigation scheme and use of plastic in mulching, irrigation and precision farming.
- Placement of technical Staff at Management and also at field Level.
- Other activities and KVK, s support including Financial Progress: (Rs. in lakhs).
- National Mission on Micro Irrigation (NMMI).
- National vegetable Initiative (NVI).
- Rastriya Krishi Vikash Yojana (RKVY).

Financial Status - 2013-14

Upto 18 March 2014
(Rs. in lakh)

Year	Approved Plan	Opening Balance	GOI Release	Available Fund	Expenditure	Unspent
2012-13	7500.00	2137.17	4781.00	6918.17	5122.58	1795.59
2013-14	8000.00	1795.59	5004.41	6800.00	6507.530	292.47

Total expenditure during 2013-14 = Rs. 7655.92 lakhs
Central share expenditure = Rs 6507.53 lakhs

Physical & Financial Progress Report 2013-14

(Upto 18th March 2014)

S. N.	Programme	Physical Target Ha./Unit	Financial Target (Rs. in lakh)	Physical Achivement (Ha./Unit)	Financial Achivement (Rs. in lakh)
1	Produciton of planting materials	5	38.75	4	31.25
2	Vegetable Seed Production/Distribution	1210	305	1200	297.5
3	Establishment of new gardens				
A	High Density Fruit Planting	50	9.416	10	1.5
B	Medow Orcharding	40	12		
C	Banana Cultivation (TC)			13	4.06
D	Fruit crops other than cost intensive crops using normal spacing	7240	758.9	7240	758.73
	i. Maintenance 2012-13	8370	206.1	7800	192.0235
	ii. Maintenance 2011-12	11005	276	8500	213.18
E	Floriculture	1200	368	1200	356
F	Spices	3200	400		
G	Aromatic Plants	100	12.5	90	10.00
H	Plantation Crop (Cashewnut)	4000	480.00	4000	480.00
	i. Maintenance 2012-13	3000	84	3890	107.82
	ii. Maintenance 2011-12	3000	84	2000	65.00
S. N.	Programme	Physical Target Ha./Unit	Financial Target (Rs. in lakh)	Physical Achivement (Ha./Unit)	Financial Achivement (Rs. in lakh)
4	Rejuvenation	50	7.50	45	2.50

5	Creation of water resources sources	127.25	1533	109	1320.02
6	Protected cultivation	139140	2128	116131	1646.31
7	Promotion of INM/IPM	1000	10.00	1000	10.00
8	Organic Farming	11970	719	8285	196.00
9	Pollination support through Bee Keeping	630	6.6	630	4.00
10	Horticulture Machanization	23	8	5	1.17
11	Front line demonstration (FLD)	2	37.5	1	15.00
12	Human Resource Development (HRD)	4403	78	4400	59.55
13	Integrated Post Harvest Management	1381	1898	1011	1411.00
14	Establishment of Marketing infrastructure for horti. Produce	13	86.25	0	0
15	Special intervention/ Dendrobium			1	91.31
16	Mission Management	7	454.3	7	382.00
	Total				7655.92

Proposal for AAP 2014-15 Jharkhand State

Sl. No	Programme	Physical Target (Ha./Unit)	Financial Target (Rs. in lakh)			%
			Target	Central Share (85%)	State Share (15%)	
1	Production of planting materials	4	70.00	59.50	10.50	0.63
2	Seed prod. for vegetable and spices	520	68.25	58.01	10.24	0.62
4	Establishment of new gardens					

A	Cost Intesive Crops	170	47.25	40.16	7.09	
B	Fruit crops other than cost intensive crops using normal spacing	3630	347.01	294.96	52.05	
	i. Maintenance 2012-13	6113	215.90	183.52	32.39	
	ii. Maintenance 2011-12	8370	294.37	250.21	44.16	**8.17**
C	Vegetables	300	75.00	63.75	11.25	0.68
D	Floriculture	300	116.00	98.60	17.40	1.05
E	Spices	500	60.00	51.00	9.00	0.54
F	Aromatic Plants	50	8.00	6.80	1.20	0.07
G	Plantation Crop (Cashewnut)	6000	720.00	612.00	108.00	
	i Maintenance 2012-13	3900	156.00	132.60	23.40	
	ii. Maintenance 2011-12	3000	120.00	102.00	18.00	**8.99**
	Total	32333	2159.53	1835.6	323.94	
5	Rejuvenation	50	10.00	8.50	1.50	0.09
6	Creation of water resources sources	123.85	1514.42	1287.26	227.16	13.67
7	Protected cultivation	1255	2320.58	1972.49	348.09	**20.95**
8	Promotion of INM/IPM	3400	408.00	346.80	61.20	3.68
9	Organic Farming	6610	378.00	321.30	56.70	3.41
10	Pollination support through Bee Keeping	210	2.40	2.04	0.36	0.02
11	Horticulture Machanization	1	50.00	42.50	7.50	0.45
12	Technology Dissemination through demonstration / front line demonstration (FLD)	5	93.75	79.69	14.06	0.85

