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ANNEXURE- A

1. List of sample villages

Table A1

List of the selected oil villages from operational areas of ONGC and OIL

Operational area	Name of the villages
1. Gelakey	i) Chutia Gaon
	ii) Na-Pam Baruwati
	iii) Athkhel Grant No. 1
	iv) Athkhel Grant No. 2
2. Lakwa	i) Dehingia Konwar
	ii) Mohan Deodhai
	iii) Tipomia
	iv) Cholapathar
	v) Ghurachowa
3. Rudrasagar	i) Pathalial
	ii) Bhatiyapara
	iii) Bongaon
	iv) Mothadang
	v) Sensuwa
4. Naharkatiya	i) Balipara
	ii) Mohmari Gaon No. 1
	iii) Mohmari Gaon No. 2
	iv) Merbil Pabhajan
	v) Pabhajan No. 1
	vi) Jagun Pather
5. Baghjan & Barekuri	i) Baghjan
	ii) Jaygukhuwa
	iii) Dhelakhat
	iv) Denka Gaon
	v) Lesenka
	vi) 2 No. Hebeda
	vii) Luhari Bangali Gaon
6. Moran	i) Khumtai Gaon
	ii) Sarupathar Gaon No. 2
	iii) Chutia Gaon

Table A2

List of the selected control villages from operational area of ONGC and OIL

Operational area	Name of the villages
1. Gelakey oilfield	i) Chetia Katani
	ii) Duwarah Gaon
2. Lakwa Oilfield	i) Maut Gaon
	ii) Chetia Gaon
3. Rudrasagar Oilfield	i) Jerenga Habi
	ii) Aila Mukh Habi
4. Naharkatiya	i) Bamuni Beel No. 1
	ii) Guijan Khati No. 2
5. Barekuri & Makum	i) Gatang
	ii) Erasuti Gaon
6. Moran	i) Bokpara
	ii) Noloni Bam

Table A3

List of the selected nearby villages selected from operational headquarter of ONGC and OIL

Operational headquarter	Name of the villages
Nazira	i) Likson
	ii) Methon Chowa Gohain Gaon
	iii) Bhabachuk Gaon
	iv) Niz- Nazira
Duliajan	i) 2 no. dulia
	ii) Sarupathar
	iii) Duliajan No 1
	iv) Borkula Nawholia No.2
	v) Jaloni T.E.138 Appl

Table A4

**List of the selected control villages selected from operational headquarter of
ONGC and OIL**

Operational headquarter	Name of the villages
Nazira	i) Halua Gaon
	ii) Mola Gaon
	iii) Maduri Chah Bagisa
	iv) Athabari Grant
Duliajan	i) Gulimora No.1
	ii) Jaloni No.
	iii) Dirial
	iv) Gulimora TE No 24
	v) Jaloni TE 25 Appl

ANNEXURE-B

2. Hypothesis testing: Independent sample t-test

2.1. Test 1

H0: There is no significant difference in the mean household income between oil villages and control villages of operational areas of ONGC and OIL.

H1: There is significant difference in the mean household income between oil villages and control villages of operational areas of ONGC and OIL.

Table B1
Result of independent sample t test on household income between oil and control villages of operational areas.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df.	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	6.844	.009	.105	627	.916	2579.23	24483.92	-45501.18	50659.65
Equal variances not assumed			.113	410.87	.910	2579.23	22877.99	-42393.28	47551.75

Result: H_0 is accepted

2.2. Test 2

H0: There is no significant difference in the mean per capita household income between oil villages and control villages of operational areas of ONGC and OIL.

H1: There is significant difference in the mean per capita household income between oil villages and control villages of operational areas of ONGC and OIL.

Table B2
Result of independent sample t test on per capita income between oil and control villages of operational areas

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.934	.165	-1.01	627	.311	-6144.29	6065.25	-18054.96	5766.36
Equal variances not assumed			-1.04	375.17	.297	-6144.29	5885.97	-17717.92	5429.32

Result: H0 is accepted

2.3. Test 3

H0: There is no significant difference in the mean of household farm income between oil and control villages of operational areas of ONGC and OIL.

H1: There is significant difference in the mean of household farm income between oil and control villages of operational areas of ONGC and OIL.

Table B3
Result of independent sample t test on farm income between oil and control villages of operational areas

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	3.684	.05	-4.35	627	.00	-53105.25	12187.03	-77037.60	-29172.91
Equal variances not assumed			-4.63	403.81	.00	-53105.25	11468.74	-75651.16	-30559.34

Result: H0 is rejected.

2.4 Test 4

H0: There is no significant difference in the mean of household non-farm income between oil and control villages of operational areas of ONGC and OIL.

H1: There is significant difference in the mean of household non-farm income between oil and control villages of operational areas of ONGC and OIL.

Table B4
Result of independent sample t test on non-farm income between oil and control villages of operational areas

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	3.047	.08	1.675	627	.09	36932.15	22055.60	-6379.64	80243.96
Equal variances not assumed			1.77	402.73	.07	36932.15	20778.53	-3915.78	77780.10

Result: H0 is accepted.

2.5 Test 5

H0: There is no significant difference in the mean household income between oil villages and control villages of operational headquarters of ONGC and OIL.

H1: There is significant difference in the mean household income between oil villages and control villages of operational headquarters of ONGC and OIL.

Table B5
Result of independent sample t test on household income between oil and control villages of operational headquarters

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.292	.131	8.187	341	.000	327259.64	39975.37	248630.27	405889.00
Equal variances not assumed			7.897	229.176	.000	327259.64	41438.80	245609.89	408909.38

Result: H0 is rejected.

2.6 Test 6

H0: There is no significant difference in the mean per capita household income between oil villages and control villages of operational headquarters of ONGC and OIL.

H1: There is significant difference in the mean per capita household income between oil villages and control villages of operational headquarters of ONGC and OIL.

Table B6
Result of independent sample t test on per capita income between oil and control villages of operational headquarters

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.005	.943	9.500	341	.000	89340.51	9404.11	70843.14	107837.88
Equal variances not assumed			9.441	250.722	.000	89340.51	9463.35	70702.72	107978.30

Result: H0 is rejected.

2.7 Test 7

H0: There is no significant difference in the mean of household farm income between oil and control villages of operational headquarters of ONGC and OIL.

H1: There is significant difference in the mean of household farm income between oil and control villages of operational headquarters of ONGC and OIL.

Table B7
Result of independent sample t test on farm income between oil and control villages of operational headquarters

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	12.765	.000	1.277	342	.203	17738.34	13891.72	-9585.63	45062.32
Equal variances not assumed			1.189	207.920	.236	17738.34	14916.50	-11668.63	47145.33

Result: H0 is accepted

2.8 Test 8

H0: There is no significant difference in the mean of household non-farm income between oil and control villages of operational headquarters of ONGC and OIL.

H1: There is significant difference in the mean of household non-farm income between oil and control villages of operational headquarters of ONGC and OIL.

Table B8
Result of independent sample t test on non-farm income between oil and control villages of operational headquarters

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	1.086	.298	8.187	341	.000	190518.41	23269.68	144748.21	236288.61
Equal variances not assumed			7.934	232.359	.000	190518.41	24011.89	143209.56	237827.27

Result: H0 is rejected

ANNEXURE- C

3. Physical wealth index

3.1 Construction of physical wealth index using Principal component Analysis in the operational areas:

PCA is a ‘data reduction’ procedure. It is used to replace many correlated variables with a set of principal uncorrelated ‘principal components’ which can explain much of the variance and represent unobserved characteristics of the population. The objectives of a PCA are: i) to discover or reduce the dimensionality of the data set and ii) to identify new meaningful underlying variables. The first principal component explains the largest proportion of the total variance and it is used as the wealth index to represent the household’s wealth. (WFP, 2017)

Correlation Matrix

	TV	BIKE	CAR	CYCLE	FRIDGE	WASHING MACHINE	MOBILE	LPG	MIXTURE	WATER PUMP	INVERTER	FAN	SWEWING	TRACTOR
TV	1.000	.444	.301	.183	.329	.168	.059	.455	.280	.300	.229	.321	.159	.126
BIKE	.444	1.000	.277	.102	.420	.230	-.001	.331	.392	.447	.259	.259	.197	.158
CAR	.301	.277	1.000	-.002	.565	.476	.019	.183	.540	.401	.455	.157	.168	.144
CYCLE	.183	.102	-.002	1.000	.097	.078	-.028	.206	.032	.094	.026	.023	.061	.092
FRIDGE	.329	.420	.565	.097	1.000	.516	.007	.216	.602	.427	.480	.175	.216	.144
WASHING MAHCINE	.168	.230	.476	.078	.516	1.000	.059	.125	.481	.413	.556	.084	.276	.235
MOBILE	.059	-.001	.019	-.028	.007	.059	1.000	.095	.075	.062	.076	.113	.012	-.084
LPG	.455	.331	.183	.206	.216	.125	.095	1.00	.213	.182	.133	.332	.124	-.009
MIXTURE	.280	.392	.540	.032	.602	.481	.075	.213	1.000	.481	.569	.163	.210	.132
WATER PUMP	.300	.447	.401	.094	.427	.413	.062	.182	.481	1.00	.424	.174	.193	.211
INVERTER	.229	.259	.455	.026	.480	.556	.076	.133	.569	.424	1.000	.122	.244	.113
FAN	.321	.259	.157	.023	.175	.084	.113	.332	.163	.174	.122	1.000	.120	.082
SWEWING	.159	.197	.168	.061	.216	.276	.012	.124	.210	.193	.244	.120	1.000	.067
TRACTOR	.126	.158	.144	.092	.144	.235	-.084	-.009	.132	.211	.113	.082	.067	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.864
Bartlett's Test of Sphericity	Approx. Chi-Square	2284.703
	df	91
	Sig.	.000

