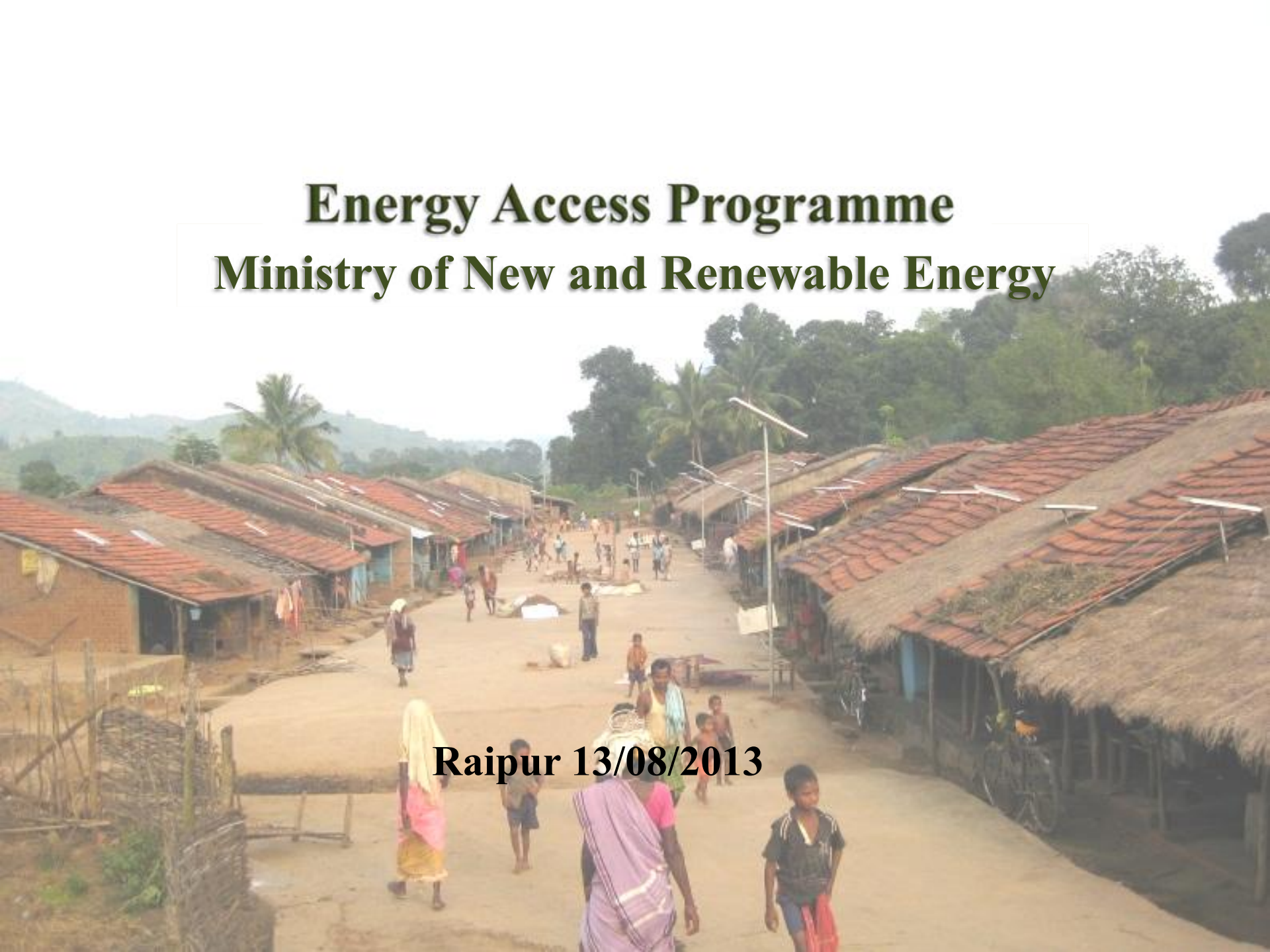
Energy Access Programme

Ministry of New and Renewable Energy

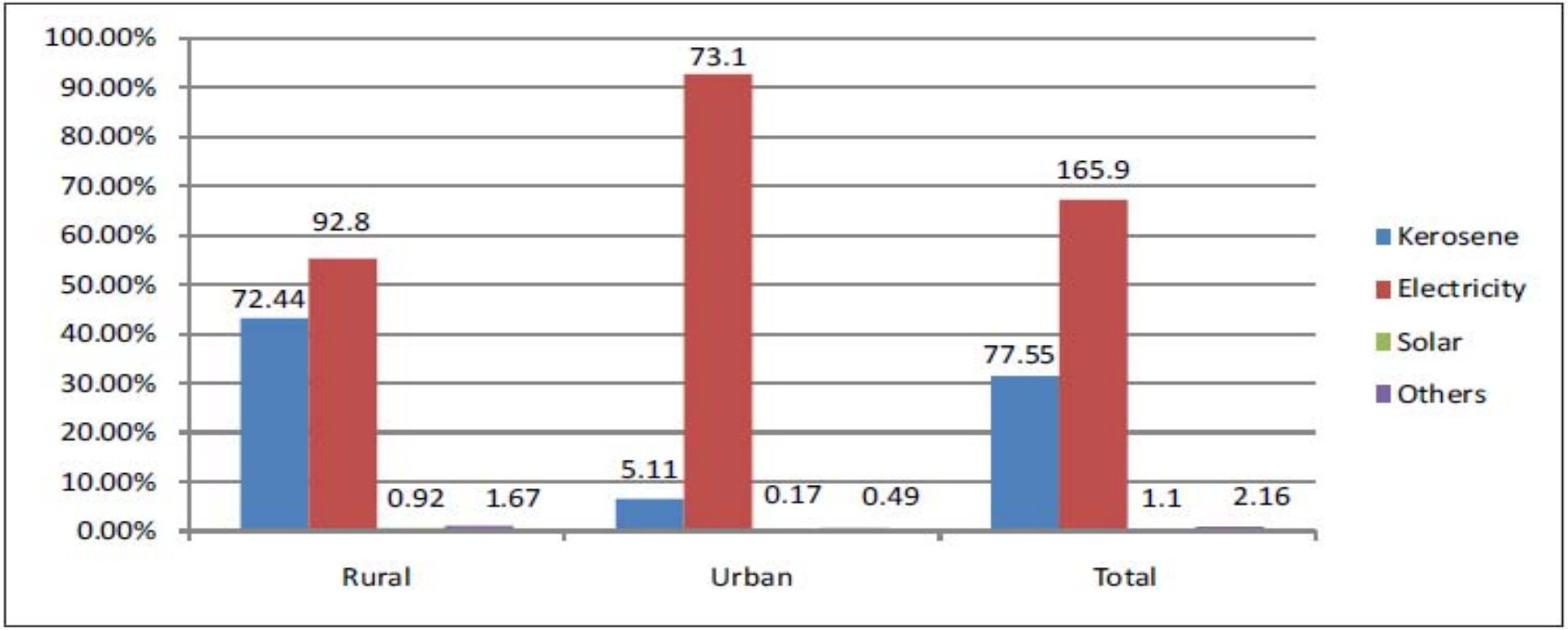


Raipur 13/08/2013

Energy Access in India

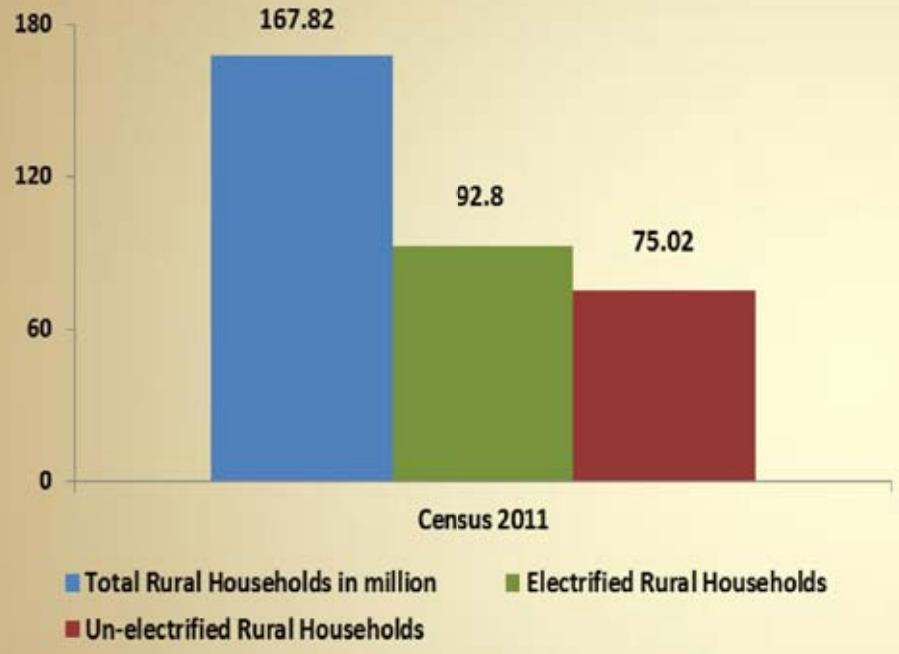