13	Human Resource Development (HRD)	3005	74.00	62.90	11.10	0.67
14	Integrated Post Harvest Management	1372	2210.75	1879.14	331.61	19.96
15	Establishment of Marketing infrastructure for horti. Produce	23	40.30	34.26	6.05	0.36
16	Centre of excellence for Horticulture in vegetable	1	1000.00	850.00	150.00	9.03
17	Mission Management	47	675.50	574.17	101.32	6.24
	Grand Total		11075.48	9414.16	1661.32	100%

Availability of Quality planting material

Area expansion programme for five year including current year plan is shown in below :-

Horticultural Crops	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Mango	2700	2970	3267	3594	3953
Litchi	100	110	121	133	146
Aonla	100	110	121	133	146
Lemon	100	110	121	133	146
Mandarine/ Orange	100	110	121	133	146
Custard apple	100	110	121	133	146
Guava	300	330	363	399	439
Pear	30	33	36.3	40	44
Sapota	100	110	121	133	146
Cashewnut	6000	6600	7260	7986	8785
Total	9630	10593	11652	12818	14099

On the basis of proposed plan for five years, requirement of planting material is shown in below :

Horticultural Crops	2014-15	2015-16	2016-17	2017-18	2018-19
Mango	270000	297000	326700	359370	395307
Litchi	10000	11000	12100	13310	14641
Aonla	27800	30580	33638	37002	40702
Lemon	55500	61050	67155	73871	81258
Mandarine/ Orange	27800	30580	33638	37002	40702
Custard apple	160000	176000	193600	212960	234256
Guava	83400	91740	100914	111005	122106
Pear	12000	13200	14520	15972	17569
Sapota	40000	44000	48400	53240	58564
Cashewnut	1668000	1834800	2018280	2220108	2442119
Total	2354500	2589950	2848945	3133840	3447223

***Requirement of planting material (2014-15)= 23.545 lakhs nos.**

for perennial orchards including Cashewnut.

The arrangement of planting material for the year 2014-15 is as shown in below

Nursery establish under NHM and Progeny nursery / Block nursery	= 4.00 lakhs
Birsa Agril. University, Ranchi	= 2.00 lakhs
HARP, Plandu, Ranchi	= 2.00 lakhs
Cashew from accredited nursery by DCCD, Kerala	= 9.00 lakhs
Acredited Nursery from NHB and Registered Nursery throgth Jharkhand	= 6.545 lakhs

Ranchi District:

Ranchi, the capital of Jharkhand State, is located at 23.35°N latitude and 85.33°E longitude. The total geographical area of the State is 5231 sq. km. According to the 2011 census Ranchi district has a population of 2,912022. It is located in southern part of Chotanagpur pleatu. The main rivers flowing through Ranchi District are Subarnarekha, South Koel and its tributaries.

There are three well-defined seasons: the hot-weather season, lasting from March to mid-June; the season of southwest monsoon rains, from mid-June to October; and the cold-weather season, from November to February. May is the hottest month. Generally, the climate of Ranchi is moderate due to hilly region and dense deciduous forest. The covered forest area of Ranchi District is 159.14 hec. District has 18 blocks and soil is formed from the disintegration of rocks and stones (Laterites). Ranchi consists of tabular landmass. It has even flat surface with isolated hillocks known as Tongri. Hills lying on west have elevation above 800 metres and those lying in east have elevation less than 75 meters. The average elevation of the district is 650 metres but western portion is relatively higher than eastern part. The entire area is full of tanrs and Dons on account of rolling topography. Tarns are the comparatively highlands and Dons are lower lands. Geologically the area is comprised with Archean granites; gneisses and schist's.

Climate:

Ranchi has a humid subtropical climate. However, due to its position and the forests around the city, it is known for its pleasant climate. Its climate is the primary reason why Ranchi was once the summer capital of the undivided State of Bihar. Ranchi used to be a preferable hill station in the past. Temperature ranges from maximum 42 to 20 °C during summer, and from 25 to 0 °C during winter. December and January are the coolest months with temperature getting to freezing point in some places of the city. The annual rainfall is about 1430 mm (56.34 inches). From June to September the rainfall is about 1,100 mm.Agro climatic jone of Ranchi comes under Central And North Eastern Plateau Zone (BI-4).

