



Potential CDM Projects in Indonesia



CDM Forestry in Indonesia

1. West Sumatera (Sumbar) Province

Project title #1	Rehabilitation of grassland (padang alang-alang) through industrial timber plantation
Project location	Pasaman District
Potential CDM-eligible land	237,000 ha
Total area proposed for the project	36,700 ha
Current land use	Grass land with total biomass of about 10–15 tonnes per ha
Land ownership	Mostly is <i>adat</i> land (community lands)
Potential species	Preferred species are mahogany, surian (<i>Toona sureni</i>) for hard wood production or fast growing species for pulp/paper industry
Rotation	10 years for fast-growing species and 20–30 years for slow-growing species
Mean annual increment	8–15 m ³ /ha/yr for fast growing species and 3–8 m ³ /ha/yr
Fire risks	Medium
Proponents of the projects	Local communities in collaboration with private companies
Role of local government	Facilitate the process of making agreement and project development
Statement of interest	Community is willing to participate in the program as long as the process is transparent
Project title #2	Reforestation of degraded lands in Singkarak Lake watershed for carbon sequestration, soil water conservation, and economic improvement
Project location	Critical land surrounding the Singkarak Lake in Solok and Tanah Datar districts. Annual rainfall in surrounding Singkarak Lake is between 1,661 and 1,855 mm, with three dry-months (dry month is a month with rainfall of less than 100 mm), i.e., June, July, and August.
Potential CDM-eligible land in the two districts	82,000 ha
Total area proposed for the project	18,000 ha
Current land use	Grassland and bare land
Land ownership	Mostly community land (<i>adat</i> land)
Potential species	<ul style="list-style-type: none"> • Lowland and foothills of the northern part of the lake with relatively high precipitation. The plant species suitable are: coffee, chocolate, cinnamon, nilam, pepper, teak, mahogany, meranti, and <i>Acacia mangium</i>. • Foothills of the southern and eastern part with a relatively dry area. The plant species suitable are: candle nuts, jambu mente, melinjo, pinang, pepper, teak, <i>Acacia mangium</i>, mahogany, manggostin, and durian. • Foothill of the western part with relatively high precipitation. The plant species suitable are: coffee, clove, pala, melinjo, vanili, pepper, aren, teak, mahoni, meranti, cinnamon, durian, sawo, and mangga.
Rotation	40 years for fruit trees, 10 years for fast growing species, and 30 years for slow growing species
Mean annual increment	2–3 tonnes C/ha/yr for fruit-tree based agroforest, 4–7 tC/ha/yr for fast growing species, and 2–5 tC/ha/yr for slow growing species
Fire risks	Low
Proponents of the projects	Village government and traditional/custom institutions
Role of local government	Facilitate the process of making agreements and project development. At present, a project called RUPES (Rewarding Upland Poor for Environmental Services) is underway. The project is to assist the community to develop local institutional system for environmental service reward distribution.
Statement of interest	Local government, head of Nagaris, surrounding Singkarak Lake, and community leaders have signed an agreement to work together to accelerate the rehabilitation of the lake.
Local NGOs	There are NGOs working at the site with the community in establishing a program

2. South Sumatera (Sumsel) Province

Project title #3	Reforestation abandoned "transmigrant" land through industrial timber plantation development
Project location	Lahat District Annual rainfall is between 1,500 and 2,500 mm with eight dry months (April–November) and four wet months (December–March). Monthly rainfalls during dry months are between 92 and 187 mm, while between 200 and 278 mm during wet months. Number of rainy days in dry months is between 6–13 days and in wet months between 10–25 days. Maximum temperature ranges between 29.2°C and 33.8°C, and minimum temperature between 22.8°C and 23.2°C. Main soil types are alluvial, latosol, and podsol. Organic contents and permeability is low, and effective soil depth is about 60–90 cm.
Potential CDM-eligible land in the two districts	400,000 ha
Total area proposed for the project	16,000 ha
Current land use	Grassland and abandoned land
Land ownership	Community land (transmigrant land)
Potential species	<i>Acacia spp.</i>
Rotation	6 years
Mean annual increment	7 tC/ha/yr
Fire risks	Medium
Proponents of the projects	Local community in partnership with an industrial timber company. Company has good experience in developing partnerships with local communities.
Role of local government	Facilitate the process and act as witness during the signing of the land-use agreement between the farmers (transmigrants) and the company.
Statement of interest	Local communities are willing to share their land with the company to be used for industrial timber plantation with the benefits of a sharing system.
Local NGOs	The company has developed a network with NGOs, particularly in assisting the company in implementing community development programs. The NGOs involved are Yayasan Kaffah, Hikmah Cooperative, and Pondok Pesantren Raudhatul Ulum.

