Two decades of change in rural north Bihar, India

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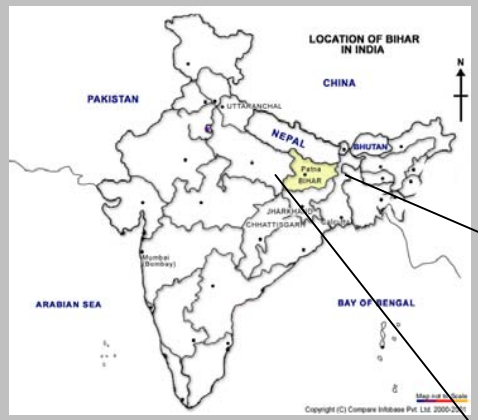
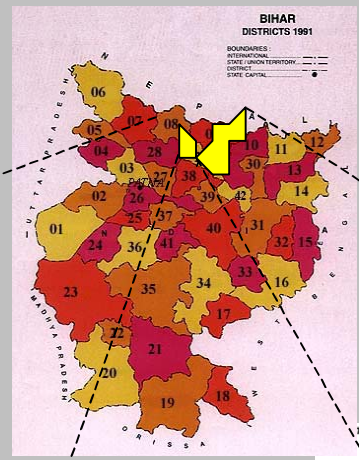
India

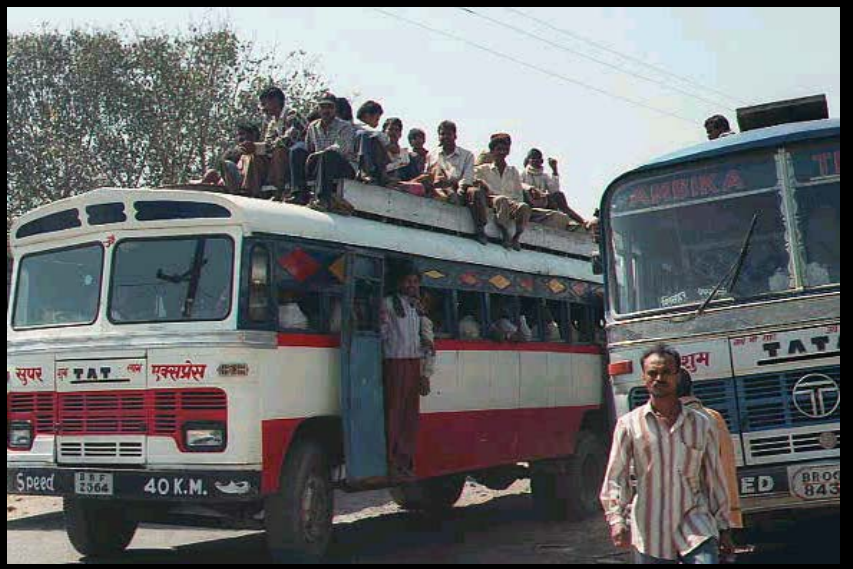


Districts of Bihar



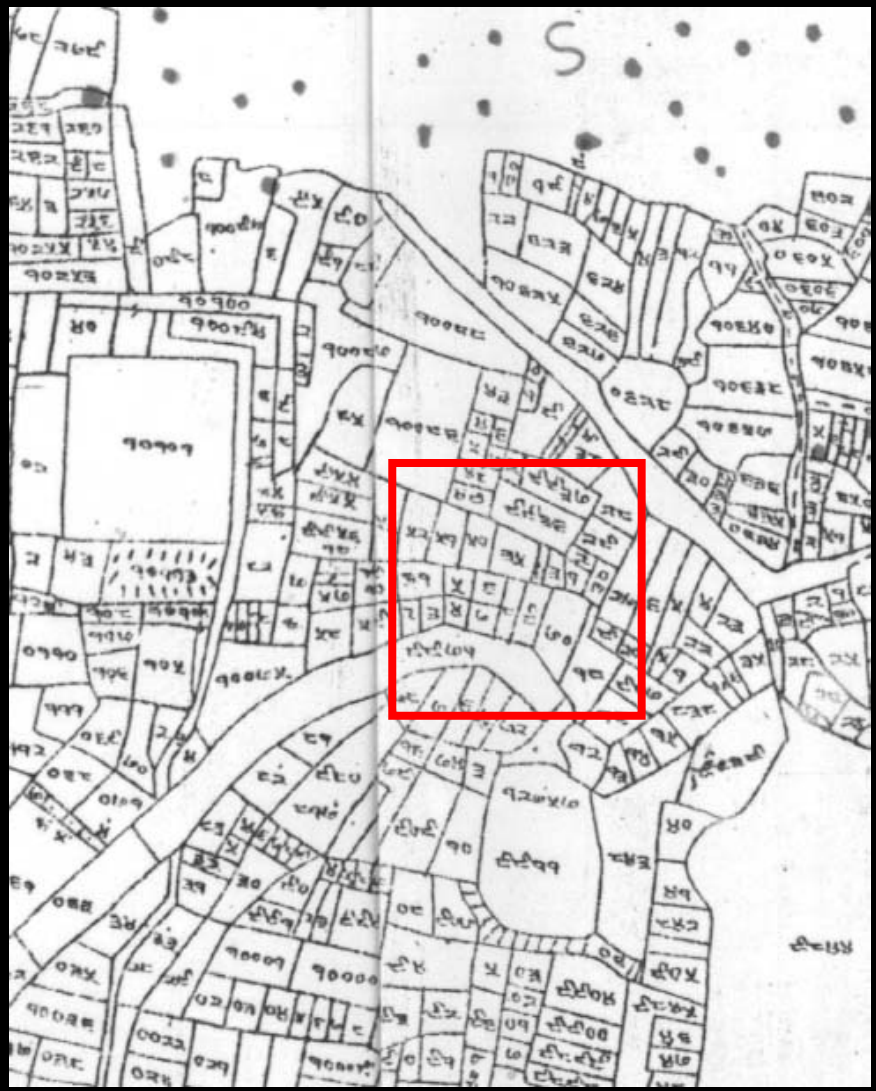
Darbhanga

Saharsa


TATA
Speed
40 K.M.