Loam soil soils
Fine Loam soils
Fine mixed Loam soils

Ranchi												
Climate chart (explanation)												
J	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	
23	**30**	**27**	**32**	**55**	**199**	**346**	**329**	**282**	**89**	**8.7**	**6.1**	
23	**26**	**31**	**36**	**37**	**34**	**29**	**29**	**29**	**28**	**26**	**23**	
4	**13**	**17**	**22**	**24**	**24**	**23**	**22**	**22**	**19**	**14**	**4**	
Average max. and min. temperatures in °C												
Precipitation totals in mm												
Source: IMD												

Imperial conversion												
J	**F**	**M**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	
0.9	**1.2**	**1**	**1.2**	**2.1**	**7.8**	**14**	**13**	**11**	**3.5**	**0.3**	**0.2**	
73	**78**	**88**	**96**	**99**	**92**	**84**	**83**	**84**	**83**	**78**	**73**	
39	**55**	**63**	**71**	**74**	**75**	**73**	**72**	**71**	**66**	**57**	**39**	
Average max. and min. temperatures in °F												
Precipitation totals in inches												

Agriculture and Land Use

The lower areas provide suitable condition for paddy cultivation. The higher elevations provide condition for orchards and cultivation of pulse, millet and

vegetables. The forest covers 20.99 % of total area of the district. Major crops grown in the district are rice and pulses. Only 8.30 percent area of agricultural use have irrigation facility and major source of irrigations are well and canals.The total Geographical area (TGA) of the Ranchi district. is 758250 ha. The area under forest cover is 20.9 % of TGA (1, 59,140 ha) which is less than State average of 29 percent. The net sown area is 33.7 % of TGA (1, 61,750 ha) which is higher to the state average of 22.7 percent. The fallow land is about 25 % (1, 90,210 ha). The cultivable wasteland is 3.5 % of the TGA ie 26,320 ha.

Soils:

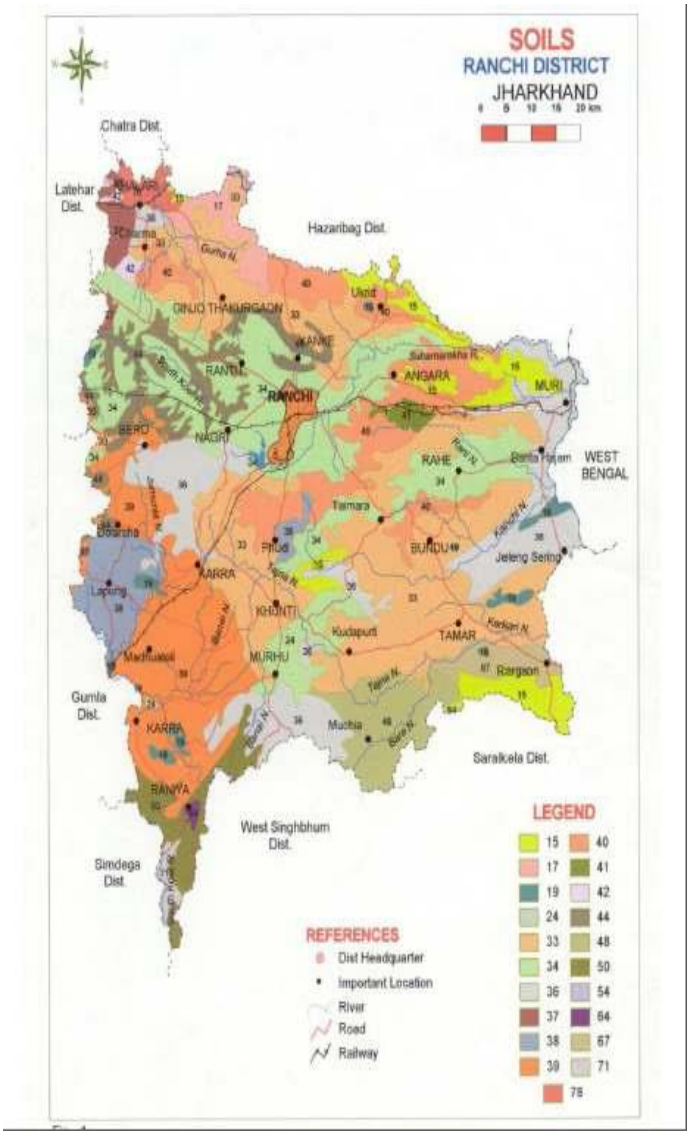
Ranchi soils are classified as red lateritic, loam, fine Loam and fine mixed loam soils. The soil pH ranges from 4.2 to 7.6. Majority of the area is acidic (96.4 % of TGA) in reaction. Soils of 1.2 percent area of the district are neutral whereas 0.2 percent area is slightly alkaline in reaction. The organic carbon content in the district ranges from 0.14 to 3.76 %. Soils 43.8 percent areas of the district have high organic carbon content. Medium and low organic carbon content constitutes 28.7 and 25.3 percent area respectively. Available nitrogen content in the surface soils of the district ranges between 109 and 638 kg/ha. Majority soils (67.2 % of TGA) of the district have medium availability of nitrogen (280-560 kg ha-1) whereas soils of 26.1 percent area have low available nitrogen content (<280 kg ha-1).Available phosphorus content in these soils ranges between 0.5 and 26.6 kg/ha. Majority of the soils are medium (56.2 % of TGA) in available phosphorous content. Soils of 40.1 percent area are low and 1.5 percent area are high in available phosphorous content. Available potassium content in these soils ranges between 49 and 941 kg/ha. Majority of the soils (57.1 % of TGA) have medium available potassium content (108-280 kg ha-1). Soils of 27.7 percent area are high (above 280 kg ha- 1) and 13.0 percent area are low (below 108) in available potassium content.