3. Lampung Province

Project title # 4	Reforestation degraded land using fruit-tree based agroforestry system
Project location	West Lampung District Annual rainfall ranges between 1,500–2,100 mm. Months with rainfall of less than 100 mm last between 2–5 months (between May to October)
Potential CDM-eligible land	95,000 ha
Total area proposed for the project	3,500 ha
Current land use	Shrubs/thickets (bush) and dry grassland with annual growth rate of less than 0.5 tC/ha/yr
Land ownership	Community lands
Potential species	Durian, jackfruit, cempedak, kemiri, pinang
Rotation	40 years
Mean annual increment	2–3 tC/ha/yr
Fire risks	Low
Proponents of the projects	Local community in collaboration with a local NGO
Role of local government	Facilitate the process
Statement of interest	-
Local NGO	Lampung is one of the working areas of the ICRAF. A number of agroforestry projects as an alternative to slash-and-burn have been tested.

CDM Forestry in Indonesia

4. Jambi Province

Project title # 5	Reforestation of an abandoned wetland at Rantau Rasau
Project location	Tanjung Jabung Timur, Jambi Province Annual rainfall ranges between 2,200 and 3,000 mm. Months with rainfall of less than 100 mm occur for three months (July –September)
Potential CDM-eligible land	240,000 ha
Total area proposed for the project	1,000 ha of abandoned wetland (organosol) since the 1970s at Rantau Rasau, Tanjung Jabung Timur
Current land use	Shrubs-thickets (bush) with a biomass of about 5 tC/ha.
Land ownership	Community lands
Potential species	<i>Acacia spp.</i>
Rotation	10 years
Mean annual increment	2–4 tC/ha/yr
Fire risks	Low
Proponents of the projects	Local community in partnership with an industrial timber company. Company has good experience in developing partnerships with the local community.
Role of local government	Facilitate the process and act as witness during the signing of the land-use agreement between communities and the company
Statement of interest	Local communities are willing to share their land with the company to be used for industrial timber plantation in a benefits-sharing system.
Local NGO	The company has developed a network with NGOs, particularly in assisting the company in implementing community development programs, such as training on use of a cooperative system. The NGOs involved are Elang Gunung (ELGUN) and PALEM.

5. South Kalimantan (Kalsel) Province

Project title # 6	Reforestation of degraded land with a rubber-based agroforest and timber plantation
Project location	Banjar Baru District Annual rainfall ranges between 1,900–2,500 mm. Months with rainfall of less than 100 mm last less than four months (between July and October)
Potential CDM-eligible land	142,000 ha
Total area proposed for the project	15,000 ha
Current land use	Dry grassland with annual growth rate of less than 0.5 tC/ha/yr.
Land ownership	State lands
Potential species	50% with Meranti and 50% with rubber
Rotation	30–40 years
Mean annual increment	3–5 tC/ha/yr
Fire risks	High
Proponents of the projects	Forest office in collaboration with local NGOs and the local community
Role of local government	Involved in designing and implementing the A/R CDM project
Statement of interest	-
Local NGO	-

