

Re - Assessment of Biomass Availability for Generation of Power

**Meeting of Sub Group 2
Indo German Energy Forum**

**Ministry of New & Renewable Energy
Govt. of India
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Re - Assessment of Biomass Availability for Generation of Power

Biomass : Primarily means field residues of crops, residues of crop processing and residues of forest.

Municipal and Industrial Wastes, Animal Manure and Human Excreta etc. are taken as separately.

Potential

✚ Estimated Production of Crop, Agro industrial & Forest Residues	- 540 MT / yr
✚ Estimated Surplus Availability	- 120-150 MT / yr
✚ Power Generation Potential	- 16000 MW
✚ Cogeneration in Sugar Mills	- 5000 MW

Achievements as on 31st March 2014 - 4560MW

(15% of total RE Power - 31700 MW)

Biomass Resource Atlas of India

Developed Biomass Resource Atlas, available on <http://lab.cgpl.iisc.ernet.in/Atlas>.

Can respond to user specific queries and allow intelligent navigation in the atlas.

How it was Developed ?

- ✚ Electronic maps were built by merging Agro Statistical Data and Land Use Data based on Satellite Images; and
- ✚ Studied biomass usage patterns and embedded in projecting the surplus biomass potential for power generation;

Indian Biomass Atlas for the state of Haryana

BIOMASS RESOURCE ATLAS OF INDIA

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Biomass Assessment for the State of Haryana

State : **Haryana**



Haryana

- Demography
- National Highway
- State Highway
- Other Roads
- Rivers

Refresh

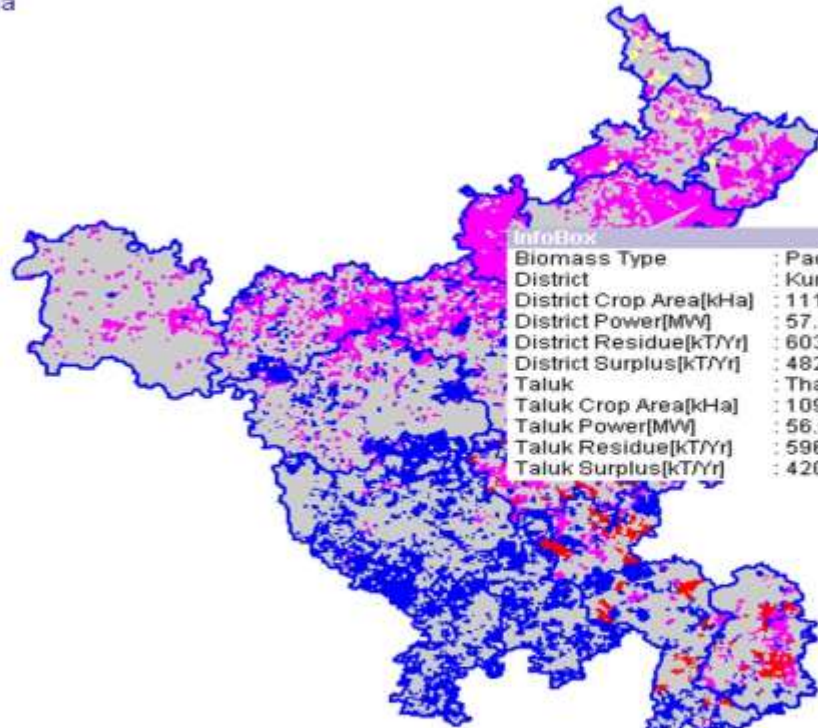
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Labels

DemographyCrop

Districts

Biomass Data in Map is currently for the year 2002-03.
A Project by MNRE, Undertaken by CGPL, IISc 2007



InfoBox	
Biomass Type	: Paddy
District	: Kurukshetra
District Crop Area[kHa]	: 111.20
District Power[MW]	: 57.38
District Residue[kT/Yr]	: 603.65
District Surplus[kT/Yr]	: 482.92
Taluk	: Thanesar
Taluk Crop Area[kHa]	: 109.84
Taluk Power[MW]	: 56.68
Taluk Residue[kT/Yr]	: 596.28
Taluk Surplus[kT/Yr]	: 420.90



Demography **Kharif** Rabi Perennial Forest and Wasteland NBPI Installations

LEGENDS: [Kharif](#) | [Rabi](#) | [Perennial](#) | [Forest and Wasteland](#)

Notes: Forest and Wasteland Distribution is based on Statistics published by FSI and NRSA. Species in Wasteland are con of Forest Plants for the Year 1999-2000.

NBPI- Normalised Biomass Production Index (NBPI) is a factor computed at District level for Biomass Surplus Production. The image indicates a region of high Biomass availability where as the red end of the color spread indicates lowest biomass availability in each district. The biomass availability centers should be looked at district level and not at state level as a whole.

Legends

	Paddy	: 980.66kHa
	Bajra	: 574.64kHa
	Jowar	: 90.61kHa
	Maize	: 13.4kHa

Residue wise Biomass Data Sample

Based on MoA Statistical data

Residue-wise Biomass Data - State : Haryana ; Year : 2003-04 ; Season : Agro-Kharif						
Crop	Residue	Crop Area (kHa)	Crop Production (kT/Yr)	Biomass Generation (kT/Yr)	Biomass surplus (kT/Yr)	Power Potential (MWYre)
Paddy	Straw	1206.4	3628.0	5442.0	4353.6	522.4
Paddy	Husk	1206.4	3628.0	725.6	580.5	63.9
Bajra	Cobs	582.8	930.0	306.9	153.5	19.9
Bajra	Husk	582.8	930.0	279.0	69.8	8.4
Bajra	Stalks	582.8	930.0	1860.0	372.0	48.4
Jowar	Stalks	77.1	17.0	28.9	2.9	0.4
Jowar	Cobs	77.1	17.0	8.5	1.7	0.2
Jowar	Husk	77.1	17.0	3.4	1.7	0.2
Maize	Stalks	11.8	26.0	44.2	4.4	0.6
Maize	Cobs	11.8	26.0	7.8	3.9	0.5
Total		1878.1	4601.0	8706.3	5543.9	664.9

National Biomass Data

Biomass Type	Area (kHa)	Biomass Generation (kT/Yr)	Biomass Surplus (kT/Yr)	Power Potential (MWYre)
Agro Biomass	143540.9	511041	145027	18728.7
Forest & Wasteland Biomass	118822.9	155474	104047	14566.6
Total	262363.8	666515	249074	33295.3

Need for Periodic Updation

Assessment for surplus availability of biomass, dynamic, mainly depends on change in cropping patterns and competing uses - directly linked with increased in price of fossil fuels. Hence, periodic review necessary.

Suggested Area of Cooperation

Development of necessary methods and / or factors for correction in respect of availability of surplus biomass for power generation for 2-3 states.

German Biomass Research Center (DBFZ)

Detailed proposal containing scope of the study, timelines and cost is being developed by Dr. Andre Brosowski, Bioenergy System Dept. of DBFZ.

**Thank You
for
Your Attention**

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