



Recovery of Materials and Energy for Resource Efficiency

September 3-5, 2007, Davos, Switzerland

## Final Congress Report

### Themes

The R'07 Congress took place under the subtheme: Recovery of Materials and Energy for Resource Efficiency. Presentations were held on various subjects such as: waste management, recycling, energy management, Life Cycle Assessment (LCA), construction materials, manufacturing industry, process engineering, social compatibility and materials and energy from biomass. The sessions were organized in such a way that participants were able to benefit efficiently from the speakers' knowledge.

### Organizers and Co-Organizers

Empa, Swiss Federal Laboratories for Materials Testing and Research and SATW, Swiss Academy of Engineering Sciences acted as organizers supported by the co-organizers CAS, Chinese Academy of Sciences, ETHZ, Swiss Federal Institute of Technology Zurich and PSI, Paul Scherrer Institut.

### Participants

Some 350 people from 42 different countries travelled to Davos between September 3rd and 5th 2007 to take part in the R'07 World Congress, the latest entry in the series of the R' congresses dealing with the topics of the "Recovery of Materials and Energy for Resource Efficiency". Most participants came from academic, industrial or technical environments. Others had affiliations in government offices or at NGO's. About 50 high school students were invited by the organizers of the R'07 World Congress to promote high school students' interest in science. An important aspect was participation of experts from industrializing countries.

### Plenary Speeches

At the R'07 World Congress several well-known experts were invited to hold plenary lectures:

- Friedrich Schmidt-Bleek, Factor 10 Institute, France
- Alexander Wokaun, ETH and PSI, Switzerland
- Louis Schlapbach, Empa, Switzerland
- Bas de Leeuw, UNEP
- Migen Dibra, Migen Dibra Law Firm, Canada
- Thomas E. Graedel, Yale University, USA
- Gabi Hildesheimer, Swiss Association for Environmentally Conscious Management, Switzerland
- Kit Strange, Resource Recovery Forum, United Kingdom

The presence of so many renowned speakers in attendance was a sign of the importance and reputation of the R' Congresses.

### Oral sessions

Session chairpersons moderated oral sessions, during which a total of 122 presentations were given. Most sessions were introduced by a keynote lecture. Given the great number of presentations, there was a risk that several interesting and relevant sessions might be held at the same time. However each participant at the R'07 World Congress was able to arrange his own personalized program.

### Poster session

The 52 posters presented at the poster session covered such a wide variety of topics. The authors of the best poster received an award from a jury of professionals.



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### Proceedings

The proceedings of the R'07 Congress are compiled on a CD available at Empa.

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### Workshop

Six workshops were held parallel to the oral sessions. The following current and important topics, all involving materials and resources, were dealt with and discussed in the workshops:

**Plastics Recycling:** Advantages and disadvantages of different plastics recycling systems. Establishing critical success factors, considering opportunities such as combatting poverty and the know-how needed to establish a sustainable recycling system in the South.

**Biofuels:** Future opportunities and risks of producing biofuels (and biomaterials) from waste, discussion of waste fractions and their potential for fuel production, the efficiency of conversion technologies for biogenic waste (environmental and economic perspectives), the use of biogenic waste for fuel production or for co-generation, the future role of biogenic waste in view of the global energy crisis.

**E-Waste:** E-waste management as an emerging problem as well as a business opportunity of increasing significance, identify strategies and tools to support global knowledge partnerships for e-waste management. The importance of an international exchange of views.

**Zero Waste:** This workshop consisted of four sessions: Integrated Resource Management, Organics Resource Management, Supply and Demand (end uses) and Moving Business to Clean Production and the Triple Bottom Line.

**Scarce Metals:** The role of emerging technologies in inducing metal scarcities and ways for the recycling industry to prevent or counteract such scarcities. Discussion and identification of common denominators and controversial issues.

**Footprint:** Identification and management of environmental and social implications along the entire product life cycle. Key environmental and social impacts of the product life cycle of electrical and electronic equipment. Promising mechanisms and approaches to reduce the impacts.

### Results of Workshops, Closing Session

At the end of the congress, the conclusions reached in the workshops were presented in a concentrated way during the closing session. They can be downloaded from [www.R07.org](http://www.R07.org).

### Post Conference Tours

In conjunction with the workshops two post conference tours were arranged. One tour took its participants to Otelfingen, where they visited the Biowaste Processing Information Center of the Compogas Company.

At the same time, participants in the second post conference group took a factory tour. First they visited the MISAPOR Plant (glass produced from collected waste glass). Then they went to see the biofuel furnace at the TEGRA Company in Domat-Ems. It uses residues from the adjacent timber facilities of STALLINGER to generate steam and electricity for the nearby EMS CHEMIE Chemical Plant. The tour ended with a visit to the HOLCIM Cement Plant (demonstrating a reduction of the consumption of coal and oil and the use of alternative fuels).

### Social Events

The R'07 World Congress provided several social events to create a pleasant atmosphere among the par-



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Participants that would be conducive to networking. The congress began with an informal get-together. A congress banquet was the highlight of the festivities with its menu and entertainment by an aboriginal singer. The congress concluded with a farewell party.

### Participants' Feedback

Participants' feedback showed very favorable results (selected results see enclosure), which encourages us to go on with the R' Congress Series.

### Finances

As the number of participants was lower than expected, a strict form of cost management had to be introduced, and additional services were provided by Empa. The financial break-even point was achieved thanks to contributions from sponsors.

### Upcoming Events

From October 12-15, 2008 REWAS, Global Symposium on Recycling, Waste Treatment and Clean Technology, Cancun, Mexico **(in cooperation with the R-congress organizers)**.