6. South-East Sulawesi (Sultra) Province

Project title # 7	Reforesting degraded land and grassland surrounding Rawa Aopa Watumohai National Park		
Project location	Rawa Aopa Watumohai National Park, Bombana and Konawe Selatan districts Annual rainfall ranges between 1,500 and 2,000 mm		
Potential CDM-eligible land	About 700,000 ha		
Total area proposed for the project	43,000 ha		
Current land use	Dry farming and grassland with a biomass of about 5 tC/ha.		
Land ownership	Community land		
Potential species	Cashew nut base agroforest	Grassland	20,000
	Cacao-based agroforest with shade trees	Dry farming	10,000
	Fruit tree agroforest	Grassland	5,000
	Multi-purpose trees species	Dry farming	8,000
	Total		43,000
Rotation	30–40 years		
Mean annual increment	3–5 tC/ha/yr		
Fire risks	Medium		
Proponents of the projects	Local community in partnership with NGOs		
Role of local government	Local government will be involved in the process of preparing the project design		
Statement of Interest	Rehabilitation of degraded land has been one of the development priorities of the local government		
Local NGO	A good network between communities, local government, and NGOs has been established. CARE International has been working with communities for five years.		

7. Kuningan (West Java) Province

Project title # 8	Reforesting degraded land in Kuningan District through community participation		
Project location	Village of Cileuya, Kuningan District Annual rainfall ranges between 2,000 and 4,000 mm		
Potential CDM-eligible land	About 15,721 ha consists of 5,844 ha of bare land, 2,300 ha of wild rangeland or grassland, and 7,577 ha of unproductive land		
Total area proposed for the project	2,500 ha		
Current land use	Bare land, unproductive agriculture land and grassland with a biomass of about 10 tC/ha.		
Land ownership	Community land and state forest land		
Potential species	- Teak 150 ha/yr - Pine 100 ha/yr - Annual crops during the first three years period		
Rotation	10–15 years		
Mean annual increment	3–5 tC/ha/yr		
Fire risks	Medium		
Proponents of the projects	Local community in partnership with NGOs		
Role of local government	Local government will be involved in the process of preparing the project design		
Statement of Interest	Rehabilitation of degraded land has been one of the development priorities of the local government		
Local NGO	A good network between communities, local government, and NGOs has been established.		



