

The Energy Revolution of the 21st Century

Account of Interaction in
Paris



Centre Internationale de Recherche sur l'Environnement et le Developpement

The International Centre for
Research on Environment
and Development
CIRED



Global Environmental Issues

- Ozone
- Acid Rain
- Climate Change
- Public Policy with reference to: energy; waste; transport; water; food etc.

Crucial Areas

- Energy
- Urban and Rural Infrastructures:
communication and water networks
- Agriculture and Forestry Activities

CIRED Functions

- Research
- Educational Programme: Individual lectures; Masters classes
- Partnerships with industrial organizations (particularly EDF)
- Public Policy Support: International Energy Agency; European Commission; ADEME
- Contribution to Public Debates: Inter-ministerial group on climate change and economic impact
- International Collaborators: Universities of Stanford, Maryland, MIT, Rio de Janeiro, Indian Institute of Management, Ahmedabad; and institutes at Madrid, Berlin and Algeria

Strength

- Researchers on premises: 40
- Affiliated Professors: 5
- Associate Researchers: 7
- Post-doctoral researchers: 3
- Research Engineers: 6
- Assistant Engineers: 4
- Dissertation Supervision: 23 PhD students
- Administrative Staff: 2

Scholars/Development Protagonists whom I met

- Pierre Matarasso, Scientific Director Sustainable Development Deptt. **CNRS**
- Florian-Externe Castagno, President EDF
- Cyril Loisel, Coordinator of Energy/Climate Programme, IDDRI
- Christophe de Gouvello, former Research Director, CIRED
- GRET

Discussions Held With

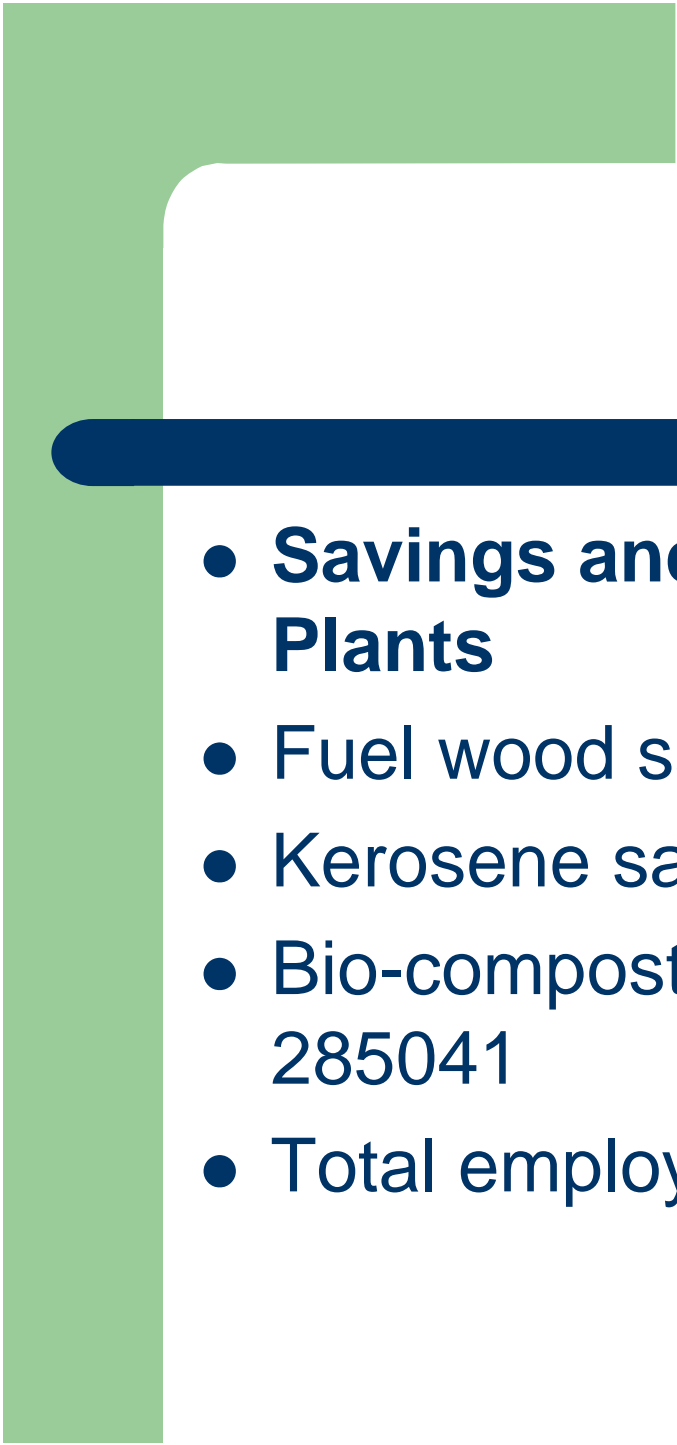

- Daniel Terry
- Franck Nadaud
- Alain Nadai
- Mariam Shariff
- Andre Santos Peraira
- Dominique Finon
- Jean-Charles Hourcade, Director CIRED

Plant Feeding, Gas Production & Stove Burning Hours

Plant Size M3	Initial Dung Feed, kg	Daily Dung Feed, Kg (@6-7.5 Kg Dung/M3 Plant Size)	No. of Cow Required (@12 Kg Dung/Cow)	Daily Water Feed, Litres	Daily Gas Produced, Lt. (@40 Lt./Kg Dung)	Daily Stove Burning Hrs. (@400Lit/Hr)
4	2,025	24-30	2-3	24-30	960	2:24
6	2,900	36-45	3-4	36-45	1,440	3:36
8	3,930	48-60	4-5	48-60	1,920	4:48
10	4,490	60-75	5-6	60-75	2,400	6:00

Quantity of main construction materials:

Plant Size M3	No. of Cement bag (@50kg/bag)	Stone quantity, M3 (Or Bricks, in Number)	Gravel in No. of Cement Bag	Sand in No. of Cement Bag	Paint, in Litre
4	11-12	3.5 (1,200)	30	60	1.0
6	13-14	4.5 (1,400)	35	70	1.0
8	15-16	6.5 (1,700)	40	80	1.5
10	19-21	8.0 (2,000)	50	90	2.0

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- **Savings and Generation from Biogas Plants**
 - Fuel wood saving (tones/year) - 335,344
 - Kerosene saving (liters/year) - 5,365,258
 - Bio-compost fertilizer produced (tons/year) - 285041
 - Total employment in biogas sector- 11,000

Triple Goal of National/International Public Policies

- 1. Reducing the profile of energy demand
- 2. Increasing efficiency both in production and final use of energy sources
- 3. Substituting fossil energy sources for renewable ones without getting rid of “clean” use of abundant fossil energy sources (for instance, coal) through sequestration of greenhouse gasses