Pulkahi plan view I

Pulkahi plan view II (zoomed-in)



WORK IN PROGRESS

Overall impressions

1981	2001
Essentially Closed Village—No Migration	**Open Village—Migration an Option**
Population is large and growing rapidly (doubling in 25 years)	Population is large and growing rapidly (doubling in ≅ 30 years)
Increased demand for food	Increased demand for food
Increased employment to purchase food	Increased employment to purchase food
Increased pressure on farm productivity	Increased pressure on farm productivity
Labor surplus	Some family members migrate seasonally;
	Seasonal labor shortages in village—"feminization of farm labor"
Declining wage rates; landlords control wage rates.	Wage rates increase/stabilize
Limited use of farm inputs	Remittances support additional farm inputs and food purchases; Increased agricultural output
Per capita incomes go down	Per capita incomes go up
Malnutrition goes up	Increased food consumption
Human fertility declines; Ultimate population declines due to Malthusian constraints	Fertility increase in the short-run
Increasing emiserization; Population remains in low-level equilibrium trap	Poverty remains fairly constant
Everybody poor, but landless suffer much more	Significant income distribution changes in favor of landless/small farmers (Inverse-U-shape income distribution curve)
Virtually independent of the outside world	Highly connected to outside world; depends on continued economic growth in other regions to support the migrants
Jajmani relationships hold	Decline of Jajmani Caste conflicts (lower castes now more assertive)
	Decline in Civic Virtue