Anti-image Matrices

		TV	BIKE	CAR	CYCLE	FRIDGE	WASHING MACHINE	MOBILE	LPG	MIXTURE	WATER PUMP	INVERTER	FAN	SWEWING	TRACTOR
Anti-image Covariance	TV	.638	-.142	-.073	-.082	-.037	.052	-.023	-.197	.015	-.028	-.031	-.101	-.024	-.050
	BIKE	-.142	.624	.042	.015	-.096	.035	.047	-.084	-.063	-.160	.022	-.053	-.051	-.044
	CAR	-.073	.042	.567	.071	-.136	-.086	.028	-.013	-.098	-.052	-.039	-.014	.017	-.012
	CYCLE	-.082	.015	.071	.917	-.043	-.033	.035	-.131	.026	-.035	.020	.063	-.020	-.066
	FRIDGE	-.037	-.096	-.136	-.043	.484	-.105	.037	.006	-.127	-.008	-.029	-.014	-.008	.020
	WASHING MACHINE	.052	.035	-.086	-.033	-.105	.542	-.037	-.018	-.023	-.065	-.163	.031	-.102	-.120
	MOBILE	-.023	.047	.028	.035	.037	-.037	.956	-.046	-.034	-.036	-.022	-.082	.017	.093
	LPG	-.197	-.084	-.013	-.131	.006	-.018	-.046	.707	-.030	.020	.022	-.159	-.014	.090
	MIXTURE	.015	-.063	-.098	.026	-.127	-.023	-.034	-.030	.476	-.079	-.141	.003	-.005	.004
	WATER PUMP	-.028	-.160	-.052	-.035	-.008	-.065	-.036	.020	-.079	.623	-.066	-.017	-.010	-.074
	INVERTER	-.031	.022	-.039	.020	-.029	-.163	-.022	.022	-.141	-.066	.548	-.005	-.053	.035
	FAN	-.101	-.053	-.014	.063	-.014	.031	-.082	-.159	.003	-.017	-.005	.825	-.043	-.054
	SWEWING	-.024	-.051	.017	-.020	-.008	-.102	.017	-.014	-.005	-.010	-.053	-.043	.890	.014
	TRACTOR	-.050	-.044	-.012	-.066	.020	-.120	.093	.090	.004	-.074	.035	-.054	.014	.893
Anti-image Correlation	TV	.834(a)	-.226	-.122	-.107	-.067	.088	-.029	-.293	.027	-.044	-.053	-.139	-.032	-.066
	BIKE	-.226	.852(a))	.070	.020	-.174	.061	.060	-.126	-.115	-.256	.037	-.073	-.069	-.059
	CAR	-.122	.070	.895(a)	.099	-.260	-.155	.038	-.021	-.189	-.088	-.071	-.021	.023	-.017

Annexures

CYCLE	-.107	.020	.099	.639(a))	-.065	-.047	.038	-.162	.039	-.047	.028	.072	-.022	-.072
FRIDGE	-.067	-.174	-.260	-.065	.888(a))	-.205	.055	.011	-.265	-.015	-.056	-.022	-.012	.030
WASHING	.088	.061	-.155	-.047	-.205	.857(a))	-.052	-.029	-.046	-.112	-.299	.046	-.146	-.173
MOBILE	-.029	.060	.038	.038	.055	-.052	.562(a))	-.056	-.051	-.046	-.030	-.092	.019	.100
LPG	-.293	-.126	-.021	-.162	.011	-.029	-.056	.780(a))	-.051	.031	.035	-.208	-.017	.114
MIXTURE	.027	-.115	-.189	.039	-.265	-.046	-.051	-.051	.889(a))	-.146	-.276	.005	-.008	.005
WPUMP	-.044	-.256	-.088	-.047	-.015	-.112	-.046	.031	-.146	.909(a))	-.114	-.024	-.014	-.099
INVERTER	-.053	.037	-.071	.028	-.056	-.299	-.030	.035	-.276	-.114	.880(a))	-.007	-.076	.050
FAN	-.139	-.073	-.021	.072	-.022	.046	-.092	-.208	.005	-.024	-.007	.830(a))	-.050	-.063
SWEWING	-.032	-.069	.023	-.022	-.012	-.146	.019	-.017	-.008	-.014	-.076	-.050	.913(a)	.016
TRACTOR	-.066	-.059	-.017	-.072	.030	-.173	.100	.114	.005	-.099	.050	-.063	.016	.741(a)

a Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
TV	1.000	.601
BIKE	1.000	.497
CAR	1.000	.550
CYCLE	1.000	.371
FRIDGE	1.000	.616
WASHING MACHINE	1.000	.605
MOBILE	1.000	.492
LPG	1.000	.602
MIXTURE	1.000	.652
WATER PUMP	1.000	.478
INVERTER	1.000	.608
FAN	1.000	.431
SWEWING	1.000	.146
TRACTOR	1.000	.426

Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.344	31.031	31.031	4.344	31.031	31.031	3.728	26.631	26.631
2	1.576	11.257	42.288	1.576	11.257	42.288	2.161	15.436	42.067
3	1.156	8.256	50.544	1.156	8.256	50.544	1.187	8.478	50.544
4	.962	6.872	57.416						
5	.918	6.555	63.971						
6	.903	6.454	70.425						
7	.749	5.348	75.773						
8	.634	4.526	80.299						
9	.565	4.034	84.333						
10	.520	3.715	88.049						
11	.505	3.604	91.653						
12	.454	3.241	94.894						
13	.381	2.723	97.617						
14	.334	2.383	100.000						

Extraction Method: Principal Component Analysis.

Component Matrix(a)

	Component		
	1	2	3
FRIDGE	.769	-.159	.003
MIXTURE	.768	-.218	-.123
CAR	.700	-.231	-.082
INVERTER	.693	-.328	-.142
WATER PUMP	.685	-.067	.068
WASHING MACHINE	.680	-.376	.026
BIKE	.621	.311	.122
TV	.559	.534	.053
SWEWING MACHINE	.380	-.023	.028
LPG	.426	.642	-.089
FAN	.357	.512	-.203
MOBILE	.090	.130	-.683
TRACTOR	.276	-.093	.585
CYCLE	.162	.337	.482

Extraction Method: Principal Component Analysis.
a 3 components extracted.

Rotated Component Matrix(a)

	Component		
	1	2	3
MIXTURE	.789	.168	-.050
INVERTER	.775	.036	-.077
WASHING MACHINIE	.772	-.022	.088
FRIDGE	.752	.212	.077
CAR	.732	.122	-.016
WATER PUMP	.630	.252	.135
SWEWING MACHINE	.343	.153	.065
LPG	.085	.770	-.039
TV	.241	.728	.115
FAN	.094	.629	-.161
BIKE	.394	.554	.187
MOBILE	.075	.196	-.669
TRACTOR	.239	.011	.608
CYCLE	-.052	.345	.499

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 4 iterations.

Component Transformation Matrix

Component	1	2	3
1	.882	.460	.098
2	-.464	.886	.013
3	-.081	-.057	.995

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Created Variables(c)

Source Variable	Function	New Variable	Label
FAC1_1(a)	Rank	RFAC1_1	Rank of FAC1_1
	Percentile Group(b)	NFAC1_1	Percentile Group of FAC1_1

a Ranks are in ascending order.

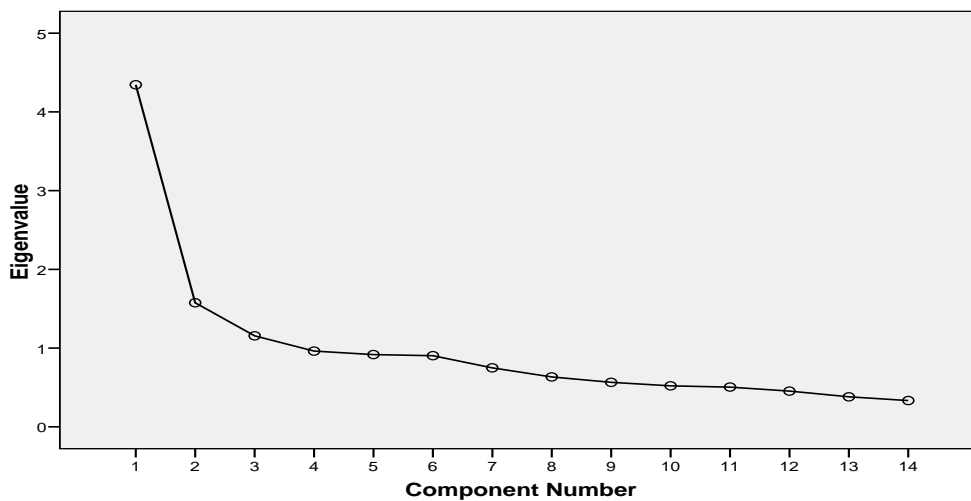
b 2 groups are generated.

c Mean rank of tied values is used for ties.