While supporting around 16% of the world population, India's share in world energy use is low at only 4.2% with per capita energy use at around 0.58 toe. Per capita annual electricity consumption of around 800 kwh is less than a third of the world average. Electricity shortage estimated 25-35 GW.

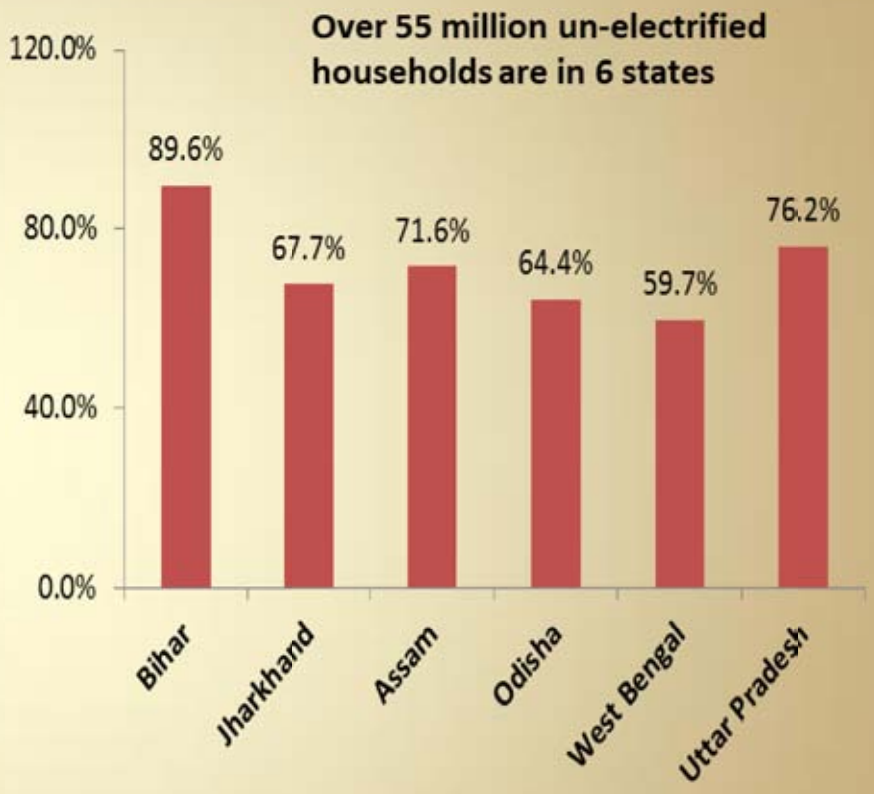
Households by Main Source of Lighting (in million)



Source: National Census 2011

Electricity Access in India





Electricity Access Cont.