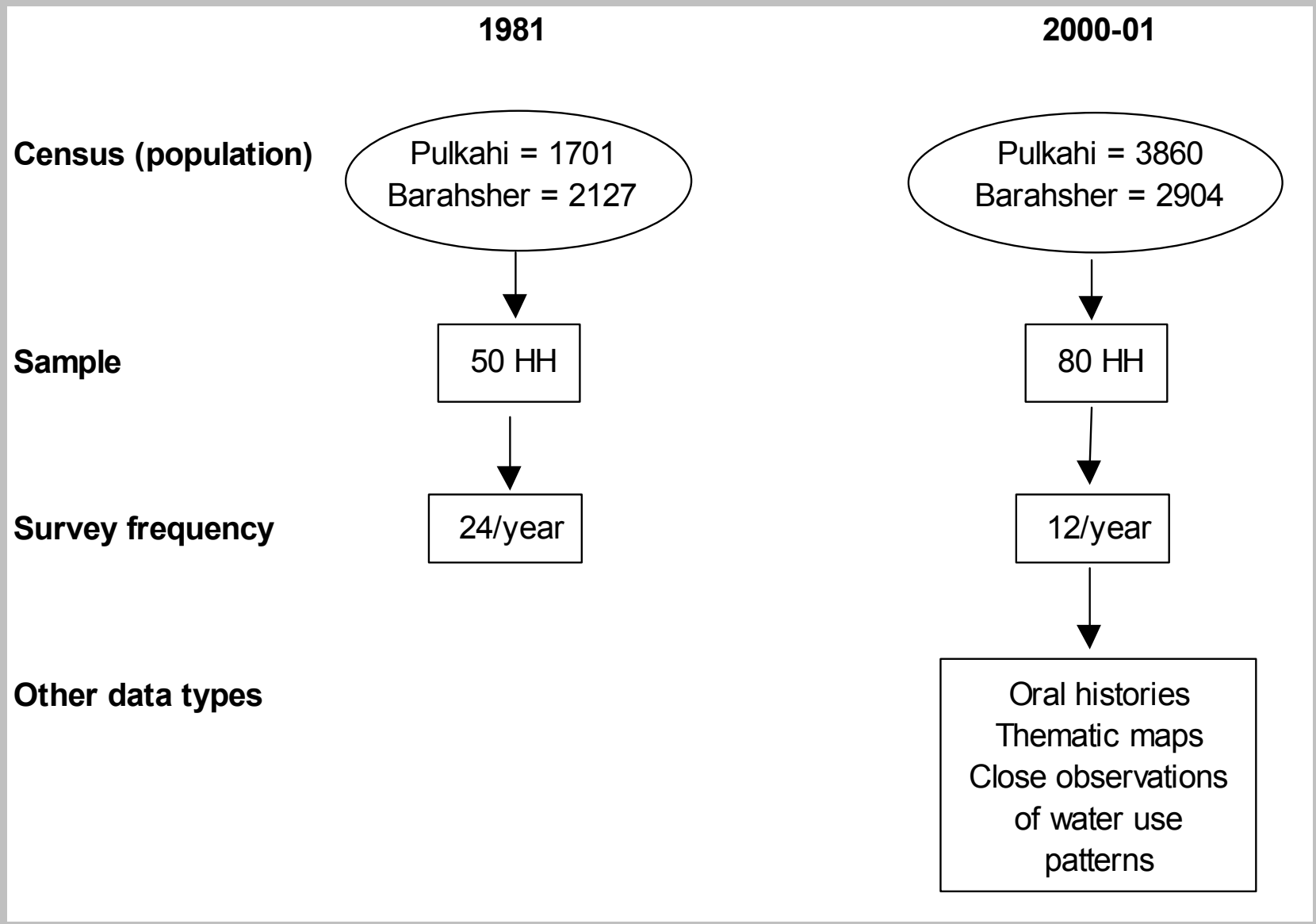
Summary Sheet

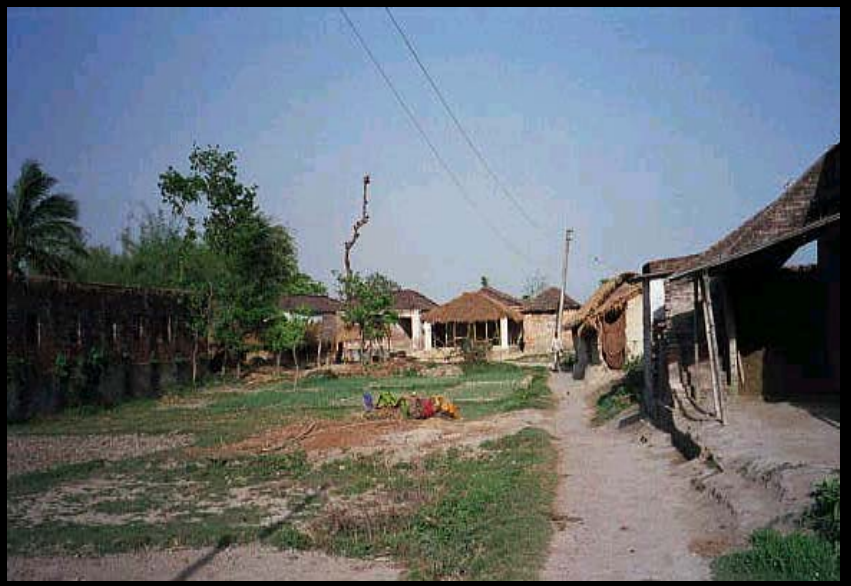
	Pulkahi	Darbhanga	Barahsher	Saharsa	Bihar	India
Population (1971)			1,787		56,353,000	548,200,000
Population (1981)	1,701 (198 HH)	2,008,193	2,127 (223 HH)	2,953,803	69,915,000	665,300,000
Population (1991)			2,525		86,338,853	812,300,000
Population (2001)	3,860 (519 HH)	2,510,960	2904 (402 HH)	2,475,250	100,250,000	1,008,937,000
Popn growth rate (1981-2001)	4.1%	1.1%	1.6%	-0.009%	2.1%	2.1%
% age < 14 years	34%		33%			34%
Population density (persons/acre)	11	4	2	2	2	1
land area (acres)	343	563,000	1,325	1,020,000	43,000,000	735,000,000
% cultivated land irrigated (1981)	1.5%		64%		14%	30%
% cultivated land irrigated (2001)	32%	23%	99% (varying intensity)	30%	47%	25.3-29%
Cropping intensity (1981)	2		1.8			1.25
Cropping intensity (2001)	2.56		2.14		1.77	1.35
Average cereal yield in 1981 (kg/acre)	605		260			468
Average cereal yield in 2001 (kg/acre)	839	480	772	522	625	717
Per capita income (2001)	Rs. 3,736 (Rs.27,790/HH)		Rs. 5,610 (Rs.41,051/HH)		Rs. 4,654	Rs. 19,800
Daily wage rate (1981)	Rs. 1.5 + grain + meal		Rs. 1.5 + grain + meal		Rs. 5 (min)	
Daily wage rate (2001)	Rs. 20---30		Rs. 30		Rs. 30 (min)	
Daily wage rate (1981)	1.35---1.55 kg grain		1.35---1.55 kg grain			
Daily wage rate (2001)	2 .5---3 kg grain		3 kg grain			
% in poverty	71%		64%			
% literate	62%	35%	54%	29%	38%	52%
% access to safe water	31% private pumps		77% access to private pumps		4% piped water	81%
% access to sanitation	5%		29%		5% flush toilet	25-49%; 39%
Telephone as % of population	-	0.49%	100%	-	0.07%	0.8%
# TV	6%		21%			63M
# electricity connections	10%		19%		14% HH / 70% village/towns	94% villages/towns