Village type * Percentile Group of FAC1_1 Crosstabulation

		Percentile Group of FAC1_1		Total
		Low	High	
Village type	Oil Village	193	250	443
	Control village	119	68	187
Total		312	318	630

Scree Plot



3.2 Construction of physical wealth index using Principal component Analysis in the operational headquarters:

Correlation Matrix

		TV	BIKE	CAR	CYCLE	FRIDGE	WASHING MACHINE	MOBILE	LPG	MIXTURE	WATER PUMP	INVERTER	FAN	SWEWING MACHINE	TRACTOR
Correlation	TV	1.000	.359	.200	-.080	.359	.185	.167	.110	.277	.162	.350	.126	.175	.091
	BIKE	.359	1.000	.285	-.067	.546	.230	.204	.152	.328	.236	.392	.095	.033	.119
	CAR	.200	.285	1.000	-.129	.465	.553	.072	.079	.383	.336	.498	.033	.044	.036
	CYCLE	-.080	-.067	-.129	1.000	-.176	-.118	-.037	-.058	-.247	-.104	-.223	-.050	-.021	.007
	FRIDGE	.359	.546	.465	-.176	1.000	.384	.185	.109	.501	.281	.598	.057	-.019	.090
	WASHING MACHINE	.185	.230	.553	-.118	.384	1.000	.045	.064	.545	.415	.530	.026	.090	.060
	MOBILE	.167	.204	.072	-.037	.185	.045	1.000	.607	.097	.079	.135	.309	-.011	.037
	LPG	.110	.152	.079	-.058	.109	.064	.607	1.000	.095	.084	.120	.123	.029	.028
	MIXTURE	.277	.328	.383	-.247	.501	.545	.097	.095	1.000	.478	.612	.039	.108	.018
	WATER PUMP	.162	.236	.336	-.104	.281	.415	.079	.084	.478	1.000	.414	.035	.117	.255
	INVERTER	.350	.392	.498	-.223	.598	.530	.135	.120	.612	.414	1.000	.050	.062	.171
	FAN	.126	.095	.033	-.050	.057	.026	.309	.123	.039	.035	.050	1.000	.060	.011
	SWEWING MACHINE	.175	.033	.044	-.021	-.019	.090	-.011	.029	.108	.117	.062	.060	1.000	.028
	TRACTOR	.091	.119	.036	.007	.090	.060	.037	.028	.018	.255	.171	.011	.028	1.000

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.795
Bartlett's Test of Sphericity	Approx. Chi-Square	1260.772
	df	91
	Sig.	.000

Anti-image Matrices

		TV	BIKE	CAR	CYCLE	FRIDGE	WASHING MACHINE	MOBILE	LPG	MIXTURE	WATER PUMP	INVERTER	FAN	SEWING MACHINE	TRACTOR
Anti-image Covariance	TV	.773	-.124	.005	-.007	-.065	.017	-.035	.003	-.025	.023	-.074	-.056	-.148	-.025
	BIKE	-.124	.652	-.014	-.043	-.201	.021	-.029	-.026	-.017	-.034	-.016	-.024	-.001	-.039
	CAR	.005	-.014	.593	.015	-.108	-.205	.016	-.015	.051	-.065	-.081	-.005	-.003	.056
	CYCLE	-.007	-.043	.015	.920	.029	-.038	-.020	.030	.094	-.014	.056	.042	.001	-.019
	FRIDGE	-.065	-.201	-.108	.029	.472	.010	-.046	.033	-.080	.034	-.120	.020	.072	-.003
	WASHING MACHINE	.017	.021	-.205	-.038	.010	.534	.018	-.005	-.134	-.073	-.080	-.007	-.023	.009
	MOBILE	-.035	-.029	.016	-.020	-.046	.018	.556	-.349	.005	-.009	-.002	-.204	.042	-.001
	LPG	.003	-.026	-.015	.030	.033	-.005	-.349	.620	-.005	-.008	-.013	.068	-.030	.003
	MIXTURE	-.025	-.017	.051	.094	-.080	-.134	.005	-.005	.471	-.158	-.129	.007	-.039	.113
	WATER PUMP	.023	-.034	-.065	-.014	.034	-.073	-.009	-.008	-.158	.664	-.032	-.002	-.052	-.199
	INVERTER	-.074	-.016	-.081	.056	-.120	-.080	-.002	-.013	-.129	-.032	.435	.007	.010	-.093
	FAN	-.056	-.024	-.005	.042	.020	-.007	-.204	.068	.007	-.002	.007	.886	-.050	.005
	SEWING MACHINE	-.148	-.001	-.003	.001	.072	-.023	.042	-.030	-.039	-.052	.010	-.050	.937	-.005
	TRACTOR	-.025	-.039	.056	-.019	-.003	.009	-.001	.003	.113	-.199	-.093	.005	-.005	.884
Anti- image	TV	.867(a)	-.174	.007	-.009	-.108	.027	-.054	.005	-.042	.031	-.128	-.067	-.174	-.031
	BIKE	-.174	.844(a)	-.023	-.055	-.363	.036	-.048	-.042	-.031	-.051	-.029	-.031	-.002	-.052
	CAR	.007	-.023	.839(a)	.020	-.204	-.364	.027	-.025	.097	-.103	-.159	-.006	-.004	.078

Annexures

CYCLE	-0.009	-0.055	.020	.829(a)	.043	-.054	-.028	.040	.142	-.018	.088	.046	.001	-.021
FRIDGE	-.108	-.363	-.204	.043	.832(a)	.019	-.090	.061	-.170	.061	-.266	.032	.108	-.005
WASHING MACHINE	.027	.036	-.364	-.054	.019	.839(a))	.033	-.009	-.267	-.123	-.166	-.010	-.032	.013
MOBILE	-.054	-.048	.027	-.028	-.090	.033	.573(a)	-.594	.011	-.014	-.004	-.290	.058	-.001
LPG	.005	-.042	-.025	.040	.061	-.009	-.594	.562(a))	-.009	-.012	-.025	.092	-.039	.004
MIXTURE	-.042	-.031	.097	.142	-.170	-.267	.011	-.009	.828(a))	-.282	-.286	.011	-.058	.174
WATER PUMP	.031	-.051	-.103	-.018	.061	-.123	-.014	-.012	-.282	.834(a))	-.059	-.002	-.066	-.260
INVERTER	-.128	-.029	-.159	.088	-.266	-.166	-.004	-.025	-.286	-.059	.876(a)	.011	.015	-.151
FAN	-.067	-.031	-.006	.046	.032	-.010	-.290	.092	.011	-.002	.011	.592(a))	-.055	.006
SWEWING MACHINE	-.174	-.002	-.004	.001	.108	-.032	.058	-.039	-.058	-.066	.015	-.055	.567(a)	-.005
TRACTOR	-.031	-.052	.078	-.021	-.005	.013	-.001	.004	.174	-.260	-.151	.006	-.005	.505(a)

a Measures of Sampling Adequacy(MSA)

Communalities

	Initial	Extraction
TV	1.000	.644
BIKE	1.000	.663
CAR	1.000	.524
CYCLE	1.000	.311
FRIDGE	1.000	.728
WASHING	1.000	.642
MOBILE	1.000	.802
LPG	1.000	.719
MIXTURE	1.000	.654
WPUMP	1.000	.642
INVERTER	1.000	.687
FAN	1.000	.358
SWEWING	1.000	.807
TRACTOR	1.000	.769