List of Potential CDM Projects

No	Project Name	Project Developer	Location	Potential CERs Annually
1.	Utilization of Palm Oil Mill Effluent - Avoiding CH4 & CO2 Emission	PT. Agrical	Bengkulu	31,469 ton CO2eq
2.	Tambali Hydropower Project, 5x5 MWe	PT. Bukaka	South East Sulawesi	70,000 - 100,000 ton CO2eq
3.	Wood-waste Biomass to Electricity for a Furniture workshop	PT. Gikoko Kogyo Indonesia	West Java	1900 ton CO2eq
4.	Pontianak Biomass Waste to Electricity for a Plywood	PT. Gikoko Kogyo Indonesia	West Kalimantan	38.385 ton CO2eq
5.	3 MW Rice Husk Power Plant	PT. Lunto Bioenergi Prima	Lampung	20,869 - 32,877 ton CO2eq
6.	10.3 MWe (net) Palm Oil Mill Residue Power Plant	PT. Lunto Bioenergi Prima	Riau, Sumatera	76,700 - 122,139 ton CO2eq
7.	Landfill gas utilization project in Surabaya	YONDEN (Shikoku Electric Power Co. Inc.)-Japan	Surabaya, East Java	
8.	Bio-Diesel Fuel Production Municipal Solid Waste on Energy Project in Sidoarjo	Pacific Consultants Int'l (consultant)	Sidoarjo, East Java	1.7 kt-CO2eq
9.	Rajamandala Hydroelectric Power Project	Mitsubishi Securities (consultant)	Rajamandala	
10.	Bantar Gebang LFG Collection & Power Generation CDM Project	PT. PJB - Business Devt Unit	Bekasi, West Java	138 kt CO2eq
11.	Utilization of Micro Hydro Electric Power in Siteki -Central Java	PETPSE - BPPT	Siteki - Central Java	
12.	Lahendong Geothermal Power Plant	PT. PLN		
13.	Muara Karang Repowering	PT. PJB - Business Devt Unit;	Muara Karang, Jakarta	
14.	Renewable Energy Supply Systems (RESS)	E.7 Handed over to GOI in March 2001	East Nusa Tenggara (NTT) and South Sulawesi	1,230 t CO2eq
15.	Paper Sludge and Solid Waste Recycling for Steam Generation	NEDO (Japan) and MOIT/PT. Fajar Surya Wisesa	Bekasi, West Java	91,000 t CO2eq
16.	Eastern Indonesia Hybrid Energy Project	AESL/IGPO/EFIC/AAID (Australia) and BPP Teknologi	South Sulawesi	1,046 t CO2eq
17.	Renewable Energy Training/Demonstration Project Kemiri	CASE/IGPO/AAID (Australia) and LIPI (Indonesia)	Irian Jaya (Papua)	64 t CO2eq
18.	Reduction of GHG through Landfill Resource recovery and utilization	CASE/IGPO (Australia) and Municipality of Ujung Pandang/PT. Sumber Day Interns (Indonesia)	Makassar, South Sulawesi	4,790 t CO2eq
19.	The Project for Power Plant Thermal Efficiency Improvement/recovery through Enhanced Operational Management Suralaya, Power Plant	CEPCO MITI (Japan) and PLN PJB 1/min of Energy and Mineral Resources (Indonesia)	West Java	30,000,000 t CO2eq
20.	New Cooling System in Cement Clinker	NEDO (Japan) and MIOT/PT. Semen Cibinong	West Java	52,000 t CO2eq
21.	Solid Waste and treatment and recycling and CH4 emission capture	NEDO (Japan)	Ponogoro, East Java	20,417 t CO2eq
22.	Heat Recovery unit at PTBA power plant, Tanjung Enim	PT BA power plant	South Sumatera	2,000,000 t CO2eq
23.	Solar Desalination	Denmark	Jakarta	
24.	CNG for transport. Implementation in 8 major cities (fuel switching)		8 major cities	192,000 t CO2eq
25.	Green House Gas Reduction Program	The Center of Transportation and Logistics Studies, Gadjah Mada University/Yogyakarta Urban Bus Cooperatives (KOPATA)/Road Traffic and Transport Office of the city of Yogyakarta. Collectively known as Yogyakarta Urban Transport Alliance	Yogyakarta	2,105 t CO2eq
26.	159 kwh/day hybrid power generation system for rural electrification	Australia	Waimena, Irian Barat (Papua)	86 t CO2eq
27.	Heat recovery unit at PLN Suralaya Power Plant		West Java	30,000,000 t CO2eq
28.	10 MW Geothermal power plant (Ulumbu)	PLN	East Nusa Tenggara	72,238 t CO2/year (Coal); 42,574 t CO2/year (Avg. energy mix)
29.	Lampung methane capture and power generation tapioca industry	PT Unitrada Komutama Panya Siregar psiregar@cbn.net.id Jl. Kyai Maja No. 4, Kebayoran Baru, Jakarta 12120 Ph. (62) (21) 727 86844 Fax. (62) (21) 727 86835	Lampung	80.000 t CO2eq
30.	Lampung cassava bio-ethanol methane capture and power generation	PT Unitrada Komutama Panya Siregar psiregar@cbn.net.id	Lampung	250,000- 300,000 t CO2eq
31.	Municipal waste to energy in Supit Urang, Malang	Yayasan Citra Bangun Indonesia Pitono Nugroho Aldhi_ycbi@telkom.net Jl. Sidosermo II Blok I No. 9 Surabaya 60239 Ph. (62) (812) 3098619 PT Bioenergi Surya Persada	Malang, East Java	30,000- 100,000 t CO2eq
32.	Municipal waste to energy in Surabaya	Yayasan Citra Bangun Indonesia Pitono Nugroho Aldhi_ycbi@telkom.net PT Bioenergi Surya Persada	Surabaya, East Java	17,000 t CO2eq

Distribution of potential eligible land for Afforestation and Forestation CDM project activities in Indonesia (MoF,2003)