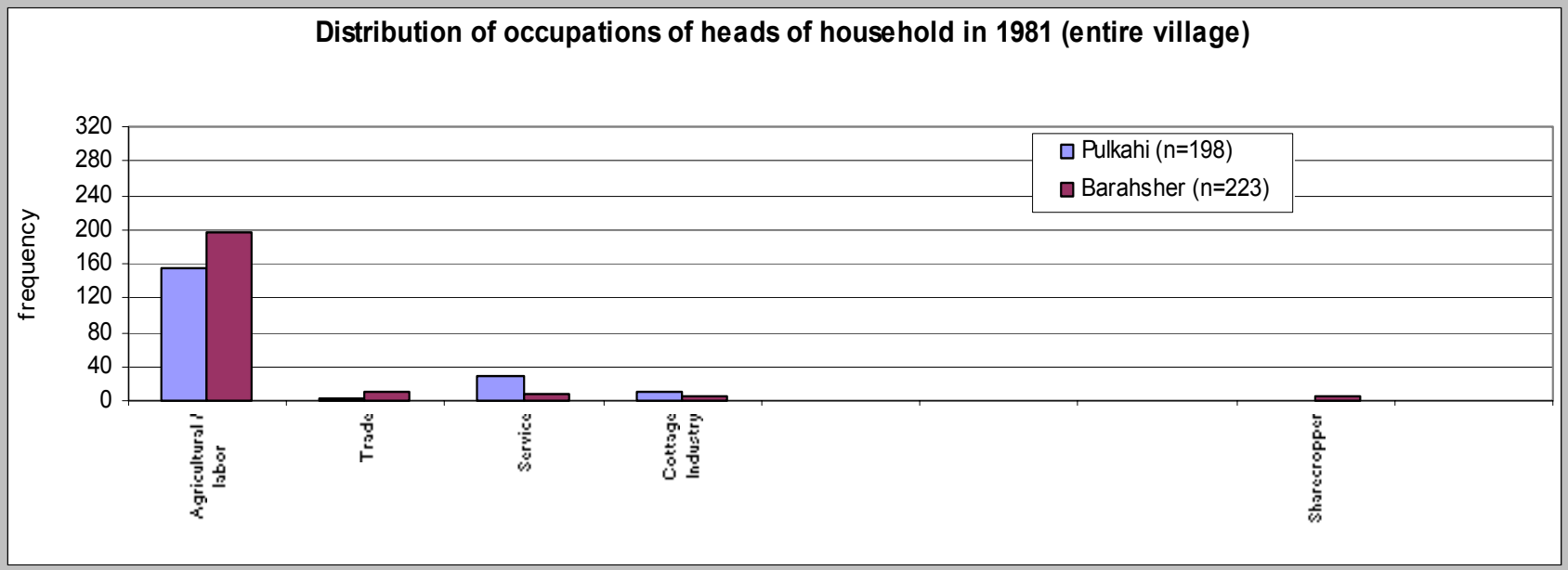
WPI for 2001 =3.62 (Year 1981=1); price of rice in the villages in 1981 about Rs. 2.50/kg; in 2001 Rs. 10.50/kg.

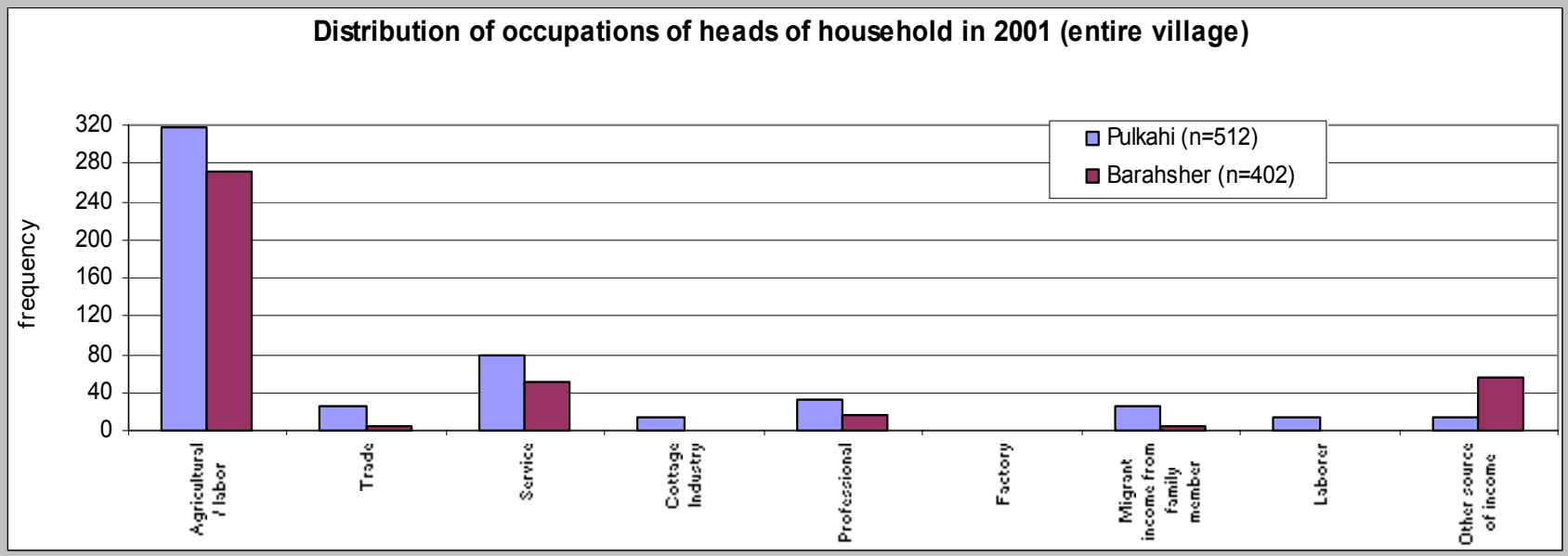
We definte poverty level to be Rs. 4410 per capita per year; US $ 1 = Ind. Rs. 45 (in 2001).