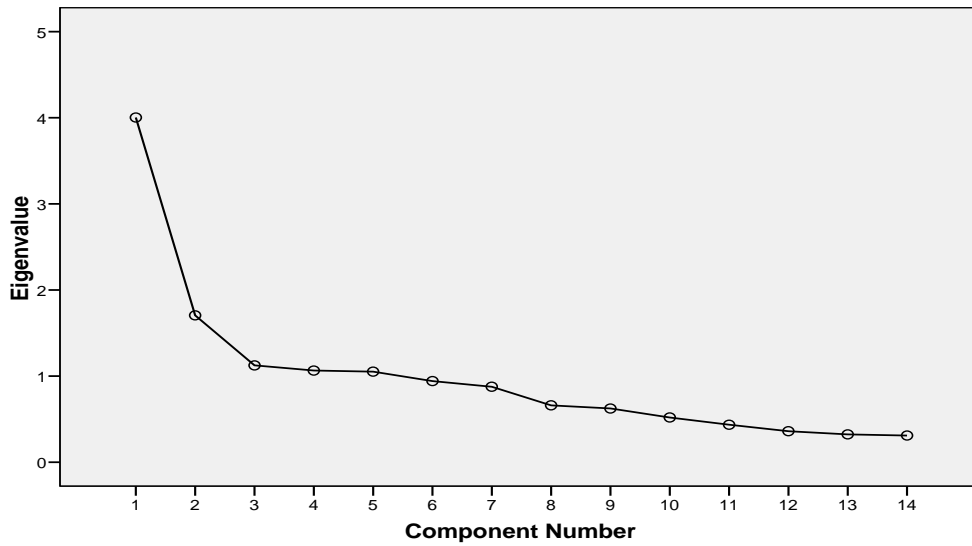
Extraction Method: Principal Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.003	28.595	28.595	4.003	28.595	28.595	3.120	22.289	22.289
2	1.705	12.178	40.773	1.705	12.178	40.773	1.862	13.296	35.585
3	1.125	8.032	48.805	1.125	8.032	48.805	1.748	12.488	48.073
4	1.065	7.604	56.409	1.065	7.604	56.409	1.115	7.967	56.040
5	1.051	7.510	63.919	1.051	7.510	63.919	1.103	7.879	63.919
6	.942	6.730	70.649						
7	.876	6.260	76.909						
8	.660	4.718	81.626						
9	.624	4.457	86.083						
10	.520	3.712	89.796						
11	.435	3.111	92.906						
12	.360	2.572	95.478						
13	.323	2.307	97.786						
14	.310	2.214	100.000						

Extraction Method: Principal Component Analysis.

Scree Plot



Component Matrix(a)

	Component				
	1	2	3	4	5
INVERTE R	.816	-.129	-.041	.047	.009
MIXTUR E	.758	-.181	-.108	-.173	.075
FRIDGE	.756	-.012	-.152	.239	-.276
WASHIN G	.690	-.268	-.099	-.143	.251
CAR	.665	-.194	-.183	-.013	.101
BIKE	.602	.157	.061	.323	-.410
WPUMP	.596	-.166	.284	-.022	.422
MOBILE	.290	.825	-.087	.021	.174
LPG	.255	.737	-.109	-.015	.314
FAN	.146	.491	.097	-.276	-.103
TRACTO R	.192	-.002	.662	.439	.316
SWEWIN G	.137	-.006	.566	-.671	-.134
CYCLE	-.282	.039	.315	.359	-.040
TV	.499	.166	.272	-.030	-.541

Extraction Method: Principal Component Analysis.
a 5 components extracted.

Rotated Component Matrix(a)

	Component				
	1	2	3	4	5
WASHING MACHINE	.797	.067	-.010	.004	.038
MIXTURE	.761	.240	.038	-.082	.096
INVERTER	.716	.408	.058	.064	-.010
CAR	.684	.214	.009	-.050	-.083
WATER PUMP	.666	-.018	.068	.412	.151
BIKE	.215	.763	.128	.108	-.082
TV	.103	.717	.084	.021	.334
FRIDGE	.501	.665	.068	-.032	-.171
MOBILE	.037	.141	.882	.023	-.047
LPG	.102	-.012	.838	.040	-.065
FAN	-.054	.149	.469	-.108	.319
TRACTOR	.094	.070	.032	.868	.034
CYCLE	-.375	.041	-.093	.390	-.087
SWEWING MACHINE	.085	.010	-.017	.029	.893

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.

Component Transformation Matrix

Component	1	2	3	4	5
1	.821	.518	.213	.080	.071
2	-.339	.153	.927	-.014	.042
3	-.167	.103	-.095	.752	.622
4	-.174	.329	-.076	.532	-.757
5	.390	-.768	.283	.380	-.185

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Village type * Percentile Group of NFAC1_1 Cross tabulation

		Percentile Group of NFAC1_1		Total
		Low	High	
Village type	Oil Village	65	60	125
	Control village	164	55	219
Total		229	115	344

ANNEXURE- D

Table D1
VIF in Regression Model I

Variable	VIF	1/VIF
Family size	3.00	0.333135
Gender	2.38	0.419415
Dependency ratio	1.19	0.843519
Education	1.70	0.586686
Technical Education	1.13	0.888280
Physical asset index	1.31	0.762519
Distance to the nearest town	1.09	0.914649
Distance to the nearest bank	1.55	0.645979
CSR benefit	1.34	0.745010
Membership in formal social organization	1.17	0.857850
Female work participation	1.12	0.895723
Land holding	1.18	0.844543
Land acquisition	1.40	0.713829
Locational dummy	2.40	0.416366
Mean VIF	1.57	

Table D2
VIF in Regression Model II

Variable	VIF	1/VIF
Family size	3.11	0.321189
Gender	2.49	0.402182
Dependency ratio	1.52	0.657624
Education	1.52	0.658697
Technical Education	1.20	0.832001
Physical asset index	1.46	0.682884
Distance to the nearest town	4.80	0.208339
Distance to the nearest bank	4.58	0.218346
CSR benefit	1.26	0.793196
Membership in formal social organization	1.29	0.776508
Female work participation	1.16	0.858825
Land holding	1.21	0.829000
Locational dummy	3.71	0.269693
Mean VIF	2.25	

ANNEXURE-E

5. Focus Group Discussions (FGD)

5.1. Selected locations for conducting FGD

Table E1

Name of the villages where FGDs were conducted

Oil company	Oilfields	Name of the villages where FGDs were conducted
ONGC	Lakwa	Dehingia Konwar Gaon
	Gelakey	Chutia Gaon
	Rudrasagar	Bhatiyapar
OIL	Naharkatiya	Balipara Sasoni
	Barekuri-Baghjan	Baghjan
	Moran	Khumtai

5.2 Demographic profile of the FGD participants

Table E2

Demographic characteristics of the participants of FGD conducted in ONGC operational areas

Village Name	Participant no	Age	Gender	Religion	Social group	Main Occupation/designation
Dehingia Konwar Gaon (Lakwa)	L1	68	Male	Hindu	OBC	Retired from ONGC
	L2	50	Male	Hindu	OBC	School Teacher
	L3	24	Female	Hindu	OBC	Student
	L4	70	Male	Hindu	OBC	Retired teacher
	L5	39	Female	Hindu	OBC	President, Gram Panchayat
	L6	45	Female	Hindu	OBC	School Teacher
	L7	43	Female	Hindu	OBC	Home-maker & SHG member
	L8	27	Male	Hindu	OBC	Contractual job at ONGC
	L9	35	Female	Hindu	OBC	Home-maker
	L10	47	Male	Hindu	OBC	School Teacher
	L11	51	Female	Hindu	OBC	Home-maker, SHG member
	L12	55	Female	Hindu	OBC	Home-maker
Chutia Gaon (Gelakey)	G1	45	Female	Hindu	OBC	President, Gram Panchayat
	G2	66	Male	Hindu	OBC	Village Head
	G3	51	Male	Hindu	OBC	Cultivator
	G4	62	Male	Hindu	OBC	Cultivator
	G5	43	Female	Hindu	OBC	Home-maker, SHG member
	G6	40	Female	Hindu	OBC	Home-maker, SHG member
	G7	60	Male	Hindu	OBC	Cultivator
	G8	72	Male	Hindu	OBC	Retired Teacher
	G9	32	Male	Hindu	OBC	Youth, not employed
	G10	61	Male	Hindu	OBC	Retired Teacher
Bharyapar (Rudrasagar)	R1	52	Male	Hindu	SC	Cultivator
	R2	38	Female	Hindu	SC	Home maker
	R3	26	Male	Hindu	SC	Cultivator
	R4	31	Male	Hindu	SC	Contractual job at ONGC
	R5	24	Male	Hindu	SC	Youth, not employed
	R6	18	Male	Hindu	SC	Student
	R7	25	Male	Hindu	SC	Youth, not employed
	R8	39	Male	Hindu	SC	Contractual job at ONGC
	R9	45	Male	Hindu	SC	Cultivator
	R10	28	Female	Hindu	SC	Home maker & SHG member
	R11	28	Female	Hindu	SC	Home maker
	R12	36	Female	Hindu	SC	Home maker & SHG member
	R13	50	Male	Hindu	SC	Cultivator
	R14	45	Male	Hindu	SC	Cultivator
	R15	33	Male	Hindu	SC	Poultry farmer

