

# Estimation of Land Requirement for emergent sectors

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# Agri-Fuel

Based on the plans made by the respective State Biofuel authorities, we can realistically take 10% of the JFM areas (14 million hectare) the forest land targeted for Jatropha plantation comes to around 1.4 million hectare. Similarly under Integrated Watershed Development and other poverty alleviation programmes of Ministry of Rural Development a potential of 2 million hectare of plantation is assessed. On vast stretches of public lands along railway tracks, roads and canals. One million hectare of notional coverage with *Jatropha curcas* is a reasonable assessment. So the total area targeted for jatropha plantation is around 4.4 million hectares.

The MNRE Report on Bioenergy shows that the potential of biopower could be increased substantially if linked with dedicated plantation on forest and non-forest degraded lands could be initiated. It is possible to generate about 5,000-6,000 MW power from raising dedicated plantations on about 2 million hectare forest and non-forest degraded lands.

Sectors	Sub-sector	Current Area 2011	Estimated Requirement	Additional Required
Agri-Fuel (Estimation for 2026)	Jatropha	500000	4400000	3900000
	Bio-Power	273700	2000000	1726300
		773700	6400000	5626300

Sources:

Biofuels in India: Potential, Policy and Emerging Paradigms National Centre for Agricultural Economics and Policy Research, April 2012

Estimate Figures for Jatropha includes common lands from forest (10% of JFM areas, wastelands and other public land) Report of The Working Group on Power for Twelfth Plan (2012-17)

MNRE report in Bioenergy Mission <http://www.eai.in/club/users/Shweta/blogs/7498>

Bio-power includes dedicated plantations proposed for 12 & 13 Five year Plans

# Infrastructure

Looking at the past trends of expansion of different types of roads and the projected growth rate the area under road projects will reach to 31.1 million hectares by 2025. The additional land requirement will be about 1.3 million hectares.

Major reservoirs covering about 2.9 million hectares, after considering the current water demand and projected water demand for 2025, it is estimated the area under reservoirs will increase by about 34.5% and reach to 3.9 million hectares. It indicates that about 1 million hectares will be required in next 15 years.

Till date 588 SEZ were approved by the government and the total area under these SEZ's is about 86,000 hectares. As per the plans and projections the area under SEZ will increase to 1,50,000 hectares. Hence about 63,000 hectares of land will be required for upcoming SEZ's.

Sectors	Sub-sector	Current Area 2011	Estimated Requirement	Additional Required
Infrastructure (Estimation for 2026)	Roads	1816355	3117000	1300645
	Dams	2907000	3908171	1001171
	SEZs	86107	150000	63893
		4809462	7175171	2365709

Sources:

Basic Road Statistics of India Gol, Ministry of Road Transport & Highways (Transport Research Wing), New Delhi JULY 2010  
Water and Related Statistics, Water Resources Information System Directorate, Central Water Commission, 2010

Report of the working group on Water Resources for the 11 five year plan  
India's Water Supply and Demand from 2025-2050: Business- as- Usual Scenario and Issues: Upali A. Amarasinghe, Tushaar Shah, and B.K.Anand

SEZs and Land Acquisition: Factsheet for an Unconstitutional Economic Policy, Citizens' Research Collective, New Delhi  
[www.sezindia.nic.in/writereaddata/pdf/listofformalapprovals.pdf](http://www.sezindia.nic.in/writereaddata/pdf/listofformalapprovals.pdf)

## Extractive Activities (Mining)

India has accorded great importance to mining in its industrial development and overall growth of the country. Contribution of fuel minerals in GDP in mining sector during 2008-09 was 54%, metallic minerals 28%, non-metallic minerals 2% and minor minerals 16%.

The total area under mining is about 6.5 lac hectares and it is estimated that in coming 15 years it will increase almost 4 fold to reach 2.38 million hectares. So the additional land requirement for mining purposes will be about 1.73 million hectares by 2025.

Sectors	Sub-sector	Current Area 2011	Estimated Requirement	Additional Required
Extractive Activities (Estimation for 2026)	Coal	147000	535445	388445
	Iron	88065	320775	232710
	Bauxite	30059	109489	79430
	Limestone	144979	528083	383104
	Other Minerals	244301	889862	645561
			654404	2383654

Sources:

Report of the Working Group Mineral Exploration and Development 12 Five Year Plan Existing mining area figures were taken from the Indian Minerals Yearbook 2010, IBM, 2011. The estimation for 2025 is made on the basis of 9% growth rate mentioned in the Report of the Working Group Mineral Exploration and Development 12 Five Year Plan document

## Non-Conventional Energy

As per the available data about wind and solar energy projects, the current installed capacity is 14,157 and 38 MW respectively. To get the area covered by these projects calculation has been done on the basis of land requirement for wind farms @ 12 ha/MW, similarly for solar power it is @ 2 ha/MW (5 acre per MW). So the current area is 1,80,000 and 76 hectares. The estimation of area requirement is calculated for the proposed capacities of 45,000 and 50,000 MW by wind and solar projects. The area required by these projects by the year 2032 will be 6,40,000 hectares (5,40,000 and 1,00,000 hectares respectively)

Sectors	Sub-sector	Current Area 2011	Estimated Requirement	Additional Required
Non Conventional Energy (Estimation for 2032)	Wind	180000	540000	360000
	Solar	76	100000	99924
		180076	640000	459924
<b>Total</b>		6511266	17958825	11447559

Sources:

Report of The Working Group on Power for Twelfth Plan (2012-17)  
The estimation is made on the basis of potential figures given in the Report of The Working Group on Power for Twelfth Plan (page 28 of chapter 1). The area calculation done on the basis of information from the link [pib.nic.in/release/release.asp?relid=33144](http://pib.nic.in/release/release.asp?relid=33144). It mentioned that land requirement of wind farms @ 12 ha/MW, similarly for solar power it is @ 2 ha/MW (5 acre/MW)

Thanks