



Vrije Universiteit Brussel

A centre for cleaner production at Cienfuegos, Cuba

A contribution to the local socio-environmental development

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Problem formulation

- Outdated industrial patrimony
- Bay as an environmental accumulator
- Societal transition in Cuba
- Increasing awareness on environmental quality



Environmental specifics

1. Waste of fuel “culture”
2. High material consumption rates
3. Important waste streams
4. Waste water

Area





Aim

1. A university centre focusing on training, research and information on cleaner production and environmental management
2. Contribution to long term economic and environmental sustainability



Core characteristics of Cienfuegos

1. Area 4180 km² of which 88 km² of bay
2. Population: 400 976 (density 95.9 inch/km²)
3. Average income 388.6 pesos; Unemployment rate 3%
4. HDI: 0.72
5. Industry: sugar (12), cement (1), paper (2), mechanics (2); starch (1); line (1), oil refinery (1), etc.
6. Services: hospitals (3), hotels (5)



Activities

1. Master degree on cleaner production and environmental management
2. Research on environmentally sound production methods and products
 - Technical aspects
 - Managerial aspects
3. Information centre on cleaner production



Master degree

1. 1 year
2. Prepare: programme, lectures (TOT), logistics
3. Cuban accreditation procedure
4. Establish programme (year 3)
5. Student exchange



Programme contents – compulsory courses

1. Methodology of scientific research
2. Environmental economics
3. Environmental impact assessment
4. Sustainable development
5. Cleaner production
6. Environmental management
7. Environmental pollution
8. Waste management
9. Science, technology, society, environment
10. Environmental legislation
11. Project



Programme contents – optional courses (2 out of 7)

1. Human Ecology
2. Health impact assessment
3. Ecodesign
4. Energy and environment
5. Environmental technology
6. Sustainable technologies for agriculture and fisheries
7. Specific analysis methods

1. Realize master theses set up Ph.D.s
2. 4 research lines
 - Cement,
 - Sugar refinery,
 - Coffee production,
 - EIA and EMS (industry; service sector)
3. Publications (IPRJ)





Information

1. Information centre on CP/EM
2. Brochure, newsletter (2 issues year⁻¹), website
3. Stakeholder forum



Assumptions - Limitations - weaknesses

1. Preparedness of Cuban society
2. Motivation of UcF
3. Practical/organization support



Conclusions

- Feasible, timely, effective-impact
- Call for collaboration



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Thank you