Source: Focus group discussions conducted by the author

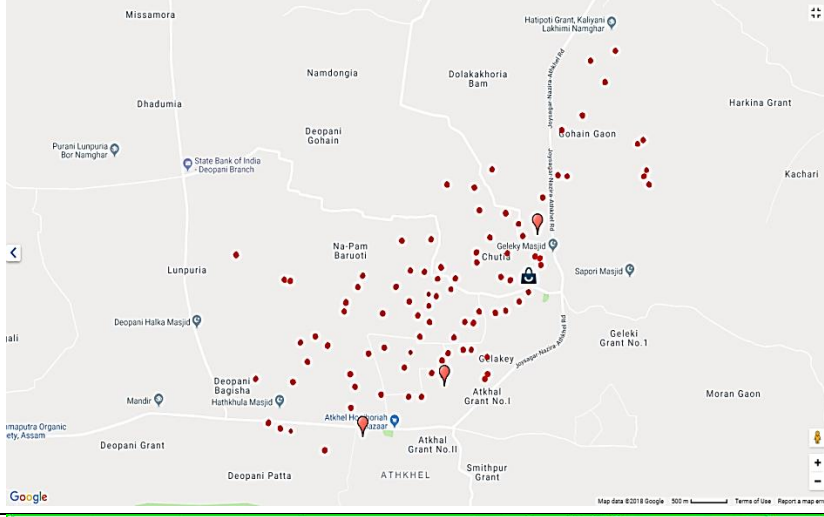
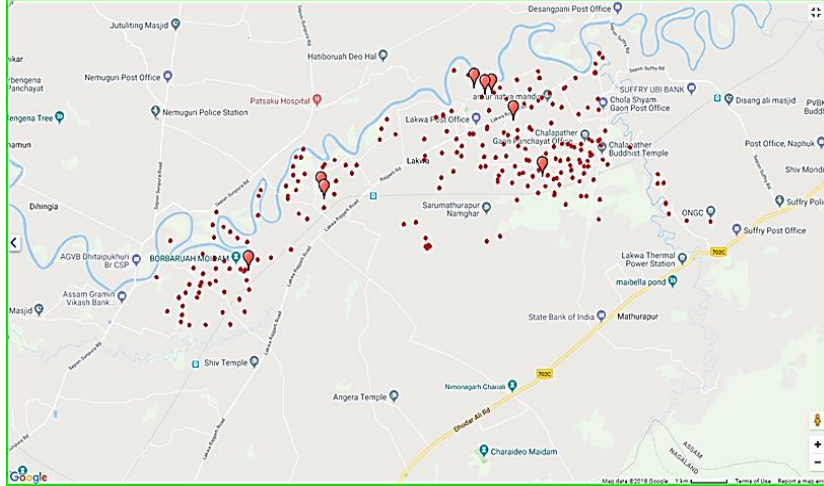
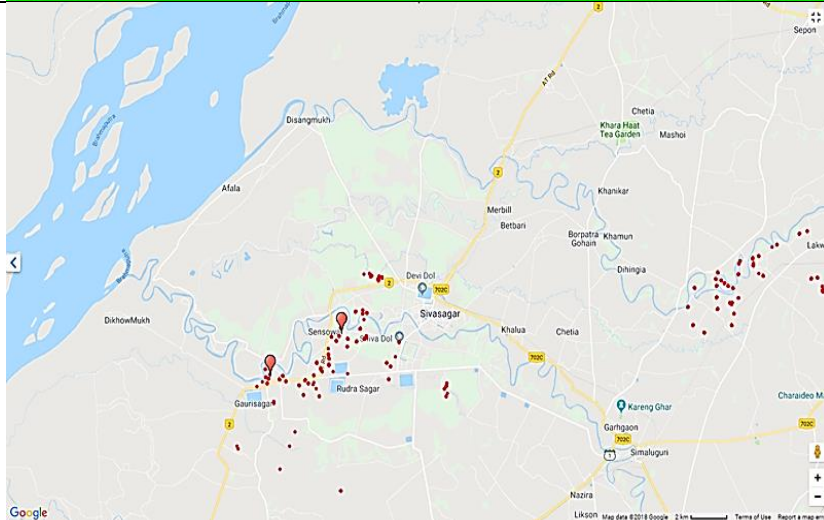
Table E3

**Demographic characteristics of the participants of FGD conducted in OIL
operational areas**

Village Name	Participant no	Age	Gender	Religion	Social group	Main Occupation/designation
Balipara Sasoni (Naharkatiya)	N1	50	Male	Hindu	OBC	OIL employee
	N2	35	Male	Hindu	OBC	Contractual employee at OIL
	N3	65	Male	Hindu	OBC	Retired teacher
	N4	42	Female	Hindu	OBC	Home-maker & SHG member
	N5	45	Male	Hindu	OBC	Contractual employee at OIL
	N6	43	Female	Hindu	OBC	Contractual employee at OIL
	N7	27	Male	Hindu	OBC	Youth, not employed
	N8	35	Female	Hindu	ST	Home-maker, Handloom weaver
	N9	74	Male	Hindu	OBC	Retired person
	N10	47	Female	Hindu	ST	SHG member, Handloom weaver
	N11	51	Female	Hindu	OBC	Home-maker, SHG member
Baghjan (Barekuri-Baghjan)	B1	66	Male	Hindu	OBC	Village Head
	B2	47	male	Hindu	OBC	Small tea-grower
	B3	50	Male	Hindu	OBC	Small tea-grower
	B4	25	Male	Hindu	OBC	Contractual employee at OIL
	B5	44	Female	Hindu	OBC	Home-maker, SHG member
	B6	37	Male	Hindu	OBC	Small tea-grower
	B7	72	Male	Hindu	OBC	Senior person of the village
	B8	55	Male	Hindu	OBC	Contractual employee at OIL
	B9	43	Female	Hindu	OBC	Self-employed
	B10	30	Male	Hindu	OBC	Contractual employee at OIL
Khumtai Gaon (Moran)	M1	29	Male	Muslim	General	Contractual job at OIL
	M2	32	Male	Muslim	General	Contractual job at OIL
	M3	26	Male	Muslim	General	Contractual job at OIL
	M4	31	Male	Hindu	OBC	Self-employee
	M5	24	Male	Hindu	OBC	Youth, not employed
	M6	28	Female	Hindu	OBC	Home maker
	M7	25	Male	Hindu	OBC	Contractual job at ONGC
	M8	39	Male	Hindu	OBC	Cultivator
	M9	45	Male	Hindu	OBC	Cultivator
	M10	28	Female	Hindu	SC	Home maker & SHG member
	M11	28	Female	Muslim	SC	Home maker
	M12	36	Female	Hindu	SC	Home maker & SHG member

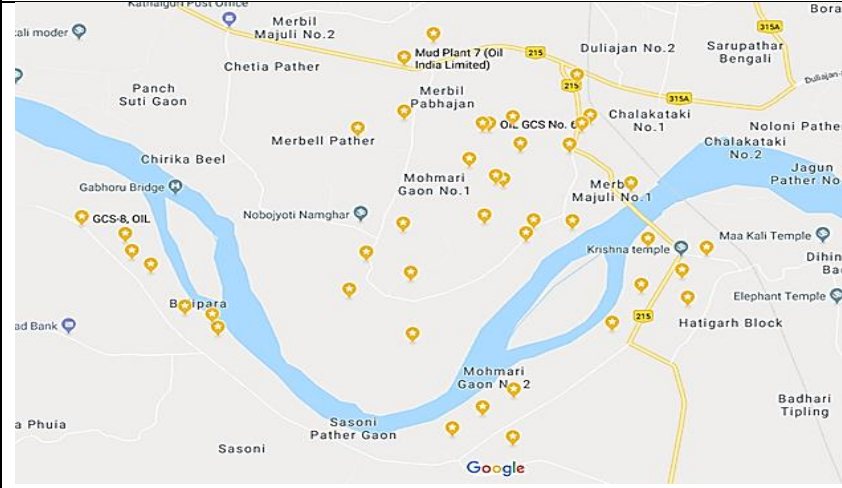


ANNEXURE- F

Map F1: Locations of major operational activities of ONGC and the list of villages in which those locations are positioned

Locations of major operational activities of ONGC	Name of oil villages
	<p>Gelakey (Sivasagar District):</p> <ul style="list-style-type: none"> i) Chutia Gaon (751) ii) Na-Pam Baruwati (1051) iii) Athkhel Grant No. 1 (60) iv) Athkhel Grant No. 2 (416)
	<p>Lakwa (Sivasagar District):</p> <ul style="list-style-type: none"> i) Dehingia Konwar (387) ii) Mohan Deodhai (416) iii) Tipomia (163) iv) Cholapathar (129) v) Ghurachowa (219)
	<p>Rudrasagar (Sivasagar District):</p> <ul style="list-style-type: none"> i) Pathalial (334) ii) Bhatiyapara (178) iii) Bongaon (180) iv) Mothadang (188) v) Sensuwa (183)

Note: Red dots in the maps indicate the locations of major operational activities of ONGC

Map F2: Locations of major operational activities of OIL and the list of villages in which those locations are positioned

Locations of major operational activities of ONGC	Name of oil villages
	<p>Naharkatiya (Dibrugarh District):</p> <ol style="list-style-type: none"> i) Balipara (202) ii) Mohmari Gaon No. 1 (297) iii) Mohmari Gaon No. 2 (215) iv) Merbil Pabhajan (158) v) Pabhajan No. 1 (156) vi) Jagun Pather (132)
	<p>Barekuri and Makum (Tinsukia District):</p> <ol style="list-style-type: none"> i) Baghjan (872) ii) Jaygukhuwa (148) iii) Dhelakhat (30) iv) Denka Gaon (134) v) Lesenka (129) vi) 2 No. Hebeda (225) vii) Luhari Bangali Gaon (232)
	<p>Moran (Dibrugarh and Sivasagar District):</p> <ol style="list-style-type: none"> i) Khumtai Gaon (988) ii) Sarupathar Gaon No. 2 (337) iii) Chutia Gaon (371)