NAD
 Inside Forest Area:
 Not Priority: 392,200 ha
 Priority : 414,400 ha
 Outside Forest Area
 Not Priority: 453,400 ha
 Priority : 567,000 ha

Riau
 Inside Forest Area:
 Not Priority: 964,900 ha
 Priority : 930,300 ha
 Outside Forest Area
 Not Priority: 11,700 ha
 Priority : 6,400 ha

Jambi
 Inside Forest Area:
 Not Priority: 228,800 ha
 Priority : 11,800 ha
 Outside Forest Area
 Not Priority: 680,300 ha
 Priority : 105,400 ha

South Sumatera
 Inside Forest Area:
 Not Priority: 2,148,300 ha
 Priority : 1,162,500 ha
 Outside Forest Area
 Not Priority: 3,942,200 ha
 Priority : 1,659,500 ha

West Kalimantan
 Inside Forest Area:
 Not Priority: 4,900 ha
 Priority : 3,816,800 ha
 Outside Forest Area
 Not Priority: 0 ha
 Priority : 25,800 ha

Central Kalimantan
 Inside Forest Area:
 Not Priority: 1,254,800 ha
 Priority : 1,112,800 ha
 Outside Forest Area
 Not Priority: 1,322,000 ha
 Priority : 1,930,200 ha

South Kalimantan
 Inside Forest Area:
 Not Priority: 278,300 ha
 Priority : 138,400 ha
 Outside Forest Area
 Not Priority: 380,100 ha
 Priority : 171,500 ha

East Kalimantan
 Inside Forest Area:
 Not Priority: 0 ha
 Priority : 1,907,000 ha
 Outside Forest Area
 Not Priority: 0 ha
 Priority : 2,255,000 ha

North Maluku
 Inside Forest Area:
 Not Priority: 382,800 ha
 Priority : 23,800 ha
 Outside Forest Area
 Not Priority: 98,800 ha
 Priority : 5,200 ha

North Sumatera
 Inside Forest Area:
 Not Priority: 551,200 ha
 Priority : 515,600 ha
 Outside Forest Area
 Not Priority: 256,300 ha
 Priority : 460,800 ha

West Sumatera
 Inside Forest Area:
 Not Priority: 387,400 ha
 Priority : 187,700 ha
 Outside Forest Area
 Not Priority: 629,800 ha
 Priority : 341,200 ha

Bangka
 Inside Forest Area:
 Not Priority: 148,200 ha
 Priority : 501,200 ha
 Outside Forest Area
 Not Priority: 232,500 ha
 Priority : 835,300 ha

Bengkulu
 Inside Forest Area:
 Not Priority: 353,800 ha
 Priority : 354,100 ha
 Outside Forest Area
 Not Priority: 405,400 ha
 Priority : 439,600 ha

Lampung
 Inside Forest Area:
 Not Priority: 457,200 ha
 Priority : 1,044,100 ha
 Outside Forest Area
 Not Priority: 659,300 ha
 Priority : 1,296,500 ha

West Java
 Inside Forest Area:
 Not Priority: 346,800 ha
 Priority : 561,100 ha
 Outside Forest Area
 Not Priority: 495,000 ha
 Priority : 723,800 ha

Central Java
 Inside Forest Area:
 Not Priority: 871,600 ha
 Priority : 258,900 ha
 Outside Forest Area
 Not Priority: 1,013,200 ha
 Priority : 232,300 ha

East Java
 Inside Forest Area:
 Not Priority: 576,000 ha
 Priority : 457,700 ha
 Outside Forest Area
 Not Priority: 843,400 ha
 Priority : 655,900 ha

West Nusa Tenggara
 Inside Forest Area:
 Not Priority: 171,200 ha
 Priority : 25,800 ha
 Outside Forest Area
 Not Priority: 331,800 ha
 Priority : 60,600 ha

East Nusa Tenggara
 Inside Forest Area:
 Not Priority: 375,500 ha
 Priority : 285,900 ha
 Outside Forest Area
 Not Priority: 765,300 ha
 Priority : 614,600 ha