State–wise Rural Household Electrification Levels

Electrification Levels	States/Union Territories
90% and above	Himachal Pradesh (96.6%), Punjab (95.5%), Chandigarh (97.3%), NCT of Delhi (97.8%), Sikkim (90.2%), Daman & Diu (98.3%), Andhra Pradesh (89.7%), Dadra& Nagar Haveli (91.7%), Goa (95.6%), Lakshwadeep (99.8%), Tamil Nadu (90.8%), Kerala (92.1%) and Puducherry (95.8%)
Between 80-89%	Jammu & Kashmir (80.7%), Uttarakhand (83.1%), Haryana (87.2%), Gujarat (85%) and Karnataka (86.7%)
Between 70-79%	Nagaland (75.2%), Chhattisgarh (70%), Maharashtra (73.8%) and A&N Islands (79.4%)
Between 60-69%	Manipur (61.2%), Mizoram (68.8%) and Tripura (59.5%)
Between 50-59%	Rajasthan (58.3%), Meghalaya (51.6%), Arunachal Pradesh (55.5%) and Madhya Pradesh (58.3%)
Between 40-49%	West Bengal (40.3%)
Less than 40%	Uttar Pradesh (23.8%), Bihar (10.4%), Jharkhand (32.3%), Assam (28.4%) and Odisha (35.6%)

Source: National Census 2011

Sustainable Energy for All : Indian Initiatives

Policy

- **Electricity Act 2003** (Section 6 ,13,14) provides for: supply of electricity to all areas, including villages and hamlets, no licence required for supply of electricity in rural area.
- **National Electricity Policy (NEP) 2005** Electricity access to all households and that the electricity reaches the poor and marginal sections of the society at reasonable rates within the next five years.
- **Rural Electrification Policy (REP) 2006** Minimum lifeline consumption of 1 unit per household per day as a merit good by year 2012

Programme

- **RGGVY/DDG by MoP (Ministry of Power)**
- **GRID CONNECTED (through renewable), MNRE**
- **OFF GRID(under national solar mission, other than solar, RVE/RAEA), MNRE**

Rajiv Gandhi Grameen Vidhyutikaran Yojana (RGGVY)

- **It aims at :**
  - **Electrifying all villages and habitations.**
  - **Providing access to electricity to all rural households.**
  - **Giving Electricity Connection to Below Poverty Line (BPL) families free of charge.**

§ **90% grant and 10% loan (Budget 390 billion)**

§ **RGGVY recognizes the possibility of revenue sustainability of RE through franchisee development**

❖ **Decentralized Distributed Generation (DDG) Systems based on conventional & non conventional energy sources where grid supply is not feasible or cost-effective . Issues High capital cost, cost of supply, consumer behaviour.**

Rajiv Gandhi Grameen Vidhyutikaran Yojana (RGGVY)

- **105714 villages (89.8%) were electrified and 20.07 million BPL rural households (81.2%) provided with electric connections (up to 2012, 341 billion).**

- **There are total 12.69 Lakh villages/habitations with population above 100, of which 10.01 Lakh villages/habitations including partially electrified villages/habitations have been covered in projects sanctioned under RGGVY. *(Source: MoDWS/MoP)***

- **Similarly, there are total 3.95 lakh villages/habitations with population of 100 or below, of which 0.74 Lakh villages/habitations have been covered in projects sanctioned under RGGVY. *(Source: MoDWS/MoP)***

Off-Grid Programme

- **Demand driven/subsidy driven**
  - **30% subsidy & loan @ 5% for individuals & non-commercial**
  - **30% subsidy OR loan @ 5% for commercial**
  - **60%/90% subsidy for Government projects in special category States and in other remote and difficult areas**
- **Features**

  Focus on Standards, Accreditation, Performance monitoring, test lab
- **Area**

  Biomass /Biogas/Watermills/micro hydro projects/Biomass based heat and power projects and industrial waste to-energy projects / solar Water pumping/ windmills /Solar mini grid/micro grid/ Solar PV Roof-top Systems /solar lanterns home lights, street lights/ Solar lantern charging stations /Solar thermal for heating /Solar cooker for cooking /Solar air heater for drying.

Elements of Energy Access prog.

- Identification of agencies capable of undertaking the work
- Capacity building for identified agency for upscaling the work
- Identification of area which need most
- Standard survey,EPC contract, monitoring
- Optimization of technology for low cost solution
- Documentation
- Repair and maintenance
- Involvement of local community

Capacity Building

- Areas
- Technology selection
- Government procedure awareness
- Preparation of DPR
- Area of work
- Evaluation of bidding procedure
- Involving external funding agency, world bank, UNDP ADB

Identification of Agency/Area

- Empanellment of NGO/NPO done.
- EOI for empanellment of company on website.
- Compilation of agency who had done work in SNA tender.
- Census 2011 data analysis, worst affected districts identified

Way ahead

- Survey –WEB-GIS enabled, can help in planning distribution network, verification
- Standardizing bill of material for each RE technology
- Low cost solution
- Optimal Use of technology for easy accessibility, immediate repair/maintenance in remote area.