Study plan


1981
2000-01
Census (population)
Pulkahi = 1701
Barahsher = 2127
Pulkahi = 3860
Barahsher = 2904
Sample
50 HH
80 HH
Survey frequency
24/year
12/year
Other data types
Oral histories
Thematic maps
Close observations
of water use
patterns




Distribution of occupations of heads of household in 1981 (entire village)
frequency
320
280
240
200
160
120
80
40
0
Pulkahi (n=198)
Barahsher (n=223)
Agricultural / labor
Trade
Service
Cottage Industry
Sharecropper


Distribution of occupations of heads of household in 2001 (entire village)
frequency
320
280
240
200
160
120
80
40
0
Pulkahi (n=512)
Barahsher (n=402)
Agricultural / labor
Trade
Service
Cottage Industry
Professional
Factory
Migrant income from family member
Laborer
Other source of income

Top 10 income sources in 2001

Pulkahi

Rank	Sample #	income (Rs.)	Job/source	Number of persons engaged in this job from this household
1	P264	120,000	government service	2
2	P84	72,000	business	4
3	P188	60,000	government service	1
4	P515	60,000	government service	1
5	P319	54,000	agriculture	5
6	P292	42,000	government service	1
7	P12	39,200	agriculture	4
8	P130	36,000	professional job	3
9	P419	36,000	government service	1
10	P482	36,000	government service	1

Barahsher

Rank	Sample #	Income (Rs.)	Job/source	Number of persons engaged in this job from this household
1	B298	252,000	government service	3
2	B13	240,000	government service	2
3	B112	168,000	government service	1
4	B240	114,000	agriculture	4
5	B164	84,000	government service	1
6	B227	84,000	government service	1
7	B259	80,600	mixed farmer	1
8	B113	75,000	mixed farmer	4
9	B49	72,000	government service	1
10	B103	72,000	government service	1

Land Use

	Pulkahi (1981)	
Land use characteristics	total (acres)	
Total land ownership	343	
Cultivated land area	281	(82%)

Barahsher (1981)	
total (acres)	
1,325	
991	(75%)

	Pulkahi (2000)			Barahsher (2000)		
Land use characteristics	total (acres)		average	total (acres)		average
Total land ownership	343		2.5	1,325		5.1
Cultivated land area	275	(80%)	2	976	(74%)	6
Orchard area	45	(13%)	0.4	109	(8%)	0.9
Homeyard area	3	(1%)	0.3	40	(3%)	0.2
Fallow area	-	-	-	66.4	(5%)	93%
Wasteland area	8	(2%)	0.3	74	(6%)	1.5
Other land area	11	(3%)	0.3	56	(4%)	1.0
Total land area flooded	161	(47%)	1.3	-		-
Number of days flooded			93	-		-
Total land area water-logged	1.1	(1%)	0.4	28.5	(2%)	1.5
Number of days water-logged			310			90

1 acre = 22/20 bigha = 22 khatta

Per capita incomes and land use by farmer group

Pulakhi farmers' incomes and land utilization categorized by farmer groups

	Average per capita income (Rs.)	Average total HH income (Rs.)	Average agricultural income (Rs.)	Total land ownership (acres)				Cultivated land area (acres)			
				Sum	Mean	Stdev	N	Sum	Mean	Stdev	N
Landless	3,876	21,337	68	-	-	-	41	-	-	-	41
Marginal	3,465	28,279	4,679	23	1.1	0.6	21	20	0.9	0.5	21
Small	6,408	46,554	17,231	46	3.6	0.9	13	36	2.7	0.6	13
Semi-medium	3,433	29,872	20,272	30	5.9	1	5	24	4.8	1.2	5
Medium	-	-	-	-	-	-	-	-	-	-	-
Large	-	-	-	-	-	-	-	-	-	-	-

There are no medium or large farmers in the Pulkahi sample.

Barahsher farmers' incomes and land utilization categorized by farmer groups

	Average per capita income (Rs.)	Average total HH income (Rs.)	Average agricultural income (Rs.)	Total land ownership (acres)				Cultivated land area (acres)			
				Sum	Mean	Stdev	N	Sum	Mean	Stdev	N
Landless	-	-	-	-	-	-	-	-	-	-	-
Marginal	3,822	23,381	4,269	22	0.5	0.7	47	15	0.8	0.6	19
Small	3,511	23,295	15,159	43	3.9	0.6	11	35	3.2	0.7	11
Semi-medium	7,242	83,380	17,660	74	7.4	1.9	10	53	5.9	2.0	9
Medium	13,186	73,844	42,511	133	15	4.3	9	110	12	4.1	9
Large	8,839	130,167	85,167	137	46	7.9	3	88	29	11	3

There are no landless farmers in the Barahsher sample.

US $ 1 = Ind. Rs. 45 (in 2000).

Labor use and costs

The average amount of family and hired labor used on a typical farm in 1981 (whole year)

Pulkahi

	Own field	Others' field	Hired labor
Person-days	55	164	154

Based on sample size of 50.

Barahsher

	Own field	Others' field	Hired labor
Person-days	162	150	600

The average amount of family labor used on a typical farm in 2001 (whole year)

Pulkahi

	Adult males		Adult females		Children	
	(person-days)	Count	(person-days)	Count	(person-days)	Count
Kharif	100	39	53	12	-	-
Rabi	56	39	25	11	-	-
Summer	101	30	54	9	-	-

Based on sample size of 80.

