Sustainable extensive wastewater treatment for small communities in Croatia

CO-OPERATION PROGRAMME WITH CENTRAL AND EASTERN EUROPE

WITH THE SUPPORT OF THE FLEMISH GOVERNMENT
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Since October 1st 2012:
“Thomas More Kempen”

Rob Van Deun
Mia Van Dyck

http://www.constructedwetlands.net
Scientific research:
“Treatment of dairy farm wastewater with constructed wetlands”
“Nutrient removal with different types of constructed wetlands”
“Treatment of tree nursery runoff with constructed wetlands, removal of fungi”
“Tertiary treatment of effluent from a RBC using constructed wetlands”
“Removal of organic micro-contaminants using constructed wetlands”

International projects:
Hungary, Romania, Croatia, Macedonia, Tanzania
Pilot Plants Thomas More Kempen
Sustainable extensive wastewater treatment for small communities in Croatia

CEE-project
CO-OPERATION PROGRAMME WITH CENTRAL AND EASTERN EUROPE

KRO/001/06

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2006 CALL

• Contribute to the EU accession process;
• Facilitate a successful integration of these countries into the European Union;
• Contribute to capacity building, institutional, democratic and economic reinforcement, conflict prevention and community building;
• Transfer of knowledge in a domain which Flanders has acquired great expertise in;
• Meet the EU priorities.

• Guarantees for the sustainability of the project after Flanders will have stopped financing it.
2.2. Identification of the project partners in the partner countries (hereinafter called ‘the partner’)

2.2.1. Lead partner (in partner country 1)

Institute/organisation: Community of Cerovlje

Contact person: Mirko Opašić

Address: Dom Josip Daus bb, 52 402 Cerovlje, Croatia

Tel.: 00385 52 684 140  gsm 00385 98 219 694
Fax: 00385 52 684 140
E-mail: opcina-cerovlje@pu.t-com.hr

2.2.2. First co-partner

Institute/organisation: REC Regional Environmental Center for Central and Eastern Europe, Country Office Croatia

Contact person: Ms. Zeljka Medven

Address: Djordjiceva 8a, 10000 Zagreb, Croatia

Tel.: +385-1-4873-622
Fax: +385-1-4810-844
E-mail: zeljka@rec-croatia.hr
• Visit to Flanders Croatian partners
  Course material, presentations developed;
  Training sessions organized;
  Technical visits to different constructed wetlands in Flanders.

• Operational (full-scale) constructed wetland
  Pagubice, Zminj, Staro Petrovo Selo
  Documents, drawings

• Information session for local experts and stakeholders

• Information material – Code of Good Practices
  Leaflets (Croatian), website, …
Pagubice (Istria) : 35 P.E.
35 P.E. $\rightarrow$ 5,25 m³ per day

- **Vertical Subsurface Flow**
  - **Constructed Wetland VSSF**
  - Primary Treatment
    - HRT: 4 days: 21 m³
  - Secondary Treatment
    - Organic Matter
    - Nitrification
      - 70 m²
  - Tertiary Treatment
    - Denitrification
      - 80 m²

- **Horizontal Subsurface Flow**
  - **Constructed Wetland HSSF**
  - Secondary Treatment
    - Organic Matter
  - Nitrification
    - 70 m²
  - Tertiary Treatment
    - Denitrification
      - 80 m²
Constructed Wetland Zminj Croatia
ISTRAŠKA ŽUPANIJA
OPONA ŽMINJ

TLOCRT

MJ 1:\n
OLIJE UREDAJ ZA PROČISTAVANJE
OTPADNIE VODA—700 ES, ŽMINJ

5. OLEŠ dipl.ing.grad.
• 500 P.E. – 750 P.E. → 75 m³ - 112.5 m³

• 2 septic tanks, Total volume about 112 m³ → max. residence time 500 P.E. = 1.5 days, 750 P.E. = 1 day.

• 3 constructed wetlands, surface area 244 m², 1530 m² (= 2 x 745 m²) and 230 m² respectively.

• HSSF – VSSF (?) – HSSF
Pump cycle: 7 to 8 m³, level control;
Pumping chamber of 10 m³;
42.5 m³/h - 3 m TDH.

Residence time of 0.4 to 0.5 days;
Maximum flow rate 400 m³/day to 800 m³/day, (height of the level control; surface flow)
Residence time of 3.4 to 3.6 days;
Maximum flow rate one CW can process: 67 m³/day to 128 m³/day.
Stabilization pond;
Covered with e.g. Lemna minor.
Pump characteristics: 42,7 m³/h TDH 3m
Residence time of 3,4 to 3,6 days;
Maximum flow rate one CW can process: 625 m³/day to 1190 m³/day.
Staro Petrovo Selo
800 p.e.
Horizontal Subsurface Flow Constructed Wetlands