Note: Yellow pins in the maps indicate the locations of major operational activities of OIL

ANNEXURE-G

Interview Schedule for Household survey

Impact of Oil Industry on Rural Livelihood in Assam – A Study of ONGC and OIL

(Data are collected for research purpose only)

1. Household Information:

1.1 Name of the Respondent:

1.2 Village: 1.3. Gram Panchayat:

1.4 Block:1.5 Sub-division:

1.6 District:

1.7 Community: 1.8 Caste:

1.9 Type of family: Nuclear=1, Joint=2

1.10 Information about the family members:

Sl. No	Name of the family member	Relation with the respondent	Sex (M=1, F=2)	Age	Education	Years of schooling	Technical Education, if any	Primary Occupation	Other occupation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1		Respondent himself/herself							
2									
3									
4									
5									
6									
7									
8									
9									
10									

Codes: For column 5, Illiterate=0, primary=1, UP=2, High school=3, HS=4, Graduation=5, Beyond graduation=6

For column 8: Farmer=1, Govt.=2, Business=3, Direct ONGC=4, Company job under ONGC=5, other private job= 6, Self-employed=7, Housewife=8, Retired person=9, Student=10, any other specify

2. Information about agricultural activity:

2.1 Land holding of the household (in bigha)

Total land owned	Homestead land	Forest, jungle	Wetland	Flood affected land	Land put to agricultural use	Land under paddy	Land under vegetable	

2.2 Land leased in and leased out

Category	Size of land (in bigha)	Reason/purpose of leasing in /out
Land leased in		
Land leased out		

2.3 a) Did ONGC/OIL acquire land possessed by your family?

Yes=1, No=0

b) If yes, give the following information:

Particulars	Data
Size of land acquired by ONGC/OIL (in bigha)	
Yeas of land acquisition	
Year of compensation (if compensation is given)	
Type of compensation (cash=1, job=2, other=specify)	

2.4 a) Is there any cultivable land unutilized? Yes=1, No=0

b) If yes, why?

.....

2.5 Production and income from agriculture

Type of paddy	Land under paddy cultivation (in Bigha)	Production of paddy (in quintal)	Income from paddy (in Rs)	Time devoted in the year (in hours)
Autumn				
Summer				
Winter				

Name of Vegetables & other crops or agricultural produce	Land under vegetable cultivation (in Bigha)	Production of vegetable (in quintal)	Income from vegetable (in Rs)	Time devoted in the year (in hours)

2.6 Cost of crop cultivation (last year):

Sl. No.	Items	Name of crops				
1	Seed own (in Kg)					
2	Seed own value (in Rs)					
3	Seed purchased (in Kg)					
4	Seed purchased value (in Rs.)					
5	Fertiliser purchased (in kg)					
6	Fertiliser purchased (value) Rs/Kg					
7	Pesticides purchased (in liter)					
8	Pesticides purchased: value (in Rs/liter)					
9	Tractor(own/hired)					
10	Tractor hours					
11	Tractor charges (Rs.)					
12	Bullock(own/hired)					
13	Bullock days					
14	Bullock value (in Rs)					
15	Male family labour (in hours)					
116	Female family labour (in hours)					
17	Male hired labour (in hours)					
18	Female hired labour (in hours)					
19	Male wage rate (in Rs)					
20	Female wage rate (in Rs)					

Annexure

21	Market location where crop sold					
22	Transport cost of selling output in the market (Rs)					
23	Source of irrigation					
24	Expenditure on water					

2.7 Production and Income from livestock, poultry farming etc.

Name of livestock/poultry etc.	Production	Income (in Rs)	Time devoted per day (in hours)	Cost
Milk production (in liter)				
Cow (in numbers)				
Bull (in numbers)				
Duck (in numbers)				
Hen (in numbers)				
Goat (in numbers)				
Pig (in numbers)				

2.8 Irrigation facility:

2.8.1 Irrigation facility available?

Yes=1, No=2

2.8.2 If yes, give the following information:

Ownership of irrigation: (Own=1, Govt.=2)	Type of irrigation: [Rainfed=1, pond=2, canal=3, tube well=4, river=5, other(specify)]	Availability of own pumpset? (yes=1, No=2)	Net area under irrigation (in Bigha)

2.9 Agricultural marketing

2.9.1 Do you sell your agricultural product or use for home consumption?

Home consumption=1, Selling=2,
Both for home consumption and selling=3, Other (Specify)=

2.9.1 Where do you sell your surplus farm products: paddy, vegetable, livestock, etc.?

Sl. No.	Name of the item/product	Where do you sell?	Name of the market, if sold in the market.	Price (in Rs)	Distance to the market (in Km), if sold in the market
	(1)	(2)	(3)	(4)	(5)
1					
2					
3					
4					
5					

Codes for column (2): At home=1, Retail Market=2, Wholesale market=3, Middleman=4, Other (specify)= 5,

2.9.2 How do you transport your product to the market?

On foot=1, By bicycle=2, By van/bus/other motorized vehicle=3,

Other mode (specify)=4.....

2.9.3 Condition of road from your home to the market where you sell your product:

Pucca road=1, Kutchra road=2, Both pucca and kutchra=3,

Other (specify)=4,

2.10 (a) Is any type of ONGC/OIL activities affecting your agricultural, livestock, fish, poultry production?

Yes=1, No=2

(b) If yes, mention in detail

.....

.....

.....

(c) What was the estimated cost of loss on agricultural products due to ONGC/OIL activities?

Agricultural products	Details of loss	Value (in Rs)

(d) Did you applied for compensation from ONGC/OIL?

Yes=1, No=2

(e) Did ONGC/OIL compensate your loss of agricultural products due to their operations?

Yes=1, No=2

3. Information about non-farm activities:

3.1 Do you or any of your family members engage in non-farm occupation? Yes=1, No=2

3.2 If yes, give the following information:

Name of the family member	Name of the non- farm occupation	Nature of the occupation (permanent=1, temporary=2)	Place of work and distance (in Km)	Income (in Rs.)	Duration of work (in month per year)	Time devoted per day (in hours)

3.3 Do you or any of your family members have Job Card under MGNREGS? Yes=1, No=2

3.4 If yes, number of male and female member having job cards?

Male=....., Female=.....

3.5 Number of days you have got job under MGNREGS=.....

3.6 Are you or any of your family members working in ONGC/OIL? Yes=1, No=2

3.7 Income earned from different occupation other than agriculture:

Sl no.	Name of the family member	Nature of the job (Permanent=1, Temporary=2)		Designation	Year of service	Annual Income

3.8. Any other salaried person in your family? Yes=1, No=2

Sl no.	Name of the family member	Sector (Govt.=1, Private=2, Semi govt.=3)	Nature of the job (Permanent=1, Tempoprary=2)	Designation	Year of service	

4 Access to household facilities:

4.1 Type of house: Pucca=1, Semi Pucca=2, Kutcha=3, Others (specify) =4,

4.2 Source of drinking water: Pond=1, Tube well=2, River=3, Piped=4, Other (specify) =5:

4.3 Do you purify your drinking water? Yes=1, No=2

4.4 If yes, by which method?

4.5 Household asset holding (give tick mark):

TV	Motor cycle	Car	Cycle	Fridge	Washing machine	Mobile phone	LPG	Mixture Grinder	Water Pump-set	Inverter	Fan				
1	2	3	4	5	6	7	8	9	10	11	12				

6. Impacts on environment:

6.1 Have you ever noticed any kind of pollution in your locality? Yes=1, No=2

6.2 If yes, what type of pollution? (Give tick mark)

Air pollution	Water pollution	Soil pollution	Noise pollution	Others (Specify)

6.3 What, according to you, are the causes of pollution?

Type of pollution	Causes of pollution
Air pollution	
Water pollution	

Annexure

Soil pollution	
Noise pollution	
Other (specify).....	

6.4 Have you ever noticed any kind of pollution due to ONGC/OIL activity in your locality?

Yes=1, No=2

6.5 If yes, what kind of pollution and how is it caused?

.....

.....

6.6 Can you explain what kind of problems your family members are facing due to pollution?

Type of pollution	Problems faced by you or your family member due to pollution
Air pollution	
Water pollution	
Soil pollution	
Noise pollution	
Other (specify).....	

6.7 Have you discussed about the pollution with ONGC/OIL officials, if pollutions are created by them?

Yes=1, No=2

6.8 If yes, what was their response?

.....

.....