Barahsher

	Adult males		Adult females		Children	
	(person-days)	Count	(person-days)	Count	(person-days)	Count
Kharif	34	58	14	30	9	14
Rabi	23	57	10	28	6	13
Summer	16	54	8	26	5	11

The average amount of hired labor used on a typical farm in 2001 (whole year)

Pulkahi

	Avg. qty		Unit cost		Avg.total cost	
	(person-days)	count	Cost (Rs./day)	count	Cost (Rs.)	count
Kharif	52	35	26	34	1367	34
Rabi	12	16	25	16	298	16
Summer	45	26	26	25	1202	25

Based on sample size of 80.

WPI for 2001 =3.62 (Year 1981=1)

Barahsher

	Avg. qty		Unit cost		Avg.total cost	
	(person-days)	count	Cost (Rs./day)	count	Cost (Rs.)	count
Kharif	145	44	21	44	2923	44
Rabi	71	41	21	40	1447	40
Summer	43	36	20	35	883	35

Land preparation in 2001

The number of respondents utilizing the following land ploughing methods

	Pulkahi			Barahsher		
	Kharif	Rabi	Summer	Kharif	Rabi	Summer
Own animal	23	24	17	19	16	14
Hired animal	7	7	5	16	14	10
Own tractor	-	-	-	2	2	2
Hired tractor	13	14	6	28	30	16

Total respondents in each sample = 80.

Farming equipment ownership

Pulkahi 1981 (entire village)

	Number in Pulkahi
Tractors	-
Pumpsets	-
Threshers	-
Others	-

Barahsher 1981 (entire village)

	Number in Barahsher
Tractors	6
Pumpsets	10
Threshers	1
Others	1

Pulkahi 2001 (entire village)

	Number in Pulkahi	Cost (Rs.)	Age of unit
Tractor	-	-	
Threshing machine	32	2180	3 -20
Electric pump	-	-	
Diesel pump	52	9000	8 -22
Sprayer	6	700	12
Tractor drawn implements	-	-	
Animal drawn implements	266	496	1 -10

Barahsher 2001 (entire village)

	Number in Barahsher	Cost (Rs.)	Age of unit
Tractor	15	66500	10 -31
Threshing machine	40	9100	1 -10
Electric pump	15	6000	25 -25
Diesel pump	55	4950	12 -43
Sprayer	35	600	3 -15
Tractor drawn implements	20	357	2 -31
Animal drawn implements	90	177	1 -25

Fertilizer use in entire village

Fertilizer use	Pulkahi (kg)	Barahsher (kg)
1981	1,552	26,164
2001	18,150	85,888

Fertilizer use intensity	Pulkahi (kg/ha)	Barahsher (kg/ha)	All-India average (kg/ha)
1981	14	65	34
2001	82	109	90

In Pulkahi, manure/compost use is limited to the Kharif season when a farmer uses about 1700 kg/ha. Barahsher farmers use, on average, about 1600 kg/ha of compost in each of Kharif and Rabi seasons.

Number of farmers that claimed the following to be among top three farming problems		
	Pulkahi	Barahsher
Low yield of crops	3	3
Drainage problem	2	-
Flooding	**32**	-
Drought	2	1
Water logging	-	-
Salinity	1	-
Low soil fertility	1	4
Weed damage	-	7
Pests and crop diseases	1	3
Damage from wild animals	-	-
Shortage of labor	**30**	**28**
Lack of animal/mechanical power	1	4
Difficult to get good seeds	**18**	**17**
Difficult to get fertilizers	1	3
Difficult to get pesticides/insecticides	-	-
Low price of farm products	1	**32**
Bad roads around farm	-	-
Lack of storage	-	7
Poor maintenance of irrigation facilities	-	1
Shortage of irrigation water	-	5
Lack of loan facilities	**23**	**25**
High cost of seeds, fertilizers and pesticides	-	**37**

Energy use

1981		2001
All houses use kerosene for lighting.		All houses use kerosene for lighting
One village has an electricity connection; but no house has a connection		Several houses in each village have electricity connections; service unreliable
No alternate lighting fuels in use		No alternate lighting fuels in use
Energy for cooking and heating from wood, twigs, leaves, dung.		In addition to wood, twigs, leaves and dung, a few houses use LPG.
No commercial energy use		Relatively large quantities of diesel used for tractors and water pumps.
		Water pump rental market well established.

Fuel use

The total quantity of the following fuels collectively used by the sample households in 1981 (Kg)

	Pulkahi	Barahsher
Residue from paddy	11,718	23,688
Weeds	1,338	-
Branches and roots of crops	60,704	208,824
Leave of trees and sugarcane	18,158	-
Wheat straw	30,786	-
Dung	75,488	213,304

There were 50 households in the 1981 sample.

The number of sample households that use the following as their lighting, cooking of heating fuel in 2001

	Lighting		Cooking		Heating	
	Pulkahi	Barahsher	Pulkahi	Barahsher	Pulkahi	Barahsher
Twigs and leaves	-	-	59	72	14	55
Dung cakes	-	-	32	66	24	66
Kerosene	80	70	3	2	7	-
Crop residue	-	-	4	49	30	69
Fire wood	-	-	56	39	4	17
Vegetable waste	-	-	-	-	17	-
Electricity	-	9	-	-	-	-
LPG	-	1	1	6	-	-
Saw dust	-	-	-	-	-	2
Gobar/biogas	-	-	-	1	-	-
Wood shavings	-	-	-	-	-	1
Biogas gas	-	-	-	-	-	-
Candles	-	-	-	-	-	-
Coal	-	-	-	-	-	-
Local oil	-	-	-	-	-	-

There are 80 households in the 2001 sample.