South Sulawesi
 Inside Forest Area:
 Not Priority: 280,900 ha
 Priority : 303,400 ha
 Outside Forest Area
 Not Priority: 708,200 ha
 Priority : 658,000 ha

Central Sulawesi
 Inside Forest Area:
 Not Priority: 106,900 ha
 Priority : 199,300 ha
 Outside Forest Area
 Not Priority: 307,100 ha
 Priority : 331,900 ha

Maluku
 Inside Forest Area:
 Not Priority: 729,900 ha
 Priority : 73,200 ha
 Outside Forest Area
 Not Priority: 91,100 ha
 Priority : 0 ha

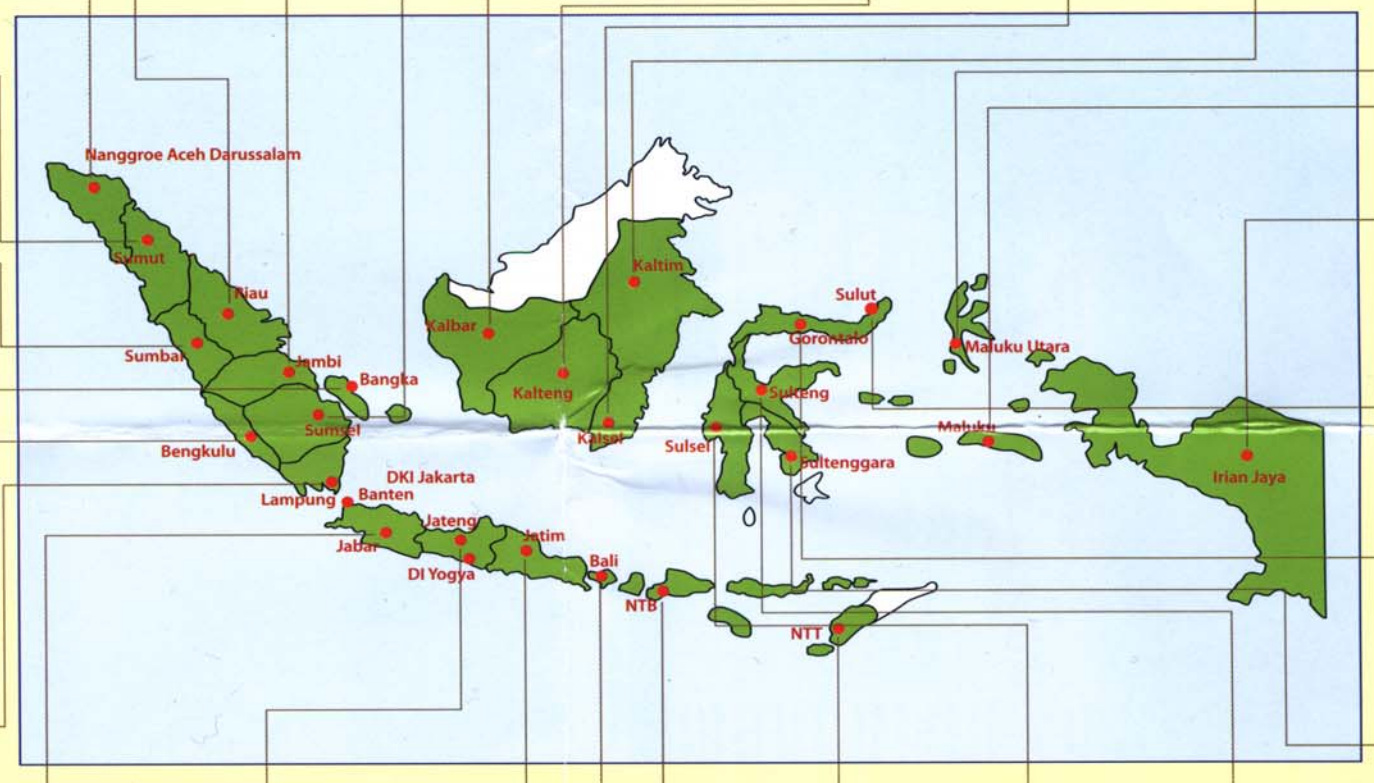
Papua
 Inside Forest Area:
 Not Priority: 19,400 ha
 Priority : 2,515,300 ha
 Outside Forest Area
 Not Priority: 400 ha
 Priority : 158,400 ha