Soils are sufficient in available iron and manganese whereas soils of 4.1 and 5.6 percent area are deficient in available zinc and copper respectively. Available boron content in the soils ranges between 0.02 and 3.52 mg kg-1 and 42.8 percent area of district is deficient (<0.50 mg kg-1).

Major Horticultural crops (Crops identified based on total acreage):

	Total	
	Production(000tons)	**Productivity(kg/ha)**
Cauliflower	44192	16.0
Potato	52894	8.9
Cabbage	31232	16.0

Tomato	36340	20.0
Brinjal	54660	20.0
Chilli	23196	12.0
Ladies finger	50442	14.0
Bitter gourd	1122	6.0
Ridge gopurd	6066	6.0
Sponge gourd	8172	12.0



Legend Information:-

15- Shallow excessively drained gravelly loamy soils

17- Shallow well drained loamy soils

19-Shallow, excessively drained, gravelly loamy soils

24- Deep imperfectly drained fine soils

33-Very Deep moderately well drained fine loamy soils

34- Very deep, well drained, fine loamy soils with severe erosion

36- Very deep moderately well drained fine soils

37- Shallow well drained, loamy soils

38-Very deep well drained, fine loamy soils

39-Deep moderately well drained fone soils.

40- Deep, moderately well drained, fine loamy soils

41- Very deep, well drained, coarse loam soils

42- Deep moderately drained, fine soils

44- Very deep poorly drained fine soils

45- Very Deep poorly drained fine soils

50- Shallow, well drained, loamy soils

54- Shallow moderately well drained loamy soils

64- Shallow well drained loamy soils

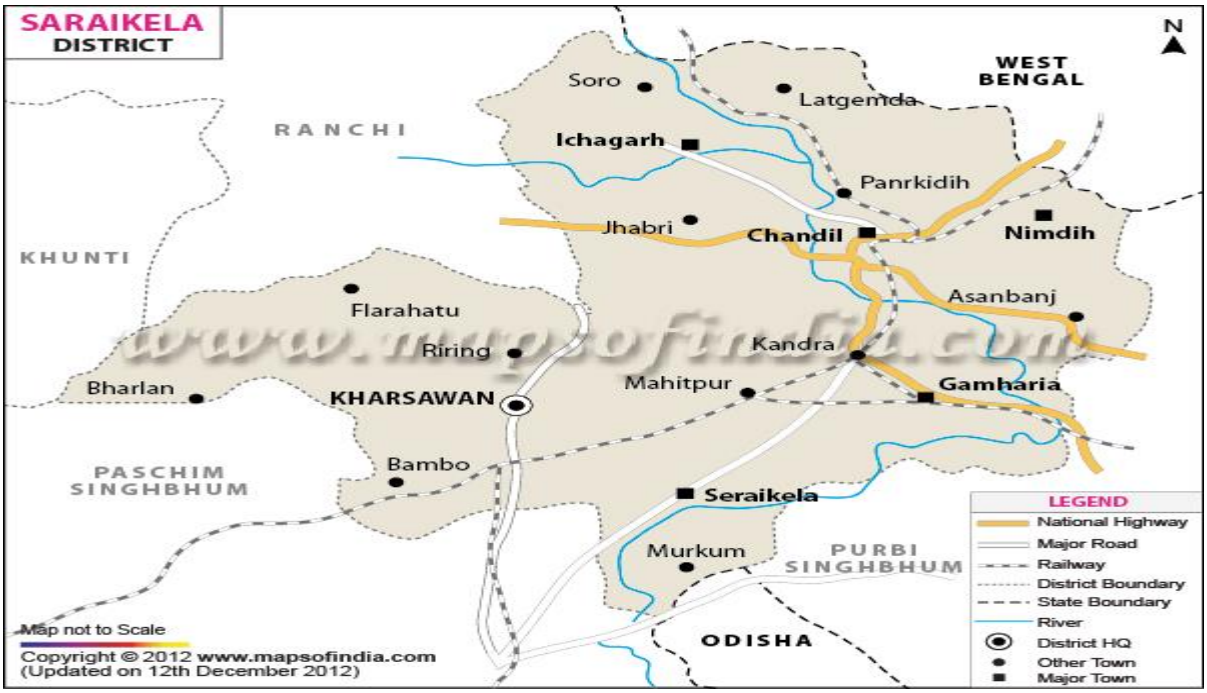
67-Very deep well drained coarse loamy soils