7. Health issues:7.1 Are you or any of your family members suffering from any kind of disease? Yes=1, No=2

7.2 Type of health problems and frequency of occurrence:

Sl. No.	Name of the person	Type of disease	When was the disease occurred for the first time? (year)	Frequency
	(1)	(2)		(3)
1				
2				
3				
4				

Codes for column (2): Skin disease=1, Gastro-intestinal disease=2, Malaria=3, Diarrhea=4, Fever=5, Asthma=6, Eye allergy=7, TB=8, Arthritis=9, other=10 (specify)

Codes for column (3): Daily=1, weekly=2, Monthly=3, Yearly=4

7.3 What is the distance (in km) to the nearest health centre from your home?

PHC	CHC	Civil Hospital

7.4 Health expenditure

Sl. No	Medical expenses (Doctor's fee, medicine, tests, etc)	Travel expenses	Dietary expenses	No. of working days lost	Income lost
1					
2					
3					

7.5 Is ONGC/OIL doing anything to take care of the health issues of people of your locality?

Yes=1, No=2

7.6 If yes, what kind of initiatives they are taking?

Awareness programme=1, health check-up camp=2, Establishment of health centre=3

Other=4, (Specify).....

7.7 Are you satisfied with the initiatives taken by ONGC/OIL to address the health issue of your locality?

Yes=1, No=2

7.8 If not, why?

.....

8. Financial access

8.1 Do you or any of your family members have bank accounts? Yes=1, No=2

8.2 What is distance (in Km) to the nearest bank from your home?

8.3 If yes, give the following information:

	SBI	UBI	AGVB	Post office	Other (specify).....	Total	
						Male	Female
Number of deposit Accounts							
Number of Loan account							
Purpose of loan							

8.4 Is any family member associated with SHGs? Yes=1, No=2

8.5 If yes, how many members are associated with SHGs? Total=..... Male= Female=.....

9. Social structure:

9.1 Type of your family

Joint family=1, Nuclear family=2, Extended family=3, other (specify)=.....

9.2 Do your family member have BPL card? Yes=1, No=2

9.3 Whether any person of your family has migrated from your village to other place?

Yes=1, No=2

9.4 If yes, give the following information:

Name of the person	Education	Place of migration	Purpose of migration	Present Occupation

9.5 Do the women of your family participate in economic activities in excess of performing household responsibility? Yes=1, No=2

9.6 If yes, give the following information:

Type of work	Amount paid (in Rs.)	Nature of work
(1)	(2)	(3)

Annexure

Codes for column (1): Farm works=1, livestock & poultry rearing=2, Handloom=3, Other(Specify)

Codes for column (3): Regular=1, Seasonal=2

9.7 Did your family experience any maternal mortality in the last 5 years? Yes=1, No=2

9.8 If yes, give the following information:

Year of maternal death	Reason	Place of death (Hospital=1, home=2)

9.9 Who takes the important decisions of your family?
 Only Males=1, only females=2, both females and males=3, Other (Specify).....

9.10 Does any your family member execute any inter-caste marriage? Yes=1, No=2

9.11 If yes, how many persons?.....

9.12 Does your family practice any kind of social/religious function as practiced by your forefather?
 Yes=1, No=2

9.13 If yes, mention those functions:

9.12 If not, mention those functions which are not practiced at present with reason (if any):

9.13 Do you think that ONGC/OIL activities have changed/affected your traditions, culture of your village?
 Yes=1, No=2

9.14 If yes, what kind of changes you have noticed?

10. Corporate social responsibility:

10.1 What is the distance to the nearest ONGC/OIL's oilfields/headquarters from your home?

10.2 Did you or any of your family members get any kind of benefit from ONGC/OIL through CSR?

Yes=1, No=2

10.3 If yes, what kind of benefit you/your family received?

Skill based training=1, Scholarship=2, Other=3 (Specify).....

10.4 Did your locality/village get any kind of benefit from ONGC/OIL through CSR?

Yes=1, No=2

10.5 If yes, what kind of benefit your locality/village received?

Pucca road=1, bridge=2, electricity=3, community hall=4, school building=5

Other=4(Specify).....

10.6 Did you/your community demand any kind of benefit from ONGC/OIL under CSR?

Yes=1, No=2

10.7 If yes, what was the response?

.....

10.8 The benefits received under CSR were demanded by you/your community or provided by ONGC without your demand?

Demanded=1, Not demanded=2, Don't know=3

11. Any important observation:

.....

ANNEXURE- H

Photographs











Publications in Journals

1. Chutia, N. and Bhuyan, A. (2017). Impact of industry on livelihood of surrounding rural areas-A review of some evidences. *Indian Journal of Economics and Development*, 13(2), 219-228.
2. Chutia, N. and Bhuyan, A. (2018). Oil exploration and the issues of rural livelihood - a study of Lakwa ONGC oilfield in Sivasagar district of Assam. *Jharkhand Journal of Development and Management Studies*, 16(3), 7845-7857.
3. Chutia, N. and Bhuyan, A. (2019). A district level study on sustainable livelihood security in Assam. *Indian Journal of Regional Science*, 51(2), 70-80.
4. Chutia, N. and Bhuyan, A. (2020). Impact of the oil industry on the local rural community in Sivasagar district. *The Indian Journal of Social Work*, 81(3), 353-373.

Paper Presented in International and National Seminar/ Conferences

1. “Sustainable livelihood in Assam: A district level analysis using sustainable livelihood security index”, A paper presented in the International Conference on Environment, Development and Livelihood, organized by South Calcutta Girls’ College & Centre for Economic and Development, New Delhi, 22nd and 23rd February, 2019.
2. “Livelihood diversification among the farm families of surrounding rural areas of ONGC, Assam Asset- A case study” A paper presented in the National Seminar on Emerging Issues of Agriculture and Allied Sector in North East India: Past, Present and the Way Forward, organized by Department of Economics, D. R. College, Golaghat, 7th and 8th April, 2017
3. “Impact of Industry on Livelihood-A Review”, A paper presented in the 18th Annual NEEA Conference, Gauhati University, 15th to 17th December, 2016.

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Impact of Industry on Livelihood of Surrounding Rural Areas-A Review of Some Evidences

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ABSTRACT.

This paper tries to explore the relation between industry and livelihood of surrounding rural areas. In many literatures, so far reviewed; a mixed impact of industrialization on different livelihood assets, viz., financial capital, physical capital, natural capital, human capital and social capital is observed. Further, these assets have also been found interlinked. Achievements in one livelihood asset due to industrialization affect the other components of livelihood assets, positively or adversely. Due to such linkages amongst the livelihood assets, achieving sustainable livelihood outcomes from industrial development is a challenge.

Keywords

Financial capital, industrialization, livelihood assets, livelihood outcomes, natural capital, sustainable livelihood

JEL Codes

O13, O14, Q01, Q53, Q55

INTRODUCTION

An industry brings several changes to the development of surrounding regions. There are several theoretical as well as empirical bases in its support. In connection to this, Myrdal in 1957 (Gana, 1978) showed two effects-spread and backwash effect¹, generated by an industry which are transmitted to the surrounding hinterland; and argued that backwash effects generally dominate the spread effect. Hirschman in 1958 (Gana, 1978), on the other hand, opined that backwash effects are initially high as resources are pulled in to the growth poles. But that, over time, backwash effects diminish and positive effects are decentralized to the surrounding regions, which is most commonly known as unbalanced growth theory. However, before these theories, some other economists and geographers also put forwarded several theories regarding development diffusion of an industry such as Christaller's, central place theory (1930) (Hall & Hite, 1970), Perroux's Growth Pole Theory (1955) (Hoare, 1974), etc.

Among the several aspects that are influenced by an industry or a growth center, via spread or backwash effects, one important issue is the people's livelihood

change of the surrounding region. Livelihood is a very complex and dynamic matter. The general perception is that industrialization brings a positive change in the people's livelihood inhabiting in the periphery area by creating employment opportunity, increasing capability to access modern amenities that raises the living standard. In many countries including India, industrialization is taken as a policy for poverty reduction and faster economic development. But, in contrast to such general perception, industrialization, in many cases, is found generating numerous unfavorable effects on livelihood of common people. In many literatures based on empirical studies done in global, national and regional level, a mixed impact of industrialization on livelihood is observed. Considering such dichotomous behaviour, this paper tries to explore both the favourable and unfavourable effects of industrial development.

OBJECTIVE

The main objective of the paper is to study the impacts of industries on livelihood of the surrounding rural areas.

