Project Village Romania, 3000 inhab. Unprotected water-wells in rural areas

- 7 million people in Romania drink well water polluted with bacteria, nitrates and pesticides
- 10.4 million people in Romania lack adequate sanitation
- Garla Mare’s DW wells very polluted
  - Nitrate levels of average 120 mg/litter
    (50 is maximum allowed!)
  - Faecal and coli-bacteria
  - According to EU guideline water would not even be safe for bathing
  - Pesticides (atrazine) up to 5 times the limit of the EU directive for drinkingwater
Health effects of polluted water

- **Intestinal diseases**
  - are most dangerous for children, world-wide 2 million death p/a
  - diarrhoea, dysentery, giardiasis, coli- and salmonella infects

- **3000 cases of Blue Baby Disease** (acute infantile methaemoglobinemia) in the period 1986 – 1996 in Romania
  - Blue Baby Disease is caused by high levels of nitrates in water used for making baby food and drinks

- Increased cases of **Thyroid diseases**

- The **pesticide “atrazine”** - found in high levels in the drinking water - is a hormone disruptor
Pilot project: Improved sanitation for a primary school

*From Pit Latrines to Dry Urine Diverting (U.D.) Toilets*
Results of survey after one year ecosan experience in the school

School children:

_High acceptance of U.D. Toilets_
- Only 3% of children (6-10 years old) find u.d. toilets unpleasant to use
- Few complaints about flies: less hygienic risks
- 83% of children prefer u.d. toilets over the home latrines

_Picture 1: Pie chart of opinion on practice of use_
- 29% Pleasant
- 65% Easy
- 3% Complicated
- 3% Unpleasant

_Citizens preference for school toilets:_

_Flushed toilet, pit latrine or u.d. toilet?_
- 74% of the women and
- 58% of men prefer u.d. toilets for schools

_Picture 2: Pie chart of frequency complaints about flies_
- 3% Weekly
- 94% Never
- 3% Unknown
Survey on sanitation: citizens

**Pit latrines**
- None of the interviewed citizens is happy with the pit latrine
- All the interviewed citizens complain about bad odour

**Improvement of sanitary facility**
- only 4% of the women and
- 20% of the men are willing or able to invest in an improvement of their toilet facility
Citizens willingness to use urine in garden or fields

- 60% of citizens are willing to use urine as a fertiliser
- 25% not willing
- There is no difference between the willingness to use urine from family or school toilets
Willingness to use composted faeces in garden or fields

- 43 - 48% of citizens are willing to use sanitized faeces for their garden or fields
- 40% not willing

- A slightly more willingness to use sanitized faeces from family toilet than from school toilet is observed
Safe Reuse of Nutrients

Sampling of urine

Application of urine as a fertiliser

Analyses Results:
*Urine less contaminated with faecal bacteria than well water*

Composted faeces as a soil conditioner

WECF-Romania
The farmer was very satisfied with the increased corn harvest, reached with the urine-fertiliser
Conclusion

- There is a high acceptance of u.d. toilets by households
- There is a high interest for follow up projects
- Citizens and authorities in rural area lack financial means to improve their sanitary conditions

Needed are

- Affordable financing systems
- Information campaign on the advantages of ecological sanitation on all levels
- International and national regulations on the treatment and safe use of ecosan products in agriculture

WECF-Romania
Thank you for your attention
Follow up of the pilot project in Romania

- Workshop on the construction of ecosan toilets for households in Garla Mare
- Construction of public UD toilet in Garla Mare
- Excursion of 50 mayors of Romanian County Teleorman to the UD school toilets in Garla Mare; other pilot project will be started
- Environmental conference in Garla Mare for teachers of the county Mehedinti
Gender and socio-economic analysis

- **Lack of awareness** about water pollution and related diseases
- High *unemployment and poverty*, partly hunger and malnutrition
- Clean drinking water is a secondary concern
- Central water supply wanted esp. by women, but very low capacity of paying for water
Sources of pollution

The main source of pollution of wells are:
- Pit latrines in people’s gardens
- The latrines are not sealed and not emptied

Annual amount of human waste from the population in Garla Mare, entering into soil/groundwater
- 1,5 million litter urine
- 150,000 kg faeces
- 15,000 kg Nitrogen

- Bad maintenance of wells
- Intensive agriculture, manure
Contents of human excrements

**MICRO ORGANISM:**

1 gram of faeces can contain:
- 10,000,000 viruses
- 1,000,000 bacteria
- 1,000 parasite cysts
- 100 parasite eggs

**NUTRIENTS**

- 50,000g (50kg) Faeces: 0.5 kg nitrogen / year and person
- 500 litre urine: 5 kg nitrogen / year and person

30 persons could fertilize 1 hectare agricultural field!

Instead surface and groundwater are polluted with nitrates and pathogenics.
Reasons for an other human waste management

• In the next 24 hours diarrhoea caused by unclean water and poor sanitation will claim the lives of 4,000 children.

• *Better management of water and sanitation would prevent over 30 million cases of water-related disease per year in the WHO European region* (WHO Press release 03.2005)

• More than 90 % of waste and excreta worldwide is either poorly treated or not treated at all

• Untreated and poorly treated excreta and waste water contain *pathogenic* bacteria, virus, helminths and plant nutrients and contribute to *water pollution*

• Users are unhappy with pit latrines
Benifits of Dry Urine Diverting Toilets

- Elimination of pathogens
- Prevention of environmental pollution
- Recycling of nutrients and water
- Offer a high level of comfort and hygiene
- No water pollution
- No smell
- Do not attract flies
- No waste of water and nutrients
- Produce excellent fertiliser and soil conditioner
- No water connection needed
- Can be built inside
- Save Money
MATRA project 2002-2004: WECF-M&S
FFE project 2005-2006: WECF-GEOSAN

Topics of the projects:

• Water
• Sanitation
• Water pollution
• Health
• Pit latrines
• Urine Diverting toilets
• Strengthen civil society
Improving the Sanitary Condition and Health

Example of School Sanitation

In Garla Mare, Romania

The Benefits of Ecological Sanitation

4th. WWF Mexico, March 2006
Extreme levels of nitrates and faecal bacteria in DW wells

- Nitrate levels of average 120 mg/litter (50 is maximum allowed!)

5 cases of blue-baby disease in 2000 in project village

Faecal and coli-bacteria

According to EU guideline water would not even be safe for bathing

Pesticides (atrazine) up to 5 times the limit of the EU directive for drinking water