71-Very deep poorly drained fine soils

78- Very Deep moderately welly drained fine soils

Sreaikela-Kharsawan district:

Saraikela district is located in southeastern part of the state. It is bounded by the Purulia district of west Bengal state in the north, Ranchi district in the west, West Singhbhum district in south and East Singhbhum district in south east and East. The district is situated between 22°29'26" and 23°09'34" north latitudes and 85°30'14" and 86°15'24" east longitudes. According to the 2011 census Seraikela Kharsawan district has a population of 1,063,458 and area 2724.55 sq.km., The district has a population density of 390 inhabitants per square kilometre (1,000 /sq mi) Its population growth rate over the decade 2001-2011 was 25.28%. Saraikela Kharsawan has a sex ratio of 58 females for every 1000 males, and a literacy rate of 68.85%. The district comprises 9 blocks: Seraikela, Kharsawan, Gamharia, Kuchai, Ichagarh, Nimdih, Chandil, Rajnagar and the newly formed, Kukru.



District Profile

Geographical area 281544.79 Ha., Blocks 8, No of village (inhabited) 1187, No of village electrified 404.

Rainfall

1. Normal Actual (In the year 2007) - 1277.00 mm 1511.60 mm
2. Agro climatic Region and Zone Eastern plateau and hill region
3. Cultivators - 226630
4. small and marginal farmers -115876
5. Net sown area (in ha)- 79803.15
6. Forest -60700.84

7. Fallow land (in ha)- 60709.56
8. Land not available for cultivation (in ha) --55545.8
9. Cropping intensity -109%2
10. Net irrigated area (in ha)-7271.67
11. Rural Market/ Mandis (No) 09 Major Haats
12. Rural Godowns Nil
13. Cold Storage Nil

Climate and Soils:

Physiography, Geology and Drainage This area is dominated by hilly ranges, valleys and plateaus. Hilly and steeply sloping area are under dense forest cover. Dalma hills ranges are stretchearby districts. The district receives an annual rainfall of 1500 mm. and most of the rainfall occurs during the rainy season. The mean annual temperature remains at about. The temperature ranges from C in winter months to 440C in summer months.

The soils occurring in different landforms have been characterized during soil resource mapping of the state on 1:250,000 scale (Haldar et al. 1996) and three soil orders namely Entisols, Inceptisols and Alfisols were observed in Saraikela district (table 1). Alfisols were the dominant soils covering 53.8 percent of TGA followed by Inceptisols (26.5 %) and Entisols (17.4 %).

Mean annual rainfall:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
250.6	242.8	193.7	93.8	25.7	23.3	50.3	70.3	62.9	48.8	56.3	157

Agriculture:

The main economic activity in the district is agriculture. Paddy and Maize are the two main crops in the district. The agro climatic condition of the district is suitable for cultivation of a variety of fruits like mango, guava, jack fruit and vegetables like cauliflower, tomato, brinjal etc. There are some good clusters of vegetable cultivation in Rajnagar, Icagarh, Gamharia, Saraikela and Chandil blocks in the district. However, in the absence of assured irrigation facility, agriculture in the district is primarily rainfed and as a result, mainly monocropping and subsistence farming is practiced in the district. Absence of effective extension services and lack of backward and forward linkages have made the scene worse. The district offers a lot of potential for development of agriculture sector. Under Agriculture sector for the years 2008-09 to 2011-12, the Accelerated Seed Replacement Programme which includes Certified Seed Programme, Buy Back of Certified Seed produced by Seed Villages, etc., has a plan outlay of Rs.1020.74 lakh. Under support to State Seed Farms and Comprehensive Agricultural Seed Farm, the plan outlay proposed is Rs.151.66 lakh.