Summary information of trees cut by sample respondents/households during the 1999-2000 year

	Pulkahi			Barahsher		
	Total cut	Count	Average age of tree (years)	Total cut	Count	Average age of tree (years)
Mango	11	7	26	29	8	48
Jilibi	2	2	8	93	19	9
Bamboo	177	9	4	4716	43	4
Jack fruit	-	-	-	1	1	40
Sesum	42	9	15	281	18	15
Semur	-	-	-	6	4	14
Chaah	-	-	-	4	3	23
Gamhar	-	-	-	1	1	80
Babul	10	1	5	2	2	15
Khair	-	-	-	2	1	15
Teak	-	-	-	-	-	-
Jamun	-	-	-	1	1	40
Palm tree	-	-	-	2	1	100
Sal	-	-	-	-	-	-

Summary information of trees planted by sample respondents/households during the 1999-2000 year

	Pulkahi			Barahsher		
	Total planted	Count	Expected age when cut (years)	Total planted	Count	Expected age when cut (years)
Mango	12	3	15	36	6	21
Jilibi	-	-	-	-	-	-
Bamboo	-	-	-	110	2	5
Jack fruit	10	3	16	18	3	33
Sesum	-	-	-	450	5	18
Semur	-	-	-	1637	19	17
Chaah	-	-	-	4	1	-
Gamhar	-	-	-	225	2	35
Babul	-	-	-	-	-	-
Khair	-	-	-	-	-	-
Teak	-	-	-	5	1	-
Jamun	1	1	30	-	-	-
Palm tree	-	-	-	-	-	-
Sal	-	-	-	-	-	-

The 2000-2001 sample consists of 80 households.

Livestock ownership

Livestock ownership in Pulkahi in 2001

	Number in sample/	(village)	Average ownership	Count	Monthly cost (Rs.)
Buffaloes	18	(117)	1	17	26
Cows	3	(19)	2	2	48
Bullocks	34	(221)	1	25	20
Goats	-		-	-	-
Pigs	-		-	-	-
Poultry	-		-	-	-
Others	-		-	-	-

No livestock sales in the Pulkahi sample.

Livestock ownership in Barahsher in 2001

	Number in sample/	(village)	Average ownership	Count	Monthly cost (Rs.)
Buffaloes	51	(256)	2	21	150
Cows	46	(231)	1	33	100
Bullocks	39	(196)	2	25	75
Goats	39	(196)	4	11	40
Pigs	1	(5)	1	1	50
Poultry	19	(95)	10	2	40
Others	25	(126)	8	3	25

Livestock sales in Barahsher in 2001

	Average number sold	Income per year (Rs.)	Count
Buffaloes	1	7464	14
Cows	1	3733	3
Bullocks	1	2500	3
Goats	2	1069	8
Pigs	2	1250	2
Poultry	18	1500	2
Others	1	1800	1

US $ 1 = Ind. Rs. 45 (in 2001)

Greenhouse gas emissions

Greenhouse gas emissions in the villages

Source	Pollutant	1981		2001	
		Pulkahi	Barahsher	Pulkahi	Barahsher
Residue burning	N_2O (kg)	491	930	1114	1272
Fuelwood burning	CO_2 (kg)	976	75971	2558	136952
Rice paddies	CH_4 (kg)	34130	120364	33343	118550
Cattle	CH_4 (kg)	17706	49254	46410	88790
Fertilizer	N_2O (kg)	13	219	77	363

Greenhouse gas emissions as CO_2.

Source	Pollutant	1981		2001	
		Pulkahi	Barahsher	Pulkahi	Barahsher
Residue burning	CO_2 (kg)	152153	288315	345275	394193
Fuelwood burning	CO_2 (kg)	976	75971	2558	136952
Rice paddies	CO_2 (kg)	716721	2527652	700207	2489556
Cattle	CO_2 (kg)	371817	1034337	974610	1864590
Fertilizer	CO_2 (kg)	4033	67984	23728	112486

Per capita greenhouse gas emissions in the villages as CO_2

Source	Pollutant	1981		2001	
		Pulkahi	Barahsher	Pulkahi	Barahsher
Residue burning	CO_2 (kg)	89	136	89	136
Fuelwood burning	CO_2 (kg)	0.6	36	0.7	47
Rice paddies	CO_2 (kg)	421	1188	181	857
Cattle	CO_2 (kg)	219	486	252	642
Fertilizer	CO_2 (kg)	2.4	32	6.1	39
Total		732	1878	530	1721

US annual per capita emissions: 17 tons CO_2; 0.1 tons CH_4.

Changes in water use, sanitation and health

1981		2001
Essentially Closed Village—No Migration		**Open Village—Migration an Option (Situation in 2001)**
Few hand pumps		Many hand pumps
No toilets		Increased use of toilets
Low awareness of preventative measures		High awareness of preventative measures
Poor performance of government medical services		Poor performance of government medical services
Access to health services very restricted		Access to health services very restricted
High incidence of diarrheal diseases		
		Willingness to pay for hand pumps and toilets
Flooding during every monsoon season		Less flooding due to Kosi project
Abandon homes during monsoon season		No need to abandon homes
Temporary homes		More permanent homes
Little private investment		Increased investment in houses (including toilets)
Malaria, kalazar prevalent		Lower incidence of disease
Limited irrigation; canal water available in one village.		Canal dysfunctional; widespread use of groundwater. Water pump rental market well established.

