



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf



1



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

“Scholl concerned!”

“Learning to learn!”

Design:
school yard

Physics 12:
electric smog

One world project.



50-50-Project “ Separate waste, save energy!”

Scholl-
Garden-AG

Project week
Waste, year 6

Project month
Water, year 8

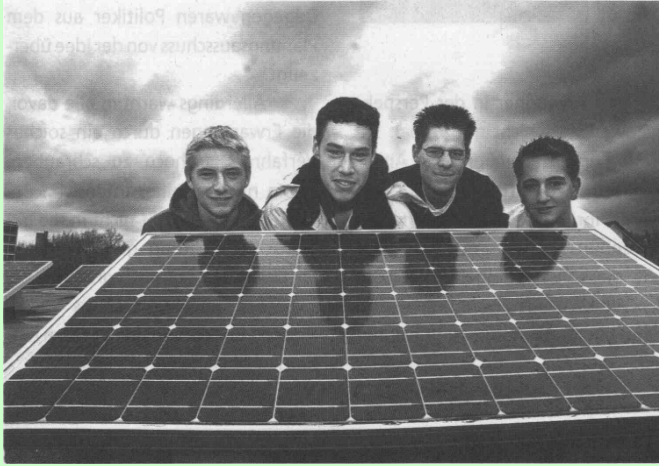
Climate/Energy,
year10

2



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Start of the project Climate/Energy



Solar panel enclosure at the GSG (1997)

✚ Pilot scheme of the Stadtwerke (public utility) Düsseldorf and ISIS-AG

Aim

- ✚ Protecting resources and the environment
- ✚ Cross-curricular teamwork (physics, politics)
- ✚ Investigation of energy consumption, alternative energy sources, behaviour modifications



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Climate and Energy in year 10

The greenhouse effect, consequences of the climate change, energy resources, fossils, renewable energy

Implications of the resolution of Kyoto: worldwide reduction of CO2

Resource management behaviour modification through example at the GSG and at home



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Climate change (year 10)



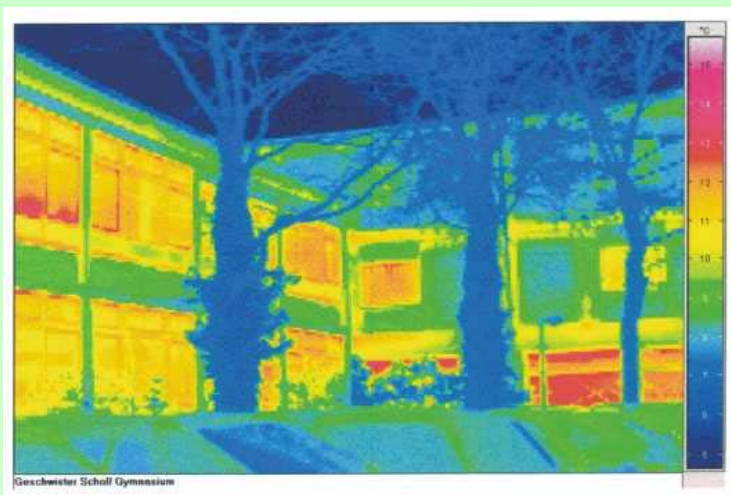
Methods

- ✚ Research using the databank LexisNexis and the Internet
- ✚ Learning about different climate scenarios
- ✚ Presentation: "symposium" presentations and short talks using PowerPoint
- ✚ Excursions (Lausward power station, One-world-laboratory etc)
- ✚ Studies: EVGs (Electronic ballasts), deZem



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Beginning of rebuilding works



Studies

- ✚ Energy tour (1998)
- ✚ Thermography – windows not isolated!

Building work

- ✚ Heat isolation (roof, façade)
- ✚ Isolated windows, radiator valves



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Behaviour modification through consumers



Evaluation criteria:

- ✚ Fill in a form with measurements of room temperature
- ✚ Behaviour modification: turn lights off, close windows at the end of school
- ✚ Economical success through the 50-50-Project: 4,763€ (2002)

Picture: "Press me when you go!"