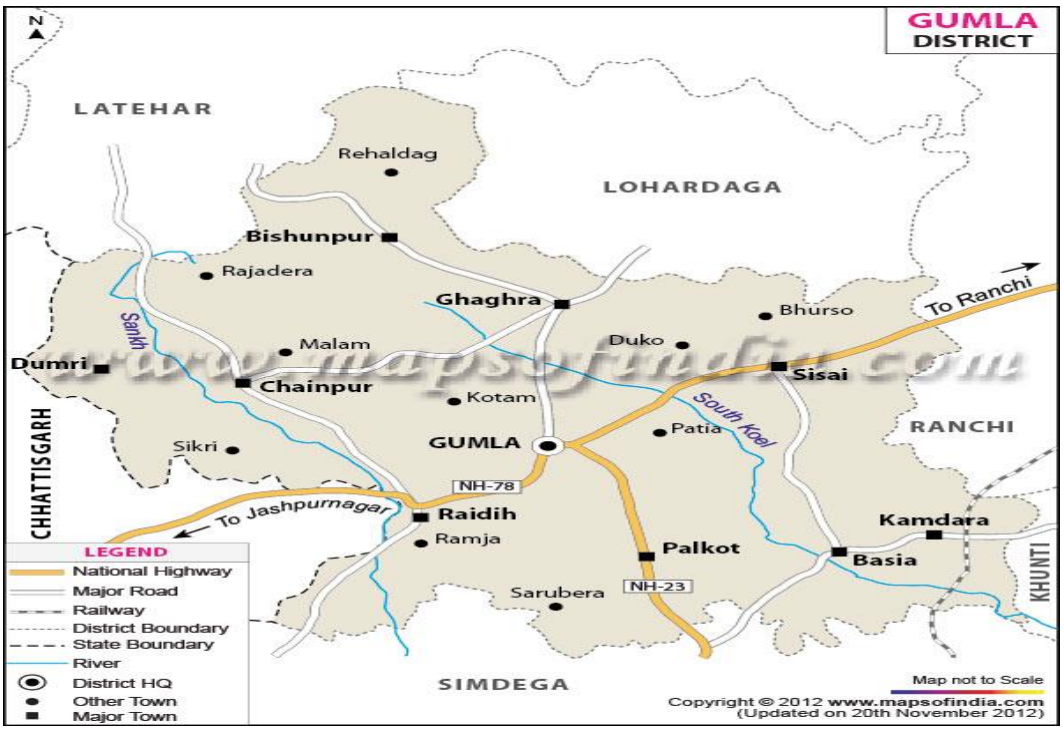
For a seed testing lab, an outlay of Rs. 31.53 lakh is proposed, whereas it is Rs. 52.00 lakh for Integrated Pest Management.

Horticulture crops- Vegetables	Area ('000 ha)	Production ('000 t)
Cauliflower	1.4	36.4
Cabbage	1.2	31.8
Tomato	1.2	26.3
Brinjal	0.5	14.3
Chilli	0.1	0.5
Ladies finger	0.4	7.1
Bottle gourd	0.5	78.4
Bitter gourd	0.6	86.0
Cucumber	0.1	25.1
Ridge gourd	0.3	38.2
Sponge gourd	0.5	6.8
French Bean	0.1	15.3

District Gumla:

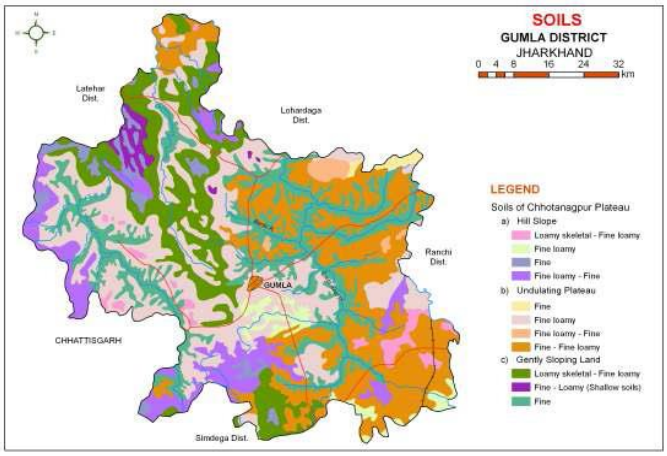
Gumla is located at 22°30”N - 24° 30” N Latitude, 23°N 84.50°E Longitude and 222 to 1142 ft Altitude geographically; Gumla is on southern part of the Chota Nagpur plateau which forms the eastern edge of the Deccan plateau system. According to the 2011 census Gumla district has a population of 1,025,656 and area 5,327 km^2 .There are three major rivers, which flow through the Gumla district viz. the South Koel, the North Koel and the Sankh. There are various streams/ tributaries to the Main Rivers. The terrain is highly undulating and there are existence of many rivers and streams. The forest cover of the district is 1.35 lakh hectares out of the total 5.21 lakh hectares of land i.e. round 27% of the total area of the district.

