



CENTRO INTERDIPARTIMENTALE PER LA
RICERCA INDUSTRIALE ENERGIA - AMBIENTE

CENTRO INTERDIPARTIMENTALE PER LA
RICERCA NELLE SCIENZE AMBIENTALI



ENVIRONMENTAL MANAGEMENT RESEARCH GROUP

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The Environmental Management Research Group is active in the fields of:

Sustainability: LCA of plants and processes in the bio-based business sector, Global Reporting Initiative (GRI) scheme, GHG savings according to Dir. 2009/28/CE applied to bioenergy projects and plants.

Compliance: Consultancy about authorizations and permit procedures.

Risk analysis and assessment: Environmental economics, sustainable development, public finance, probabilistic causation, as well as at the intersection between science and law via causal analysis, cancer and other toxic effects from exposure to airborne and waterborne contaminants, radioactive and microbiological agents.

Value Chains: Sustainable supply of biomass.

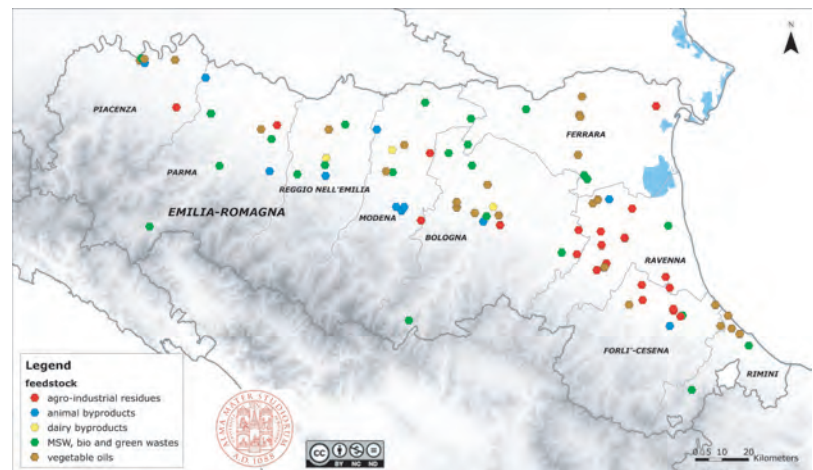
Innovation and technology diffusion: Technological risk assessment, organization of seminars and workshops.

Selected project

BiorefER: The Biorefining Opportunities in Emilia-Romagna

This report was commissioned to enhance the existing biobased economy background in Emilia-Romagna and the forward opportunities. Biobased economy is achieved in this conception through the use of renewable, non-genetically modified, non food crop based feedstocks. The study concluded that:

- There is a large availability of biomass of various origins, not only from bioenergy crops. A conservative appraisal accounts for 20 Mton of bulk residual biomass produced corresponding to 5 Mton of dry matter (DM). A large share of this production is suitable for bioenergy, biomaterials and added value products.
- This is a new and thriving sector; in Emilia Romagna leading companies are operating in the biotechnological, agri-industrial and bioenergy sector. The revenue of the Green Economy sector in the region is estimated in 57 billion euro.
- New industrial alliances are binding together agro-food, chemical and biotechnological industry. The Novamont and Genomatica joint venture, the Novamont and Versalis one, and the one involving Orogel, SFIR and Biosphere are examples of respectively international, national and regional strategic alliances which track new ways of doing business in this sector.
- Emilia-Romagna has a strong and relevant science and technology base that could underpin the development of the necessary supply chains. It's worth noting that not only public research is operating in this domain, but also many private labs are flanking chemical and agri-food industry.



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BUILDING OUR FUTURE TOGETHER

1: Ural River Delta:
conservation value
mapping (red=greater,
blue=lower)

2: Radioactivity
measurements

3: Dashboard of
Sustainability web site
(www.emrg.it/KRUSKOT)

Geo-referenced resource availability

- □ Emilia-Romagna Region biomass value chains

Support to the implementation and maintenance of ISO14001:2004 and EMAS

Environmental Management Systems:

- □ Municipalities of Brisighella, Casola Valsenio and Riolo Terme
- □ Palermo Airport
- □ Tor Paterno Marine Reserve

Support to the integrated economic/social/environmental declaration:

- □ Global Reporting Initiative (GRI) guidelines

Territorial planning:

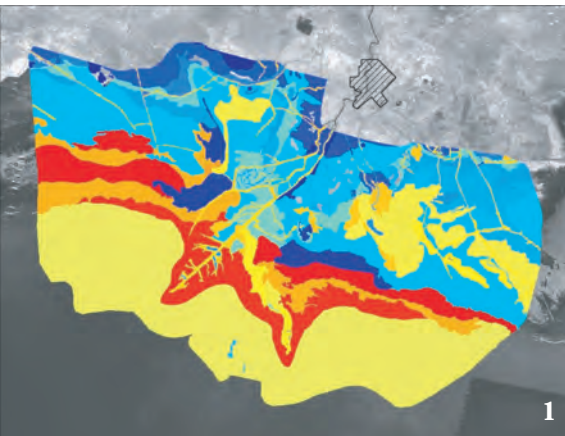
- □ Environmental management of the Lamone River (Interreg IIIC - Espace Rivière Europe)
- □ Support to the Local Plan of Agenda21 programme of Faenza municipality
- □ Ravenna Province Energy Plan
- □ UNESCO-MAB reserve, Ural River Delta, Kazakistan

Environmental Analysis for Products and Organizations:

- □ LCA
- □ Airport Carbon Accreditation - Bologna Airport
- □ Multi-Criteria Decision Analysis

Education:

- □ Summer schools
- □ Environmental Education Center, Faenza
- □ Dashboard of Sustainability (environmental quality of Faenza Municipality)



Software Tools

Life Cycle Assessment:

- □ GaBi® software suite
- □ Ecoinvent Database

GIS:

- □ ArcGIS® Software

Scenario Development and Decision Support:

- □ LEAP
- □ BioGrace
- □ Mulino

Web support:

- □ Apache/MySQL/PHP software suite
- □ proprietary software for Web support

Selected publications

Righi S., Morfino A., Galletti P., Samorì C., Tugnoli A., Stramigioli C. (2011). Comparative cradle-to-gate life cycle assessments of cellulose dissolution with 1-butyl-3-methylimidazolium chloride and N-methyl-morpholine-N-oxide, GREEN CHEMISTRY, 13, pp. 367 – 375

D. Marazza, V. Bandini, A. Contin. (2010). Ranking environmental aspects in environmental management systems: A new method tested on local authorities, ENVIRONMENT INTERNATIONAL. vol. 36, pp. 168 -179.

L. Benini, V. Bandini, D. Marazza, A. Contin. (2010). Assessment of land use changes through an indicator based approach: A case study from the Lamone river basin in Northern Italy ECOLOGICAL INDICATORS. vol. 10, pp. 4 - 14.

D.B. Donato, O. Nichols, H. Possingham, M. Moore, P.F. Ricci and B.N. Noller (2007). A critical review of the effects of gold cyanide-bearing tailings solutions on wildlife, Environment International, Vol. 33 (7), pp. 974-983.

Ricci, P. F. and S. Straja (2006). Hospital Admissions and Fine particulate Air Pollution, J. American Medical Assoc. (JAMA), 296 (16): 1966.

Roy, S.B., Ricci, P.F., Summers, K.V. and Goldstein, R.A. (2005). Evaluating the Sustainability of Water Withdrawals in the United States, J. America Water Resources Assoc., 41(5): 1091-1108.