<http://www.tms.org/Meetings/specialty/rewas08/Home.html>

September 14 – 16, 2009, R'09 as a Twin Congress in Davos, Switzerland and Nagoya, Japan. Special attention will be given to resource flow reduction and resource efficiency.

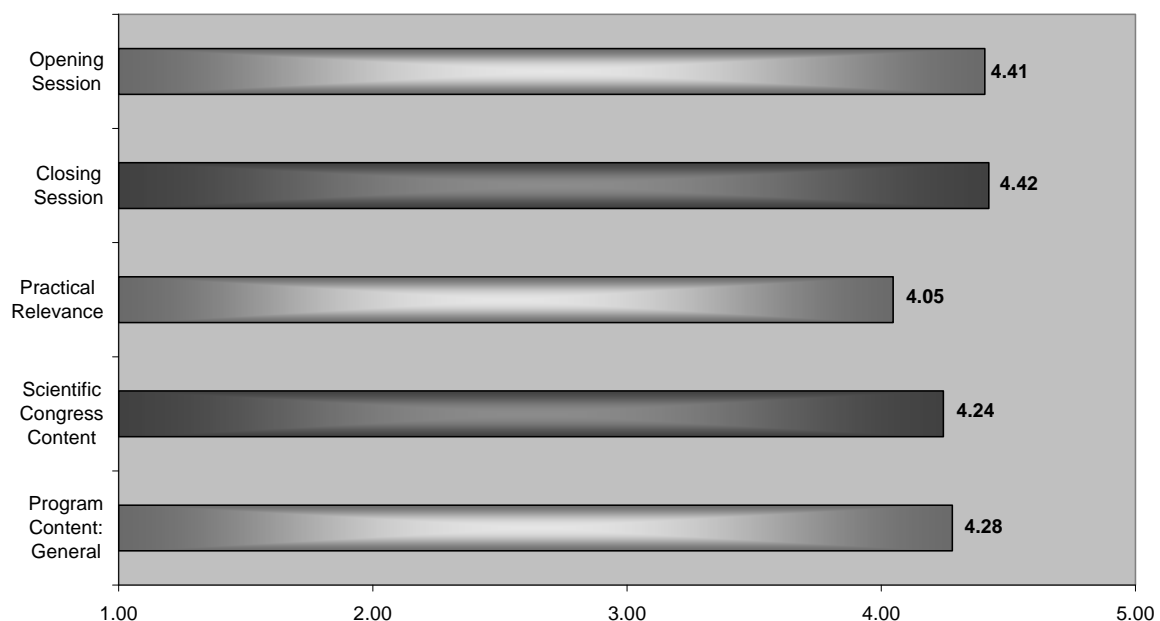
Dr. Xaver Edlmann, R'07 Congress Chairman

Dr. Lorenz Hilty, Chairman R'07 Scientific Committee

Dr. Arthur Ruf, Chairman R'07 Industrial Committee

### Enclosure: Participants' Feedback

#### Content and Relevance

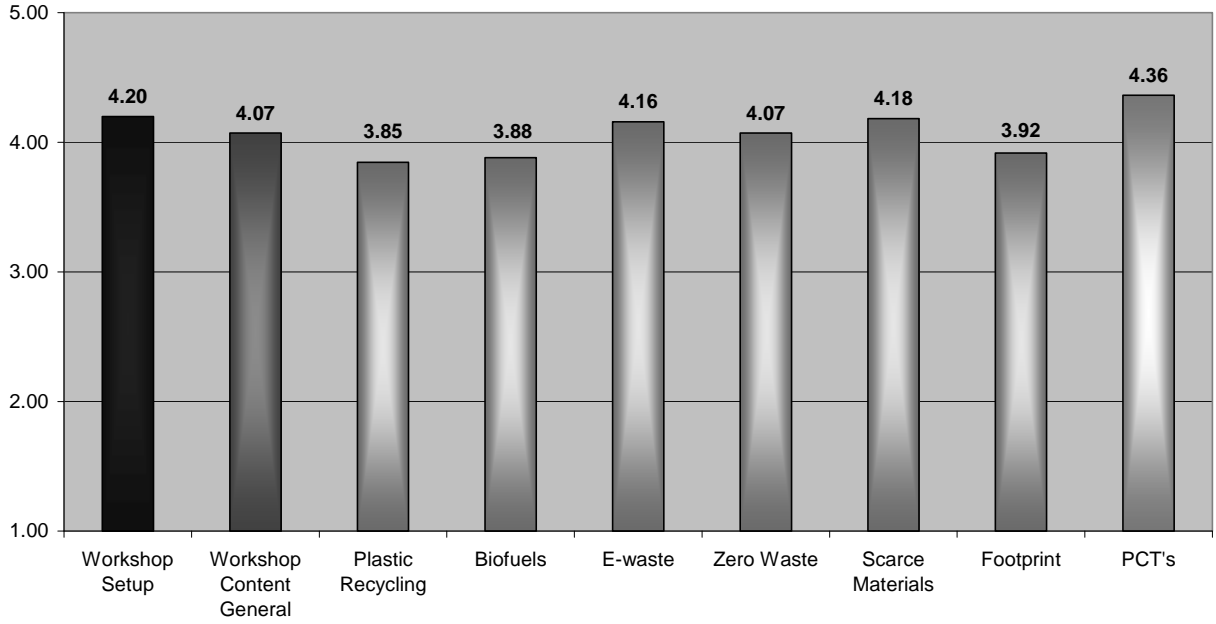




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### Workshops



### Administration