Common illnesses

The number of respondents that named the following to be among the common diseases in the home in 2001

Common diseases	Pulkahi	Barahsher
Head-ache	74	20
Fever	79	48
Diarrhea	5	22
Vomiting	3	6
Gastric	12	27
Skin disease	6	3
Respiratory/chest	5	4
Injury	-	-
Typhoid	2	1
Malaria	-	2
Kalajar	-	1
Jaundice	-	1
Dysentery	1	2
Cholera	-	1
Polio	-	-
TB	4	2
Goiter	-	-
Philaria	1	3
Cancer	-	1
Pneumonia	-	-
Blood pressure	3	4
Dental diseases	-	-

Deaths in the two villages

Pulkahi

Sample #	Cause	Relationship	Age at death	Number of years ago
323	unknown	son	5 days	1
318	diarrhoea	grand-daughter	7	1
361	normal	father	70	1
112	normal	father	80	1
115	normal	father	80	1
180	normal	mother	85	1
364	normal	mother	85	1
250	normal	father	98	1

Barahsher

Sample #	Cause	Relationship	Age at death	Number of years ago
342	diarrhea	grand-son	2	1
356	fever	son	3	3
1	normal	grand-daughter	4	1
342	diarrhea	grand-son	5	1
356	fever	son	5	5
354	tetanus	son	10	1
46	during pregnanc	daughter-in-law	22	1
67	cancer	father	50	5
13	normal	wife	62	4
199	asthma	father	70	3
352	normal	mother	70	1
370	normal	mother	70	1
113	heart attack	father	71	7
35	normal	husband	80	7
164	normal	grand-mother	80	3
279	normal	father	80	3
298	normal	mother	80	5
321	normal	father	80	5
364	normal	father	80	5
368	normal	mother	80	2
41	normal	mother	85	6
95	normal	mother	85	5
346	normal	grand-mother	104	1

Note: Most respondents hesitated about talkings about death. Therefore, these data may be suspect.

Domestic water and wastewater

The number of sample households that use the following as their primary domestic water source in 2001

	Pulkahi	Barahsher
Private hand pump	25	61
Community handpump	34	14
Other	20	3
Private open well	-	1
Community open well	1	-
Pond	-	1
Tap	-	-
Number private handpumps in village	56	302
Number community handpumps in village	37	12

Number of sample households that use the following as their main domestic wastewater disposal method in 2001

	Pulkahi	Barahsher
Open pit	2	47
Open drain outside the house compound	47	1
Backyard	12	21
A drain that removes water away from the house	15	-
Soak pit	-	9
No planned wastewater disposal method	3	-
Other	1	-

Domestic water quality

The number of respondents that use the following methods to judge water quality in 2001

	Pulkahi	Barahsher
Smell	80	44
Color	80	74
Taste	80	74
Depends on the source	49	-
Past experience of disease	-	2
Taste of food prepared with this water	76	7
Past experience with cooking pulses	80	12
Other	-	-

The number of sample households that use the following as their domestic water purification method in 2001

Method	Pulkahi	Barahsher
No purification necessary	78	78
Boiling	1	1
Cloth filter	1	-
Other	-	1
Chlorine tablets	-	-
Alum	-	-
Potassium permanganate	-	-
Seeds	-	-
Government agency fixed iron removal plant	-	-

Sanitation in 2001

The number of sample households that wish to own the following types of toilets

	Pulkahi	Barahsher
Double pit toilet	15	37
Septic/Sulabh toilet	23	5
Pit/bore hole toilet	17	6
Other	-	6

The number of sample respondents that believe the following to be the cost of building a toilet

	Pulkahi	Barahsher
Rs. 10000--15000	6	2
Rs. 5000--10000	17	4
Rs. 2500--5000	18	34
Rs. 1000--2500	14	8

The number of households that are willing to pay the following amounts to build a toilet

	Pulkahi	Barahsher
Rs. 10000--15000	-	-
Rs. 5000--10000	1	-
Rs. 2500--5000	17	1
Rs. 1000--2500	19	29
Cannot afford to build at all	18	24

Actual cost of building Sulabh/septic toilet: Rs. 10000

Actual cost of building double-pit toilet: Rs. 6500.

US $1 = Ind. Rs. 45 (in 2001).

Per capita income in Pulkahi = Rs. 3736.

Per capita income in Barahsher = Rs. 5610.

Required infrastructure improvements

The number of respondents that named the following to be among top five requirements in the village in 2001

Requirements	Pulkahi	Barahsher
Roads	76	73
Sanitation facilities	72	60
Access to health center	78	6
Wastewater disposal facility	67	6
Hand pumps	53	19
Loan facilities	25	27
Quality of teaching	3	34
Service at the health center	1	36
Canals	2	30
Ease of marketing farm produc	-	32
Water quality	2	22
Problems with mosquitoes	3	20
School buildings	5	7
Other irrigation facilities	6	3
Family planning education	-	7
Service at the veterinary center	-	7
Access to veterinary center	4	-
Availability of farming inputs	2	2
Village community facilities	-	4
Other transportation services	1	2
Agriculture extension activities	-	2
Bus service	-	1

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