Gumla, a scheduled district in Jharkhand is backward and is having a very low development status as the performance of some of the key development indicators are far below the national and state level. It is one of the backward districts in the 90 minority concentration districts in India.



Climate and Soils:

Gumla district enjoys a good climate characterized by a pleasant cold and temperate weather conditions. Gumla has a sub-tropical climate. Temperature ranges from maximum 40 to 20 °C during summer and minimum 21 to 3 °C during winter. The annual rainfall is about 1450 mm. From June to September the rainfall level is about 1,150 mm. Gumla is under Agro-Climatic Zone of Eastern Plateau And Hills Region. It is at Moderately to gently sloping chattisgarh mahanadi basin, hot moist/dry subhumid transitional Agro Ecological Sub Region.



Major Soils (common names like red sandy loam deep soils (etc.,)*	Area ('000 ha)	Percent (%) of total
Inceptisols	40.3	45.13
Entisols	6.2	6.94
Alfisols	42.8	47.93

*mention colour, depth and texture (heavy, light, sandy, loamy, clayey etc)

Land use pattern	**Area (ha)**
Geographical area	5214
Cultivable area	3296
Forest area	1356
Land under non-	31958

agricultural use	
Cultivable wasteland	31.96
irrigation	**Area (000')**
Net irrigated area	9.13
Gross irrigated area	10.2
Rainfed area	3.2

Area under major field crops & horticulture

Horticulture crops - Fruits	**Area (ha)**		
	Total	**Irrigated**	**Rainfed**
Mango	498	41.	456.6
Guava	624	562.6	61.4
Lemon	105	45	60
Banana	165	28	137
Horticulture crops - Vegetables	**Total**	**Irrigated**	**Rainfed**
Brinjal	4000	3400	600
Tomato	3000	2000	1000
Bhindi	3500	2000	1500
Chillies	1500	800	700

Agriculture:

The Major crops grown in the district are paddy, ragi (madua) and maize. Recently, cultivation of gram, peas, soya bean, groundnut and pulses has been taken up in a big way by the farmers in Bhadara, Senha and Kuru blocks. The district has also been identified as Agri-export Zone by Government of India, keeping in view the production of large quantities of green vegetables in the district. The climate of the district remains

cold throughout the year with an average rainfall of 1100 mm to 1250 mm which is conducive for production of vegetables. However, there is urgent need for increasing the irrigation coverage in the district so that mono cropping at present may be transformed to multi cropping system in future. Peas, cauliflower, brinjal, tomato and French beans are supplied to other towns in Jharkhand and neighboring States of Orissa, Chhattisgarh and West Bengal. The climate in Lohardaga is suitable for selective cultivation of some of the medicinal plants as well as aromatic plants. An initiative has been taken by the district administration with the help of some prominent NGOs under RSVY by planting Safed Musli and Satawar on the land of 10 farmers to have demonstrative effects. In coming years, potential for Citronella and Lemon Grass may also be tried in the district with assured marketing support to the producing farmers.The climate in Lohardaga is also suitable for cultivation of Jatropha plants on the wasteland and barren forest land. An initiative is being taken by the district administration with the help of some prominent NGOs under RSVY for planting Jatropha to have demonstrative effects. Potential for Jatropha may be tried with assured distillation and marketing support to the producing farmers.

District: Lohardaga

Lohardaga extends from 23^0 16'45'' to 23^0 40'30'' N latitude and 84^0 23'50' to 84^0 56'50' E longitude and comprises 1491 sq. km area and According to the 2011 census Lohardaga district has a population of 461,738. District is bounded by Latehar district in north, Gumla in south and west and Ranchi in the east. The district is divided into 5 development blocks namely Lohardaga, Bhandra, Kisko, Senha and Kuru.The district is divided into two major physical divisions's viz. the hilly tract and the plateau region. The hilly tract is extended in the west and north western part of the district, which includes part of Kisko, Senha and Kuru development blocks. The high hill top of the region is known as pat. The plateau region is the part of the Gumla plateau comprised with entire part of Lohardaga and Bhandra and some part of Senha, Kisko and Kuru development blocks. This region has a number of small hillocks. The general slope of the district is from west to east. In the uplands found of laterite and in the river valley found alluvium. The main rivers of the districts are South Koel, Sankh, Nandini, Chaupat and Fulijhar etc. These are mainly Rainfed Rivers and dried up in the summer months.