Rural Area Energy Access Programme (REAP)

- **To cover**
  - ✓ **unelectrified census villages and hamlets**
  - ✓ **unelectrified hamlets of electrified census villages**
- **Each of the willing households will be provided(100w) through mini/micro grid(Technology neutral)/ standalone solar lighting systems :**
  - ✓ **Two to five light points (around 9 W each) and**
  - ✓ **one to three sockets for operating electronic gadgets**
- **Size of micro grid: up to 10 kW & size of mini grid : from more than 10 kW to 500 kW per site**
- **The programme will be implemented by the MNRE/ State Governments through NGOs/NPOs/ PSUs/ company doing RE works/State Implementing Agencies/State Nodal Agencies (SNA)) involving village energy committee/village panchayat.**

Proposed CFA under REAP

- **CFA of up to 90% of the costs of the renewable electricity generation systems (including the cost of Annual Maintenance Contract (AMC) for 5 years) subject to the pre specified maximum amounts.**
  Funding can be from MNRE/other ministry

- **The balance cost of projects can be financed through contribution from respective State Government/CSR funds/entrepreneurs investment/loan/ beneficiaries contribution or other sources other than Government of India fund. However, it will be necessary that at least half of the balance cost is met from State Government's funding.**

- ***It is proposed to cover around 4 Lakh – 7 lakh households***

List of 50 worst effected Districts

Sl.No	State	District	
1	Bihar	Arwal	94.6
2	Bihar	Madhepura	93.91
3	Bihar	Seohar	92.71
4	Bihar	Araria	92.04
5	Bihar	Purbha Champaran	91.92
6	Bihar	Paschim Champaran	91.42
7	Bihar	Sitamarhi	90.54
8	Bihar	Katihar	89.86
9	Bihar	Siwan	89.49
10	Bihar	Nawada	89.3

List of 50 worst effected Districts

11	Bihar	Samatipur	89.3
12	Bihar	Jamui	88.57
13	Bihar	Vaishali	88.52
14	Uttar Pradesh	Saraswati	88.43
15	Bihar	Saharsa	88.42
16	Bihar	Supaul	88
17	Jharkhand	Grahwa	87.39
18	Bihar	Khagria	87.26
19	Bihar	Madhubani	86.98
20	Bihar	Aurangabad	86.89

List of 50 worst effected Districts

21	Odisha	Nabarangapur	86.79
22	Bihar	Purnia	86.34
23	Uttar Pradesh	Sitapur	86.33
24	Uttar Pradesh	Hardoi	85.37
25	Uttar Pradesh	Baharich	85.11
26	Jharkhand	Simdega	84.91
27	Bihar	Saran	84.65
28	Uttar Pradesh	Kanpur Dehat	84.23
29	Jharkhand	Chatra	84.08
30	Jharkhand	Sahibganj	84

List of 50 worst effected Districts

31	Bihar	Darbanga	83.77
32	Uttar Pradesh	Kausambi	83.77
33	Bihar	Jehanabad	83.72
34	Uttar Pradesh	Fatehpur	83.56
35	Bihar	Bhoipur	83.31
36	Bihar	Gopalganj	83.04
37	Bihar	Banka	83.03
38	Odisha	Kandhamal	82.85
39	Bihar	Gaya	82.75
40	Jharkhand	Gumla	82.69

List of 50 worst effected Districts

41	Bihar	Kishanganj	82.3
42	Jharkhand	Pakur	82.3
43	Jharkhand	Godda	82.24
44	Uttar Pradesh	Kheri	82.06
45	Odisha	Baudh	81.92
46	Uttar Pradesh	Balrampur	81.78
47	Uttar Pradesh	Unnao	81.77
48	Assam	Dhubri	81.76
49	Uttar Pradesh	Budaun	81.72
50	Odisha	Malkagiri	81.38

Thank You