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Reducing lighting costs



Electronic Ballasts

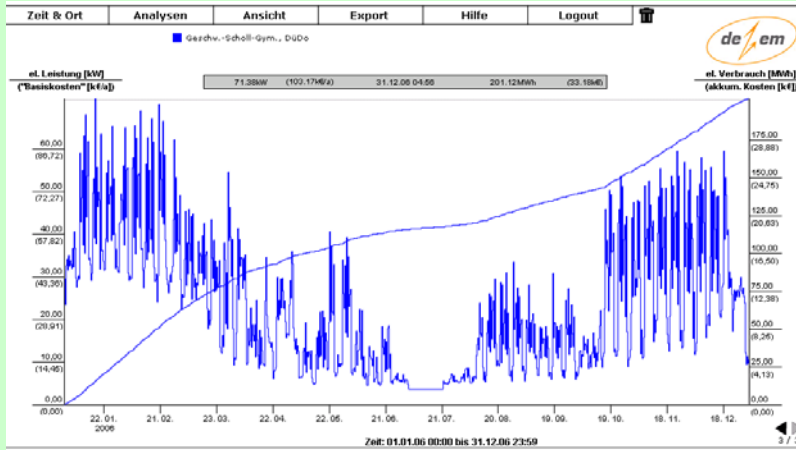
- ✚ Reduction of electricity costs and CO₂ emissions :>30%
- ✚ Increased life span of fluorescent lamps
- ✚ Short payback period and refinancing through the Fifty-fifty-Project
- ✚ Investment: 390 EVGs (6,500€), 75% of all fluorescent bulbs at the GSG





Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Innovative online consumer analysis with deZem



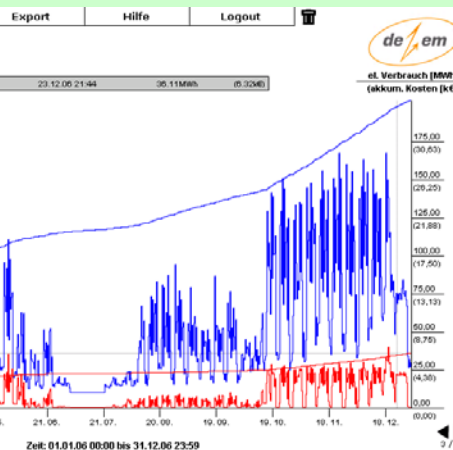
Aims

- ✚ Reduction of electricity, gas and water consumption
- ✚ Actual online supported consumer analysis
- ✚ Increase of energy efficiency: development of potential for savings



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Cost analysis of the classroom „Assembly hall“ with deZem



Use of assembly hall

- ✚ The stage is used as a classroom for music lessons.
- ✚ The stage cannot be separated from the rest of the room.
- ✚ The complete hall is heated.

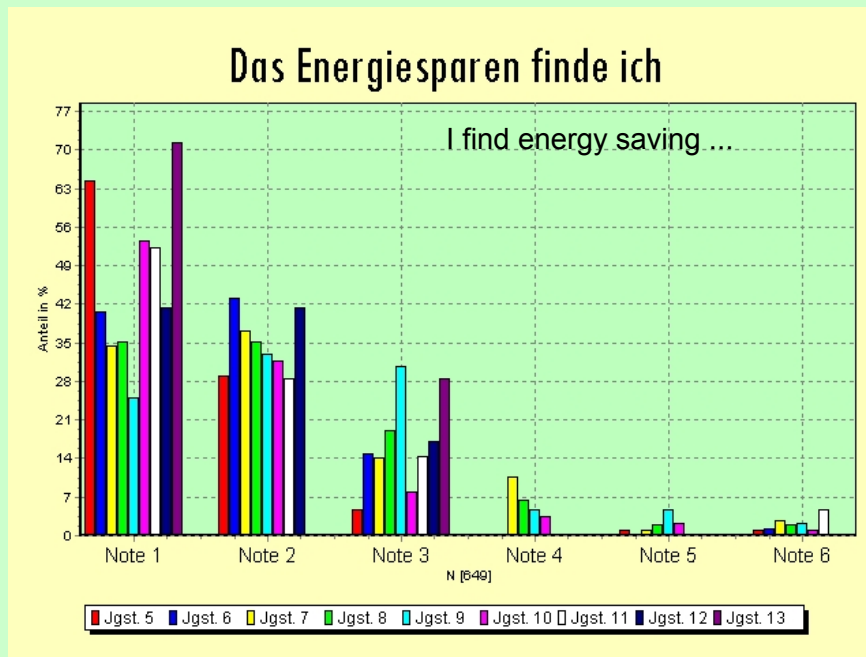
Energy costs 2006

- ✚ GSG: 201,120 kWh; 33,180€
- ✚ Hall: 35,580kWh; 6,293€
- ✚ Part of the total costs of energy used in the school: 17.8%