North Sulawesi
 Inside Forest Area:
 Not Priority: 80,600 ha
 Priority : 38,800 ha
 Outside Forest Area
 Not Priority: 210,900 ha
 Priority : 182,000 ha

Gorontalo
 Inside Forest Area:
 Not Priority: 17,400 ha
 Priority : 52,100 ha
 Outside Forest Area
 Not Priority: 39,700 ha
 Priority : 139,100 ha

South East Sulawesi
 Inside Forest Area:
 Not Priority: 255,800 ha
 Priority : 35,500 ha
 Outside Forest Area
 Not Priority: 352,600 ha
 Priority : 23,100 ha

Bali
 Inside Forest Area:
 Not Priority: ha
 Priority : ha
 Outside Forest Area
 Not Priority: ha
 Priority : ha



West Java
 Inside Forest Area:
 Not Priority: 346,800 ha
 Priority : 561,100 ha
 Outside Forest Area
 Not Priority: 495,000 ha
 Priority : 723,800 ha

Central Java
 Inside Forest Area:
 Not Priority: 871,600 ha
 Priority : 258,900 ha
 Outside Forest Area
 Not Priority: 1,013,200 ha
 Priority : 232,300 ha

East Java
 Inside Forest Area:
 Not Priority: 576,000 ha
 Priority : 457,700 ha
 Outside Forest Area
 Not Priority: 843,400 ha
 Priority : 655,900 ha

West Nusa Tenggara
 Inside Forest Area:
 Not Priority: 171,200 ha
 Priority : 25,800 ha
 Outside Forest Area
 Not Priority: 331,800 ha
 Priority : 60,600 ha

East Nusa Tenggara
 Inside Forest Area:
 Not Priority: 375,500 ha
 Priority : 285,900 ha
 Outside Forest Area
 Not Priority: 765,300 ha
 Priority : 614,600 ha

South Sulawesi
 Inside Forest Area:
 Not Priority: 280,900 ha
 Priority : 303,400 ha
 Outside Forest Area
 Not Priority: 708,200 ha
 Priority : 658,000 ha

Central Sulawesi
 Inside Forest Area:
 Not Priority: 106,900 ha
 Priority : 199,300 ha
 Outside Forest Area
 Not Priority: 307,100 ha
 Priority : 331,900 ha

Bali
 Inside Forest Area:
 Not Priority: ha
 Priority : ha
 Outside Forest Area
 Not Priority: ha
 Priority : ha

Indonesian Provincial Potential Energy Resources Distribution (YBUL 2003)



Remarks:

- Sources:
 1. Master Plan Study of Renewable Energy in Indonesia (RIPEBAT)
 2. National Electricity General Plan (RUKN) 2004
- | Resource | Unit | Unit |
|----------|-------------|-------------------------|
| H | Hydro | MW |
| G | Geothermal | Mwe |
| BM | Biomass | MW |
| BG | Biogas | MW |
| W | Wind | m/s |
| PV | Solar | kWh/m ² /day |
| C | Coal | Mton |
| P | Peat | 109MJ |
| NG | Natural Gas | TSCF |
| O | Oil | MBarrel |

Representative of National Committee on CDM
of the Republic of Indonesia

1. State Ministry of The Environment (Head of Committee)
2. Ministry of Energy & Mineral Resources
3. Ministry of Forestry
4. Ministry of Industry
5. Ministry of Foreign Affairs
6. Ministry of Home Affairs
7. Ministry of Transportation
8. Ministry of Agriculture
9. The Ministry of National Development Planning



National Committee on CDM of the Republic of Indonesia

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