METHODOLOGY

The paper is based on literature survey relating to

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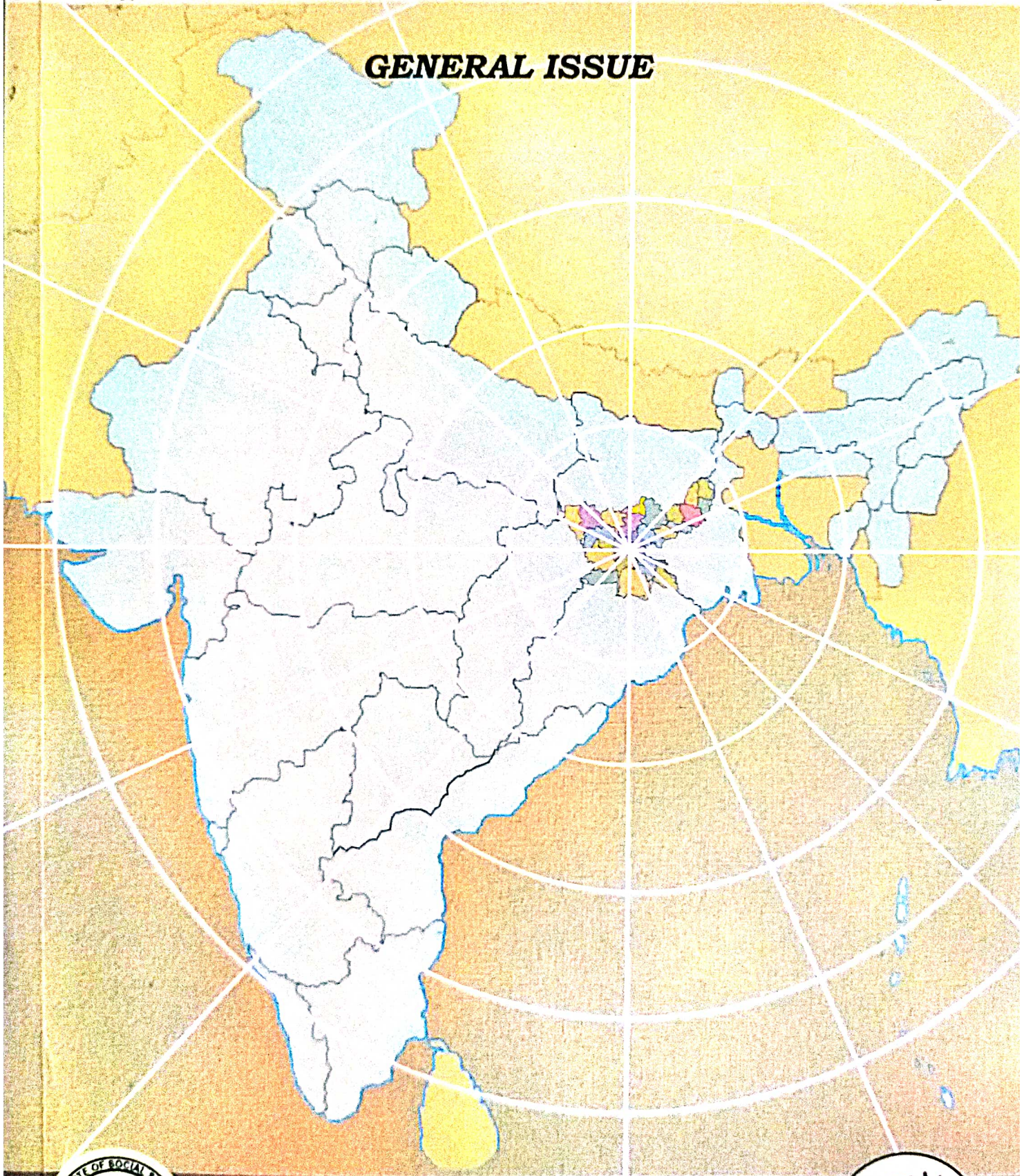
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- 556 Sharma, Subhash (2nd Ed.). (2016). *Why people protest: An analysis of ecological movements*. New Delhi: Publication Division, Ministry of Information and Broadcasting, Government of India. *Sudeep Kumar* 7863

**OIL EXPLORATION AND THE ISSUES OF RURAL
LIVELIHOOD - A STUDY OF LAKWA ONGC OILFIELD IN
SIVASAGAR DISTRICT OF ASSAM**

Nilutpal Chutia¹ & Anjan Bhuyan²

The oil sector bears a significant role in the economy of Assam in terms of revenue generation in the form of royalty. But, when the performance of the oil sector is judged in terms of contribution to the state's income, several impacts related to local rural livelihoods and issues of sustainability remain unreflected. Therefore, the present study attempts to make a discussion on some of the impacts of oil exploration of ONGC on the local livelihoods in Sivasagar district. The present study deals with some of the effects associated with land acquisition, threat to indigenous occupation, occupational change and occupational sustainability with the help of field observation and primary data. The study reveals an occupational shift from indigenous to industrial works, as ONGC is providing some casual and contractual employment opportunities to the local people of the study area. It is also reported that industrial pollution has severely troubled paddy cultivation and sericulture in the study area which was a profitable venture for the villagers during the days of their forefathers. Land acquisition for the purpose of oil exploration, temporary job arrangements by the oil industry and industrial pollution affecting cultivation have generated vulnerability to many aspects of sustainable livelihoods of the rural people in the study area.

Keywords : *Rural livelihood, Sustainability, Indigenous occupation, Casual employment, ONGC.*

Introduction

Oil is one of the major contributing factors of industrial growth in the world. The oil sector has directly contributed about 1.01 percent to the world's GDP in 2016 (The World Bank, n.d.). For India, the role of oil sector is observed to be very important for the growth of the nation's economy. It is listed amongst the six core industries in India (Govt. of India, 2018a).

So far as India's history of oil is concerned, it started in 1889 in Assam. Till 1960s, Assam occupied the leading position as the only oil producing state in the country. Currently, Assam is the third largest

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A DISTRICT LEVEL STUDY ON SUSTAINABLE LIVELIHOOD SECURITY IN ASSAM

Nilutpal Chutia* and Anjan Bhuyan**

This paper tries to measure sustainability of livelihood security for 27 districts of Assam, India. It covers various aspects of sustainable livelihood viz. ecological, economic and social equity, and estimates the Sustainable Livelihood Security Index (SLSI) by using secondary data collected from different government sources. The study observes some inter-district differences regarding SLSI in the state. Moreover, some of the well performing districts in overall sustainable livelihood security exhibit poor performance in ecological security. They achieved higher ranks in SLSI only because of their better achievements in economic efficiency and social equity. Only 4 districts achieved SLSI value 0.5 and above. In order to achieve improvement in sustainable livelihood, the low ranked districts need proper attention of the policy makers to promote per capita income and to reduce poverty by way of agricultural development or by employment generation in other sectors.

INTRODUCTION

Assam is a rural based state with 85.9 per cent rural population as per 2011 census¹. The economy of the state has been growing with livelihood challenges such as mass poverty with 32 per cent² of population below the poverty line in 2011-12, poor condition of roads and communications, poor health infrastructure, low level of per capita net state domestic product, low level of human development, etc. The state economy faces the problem of regional disparity while it is compared to the other advanced states of the country. Besides the intra-state disparities, the inter-district disparity in different socio-economic aspects is one of the important features of the state. This paper deals with the inter-district differences in Assam focusing on some aspects of sustainable livelihood.

REVIEW OF LITERATURE

Livelihood is a very complex, diverse and dynamic concept. The sustainable livelihood approach was largely developed by the researchers at the Institute of Development Studies (IDS) as a strategy for poverty reduction. According to Chambers & Conway (1991) livelihood indicates capabilities, assets and activities to achieve a means of living. In the tune of Chambers & Conway's definition, Scoones (1998), Bebington (1999) also put forward some meaningful definition of sustainable livelihood approach in order to eradicate poverty. The definition of Chambers & Conway is later adapted by the Department for International Development (DFID).

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¹Statistical Hand Book, Assam, 2017, p. 1

²Statistical Hand Book, Assam, 2017, p. 245

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A Qualitative Analysis

Nitupal Chutia and Anjan Bhuyan

Notes From The Field

Conducting Sexual Health Research among Rural Young Married Men

Jayakant Singh and Surinder Jaswal



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RESEARCH REPORT

Impact of the Oil Industry on the Local Rural Community in Sivasagar A Qualitative Analysis

NILUTPAL CHUTIA AND ANJAN BHUYAN

Assam is the third largest onshore producer of petroleum (crude) and the first largest onshore producer of natural gas in India. This paper attempts to understand how oil exploration in Assam poses livelihood and sustainability challenges for the local community in Sivasagar district. It discusses issues related to land acquisition and the consequent threat to indigenous occupations and sustainable livelihoods. The study suggests a specific regional development plan for the areas affected by oil exploration of the ONGC to ensure quality education, employment opportunity, self-employment opportunity, health security and infrastructure development.

Nilutpal Chutia is a Research Scholar; and Anjan Bhuyan is Associate Professor, Department of Business Administration, School of Management Science, Tezpur University, Assam.

Keywords: rural livelihood, livelihood sustainability, local community, land acquisition, sustainable development goals, ONGC.

INTRODUCTION

The oil sector of Assam plays an important role in the state and national economy. In fact, the journey of oil exploration in India started in Assam in 1889. Currently, the state holds a significant position as the third largest onshore producer of petroleum (crude) and the first largest onshore producer of natural gas, with 11.66 percent and 9.44 percent contribution to the total production of the country, respectively. In 2016–17, Assam has produced 4,202 thousand tonnes of petroleum (crude) and



**DEPARTMENT
OF
ECONOMICS**

**DEBRAJ ROY
COLLEGE**

**GOLAGHAT
ASSAM, INDIA**



**NATIONAL SEMINAR ON
Emerging Issues of Agriculture and Allied Sector
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Organized by : Department of Economics, Debraj Roy College
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to Dibrugarh University, Assam

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