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Evaluation: survey of the pupils (2002)



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Cross-linking of aspects of sustainability



2002

School yard design

Project in politics/geography, years 9-10

Wishes:

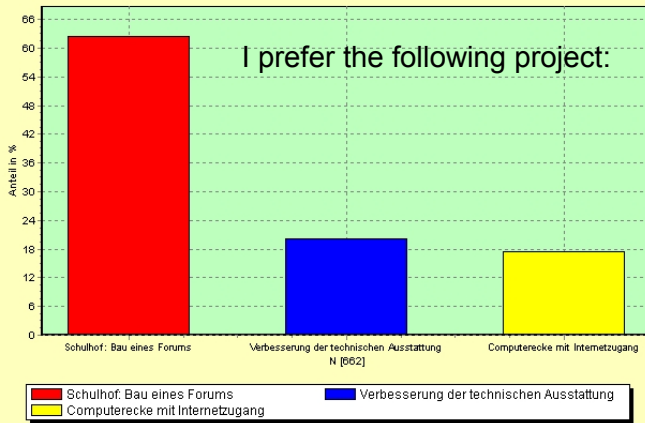
- + More places to sit
- + Table tennis tables
- + Basketball facilities/court
- + Inline skating course
- + Quiet corners



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Participation: pupil's involvement

Ich stimme für folgendes Projekt:



Representative survey of the students and decisions in the school assembly

Use of funds for:

- Reduction of electrical consumption
- School yard design (forum, table tennis tables)
- technical equipment (projectors, computers, CD players, OHPs)



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Designing the school yard



Planning and development

- ✚ Support by the environmental department
- ✚ 7,000 € from the Fifty-fifty-Project
- ✚ Personal contribution (planning, supervision)

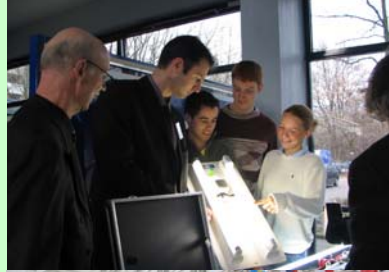
Evaluation criteria

- ✚ Improvement environment of learning
- ✚ Pupils involvement, surveys (2002)
- ✚ School as a place to act



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Presentation competence: learning through teaching



- ✚ BLK Model test in Düsseldorf, Düsseldorf Town hall 2004
- ✚ Final meeting of the 1st BLK Model test, Berlin 2004
- ✚ Final meeting of the 1st BLK Model test in NRW, Düsseldorf 2005
- ✚ European EMAS conference, Vienna 2006



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

International contacts



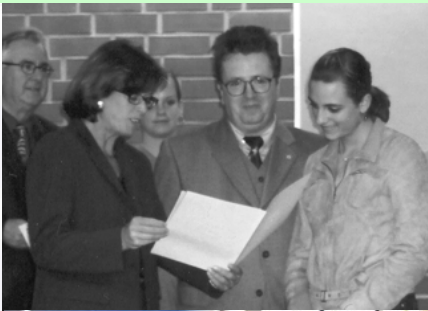
Educational delegations from:

- ✚ 2002: Peking (China)
- ✚ 2004 Chennai/Bangalore (India)
- ✚ 2006, 2005, 2003: from Kyoto and Tokyo (Japan)
- ✚ 2007: Seoul (Korea)



Sustainability Audit at the Geschwister-Scholl-Gymnasium Düsseldorf

Awards and prizes



- ✚ **1998:** competition: “Keep the world in balance”, Dr Angela Merkel (Former federal Minister for the environment, the protection of nature and reactor safety)
- ✚ **2003:** 1st prize in the NRW state competition “Quality school work”
- ✚ **2005:** 3rd prize in the Henkel competition
- ✚ **2005:** “Agenda 21 core school” from the NRW nature and environment academy