Climate and Soil:

The district enjoy healthy, pleasant climate throughout the year. The annual average temperature is 23^0C, the highest temperature goes to 36^0 C in summer and lowest of 100 C in winter. The district receives annual rainfall of 1000 to 1600 mm and it

increases from west to east. Agro Ecological Sub Region is moderately To gently sloping Chattisgarh Mahanadi Basin, hot moist/dry sub humid transitional ESR With deep loamy To clayey red and yellow soils.

The soils occurring in different landforms have been characterised during soil resource mapping of the state and three soil orders namely Entisols, Inceptisols and Alfisols were observed in Lohardaga district. Alfisols were the dominant soils covering 52.6 percent of total geographical area followed by Inceptisols (25.1 %) and Entisols (21.1 %)

Soil Characters:

Shallow excessively drained gravelly loamy soils
Shallow, excessively drained, gravelly loamy soils
Deep excessively drained coarse loamy soils
Deep moderately well drained fine soils
Very Deep moderately well drained fine loamy soils
Very deep, well drained, fine loamy soils with severe erosion
Shallow well drained, loamy soils
Moderately deep well drained fine soils.
Deep, moderately well drained, fine loamy soils
Deep moderately drained, fine soils
Very deep poorly drained fine soils

Source: SAMETI, Jharkhand

Agriculture and Land Use:

About 90 percent of the population is dependent on agriculture. Net sown area of the district is 77,744.78 hectors. Out of which only 7034.20 hectors area is irrigated. The main crop of the district is rice fallowed by millets (marua, gondli and maize), pulses, wheat oilseed (sarguja and groundnut) and vegetables. There is scarcity of sufficient and dependable source of irrigation because of the district being hilly. The main sources of irrigation in the district are river canal, pond and wells. One fourth of the area is under forest cover with majority of sal, mahua, jamun and neem vegetation.

Land Use in Lohardaga District :

Land use pattern	**Area (ha)**
Geographical area	148.3
Cultivable area	39.3(3.51 %)
Forest area	44.4 (28.87%)

Permanent pastures	0.06(0.04 %)
Cultivable wasteland	4.9
Barren and uncultivable land	9.1 (6.12 %)
Current fallows	20.5
Other fallows	20.6
irrigation	Area (000')
Net irrigated area	5.7
Net sown area	30.05 %
Orchards	0.54 %

Agricultural land use	Area ('000 ha)
Net sown area	39.3
Area sown more than once	10.5
Gross cropped area	49.9
Cropping intensity %	108

Area under major field crops & horticulture (as per latest figures)

Horticulture crops - Vegetables	**Total**	**Production**
Cauliflower	1.0	31.3
cabbage	1.0	26.3
Tomato	1.0	23.3
Brinjal	0.4	11.8
Chilli	0.7	0.5
Ladies figure	0.3	8.0
Bottle gourd	0.4	60.0
Bitter gourd	0.5	
Cucumber	0.1	
Ridge gourd	0.2	

Sponge gourd	0.3	
French bean	0.1	

The inhabitants of this district mainly depend on agriculture, forest produce and seasonal migration to different parts of the country. 80% of the population depends upon agriculture. The main crop of this area is paddy. In the small irrigated area wheat is grown to meet the annual food sufficiency. Also this district is linked with larger vegetable markets like Jamshedpur, Rourkela and Calcutta. There is a cold storage in the district. But profitable vegetable cultivation is being limited to road side non-tribals. Generally, villagers of the district keep plough animals. Also they keep goats and poultry birds as buffer. Although there is a dairy chilling plant in the district head quarter, dairy is practised by very few people mainly non-tribal.

The net sown area is only 55% of the total area of the district. Two blocks i.e. Kisko & Senha have large area under dense forest cover. The forest cover is around 32-35% of the total area of the district. The average land holding per household is 1.65 Ha. The per capita agriculture land is around 0.28 Ha. Net irrigated area is 13.4% of net sown area (0.8% by canals, 7% by wells, 2% by tanks & 3.6% by lift irrigation & others).

District Photographs