

EC-GEPRO



# „Green electronics” activities in Poland

**Krystyna Bukat, Grazyna Koziol, Jozef Gromek**

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**Tele- and Radio Research Institute**

**[www.itr.org.pl](http://www.itr.org.pl)**

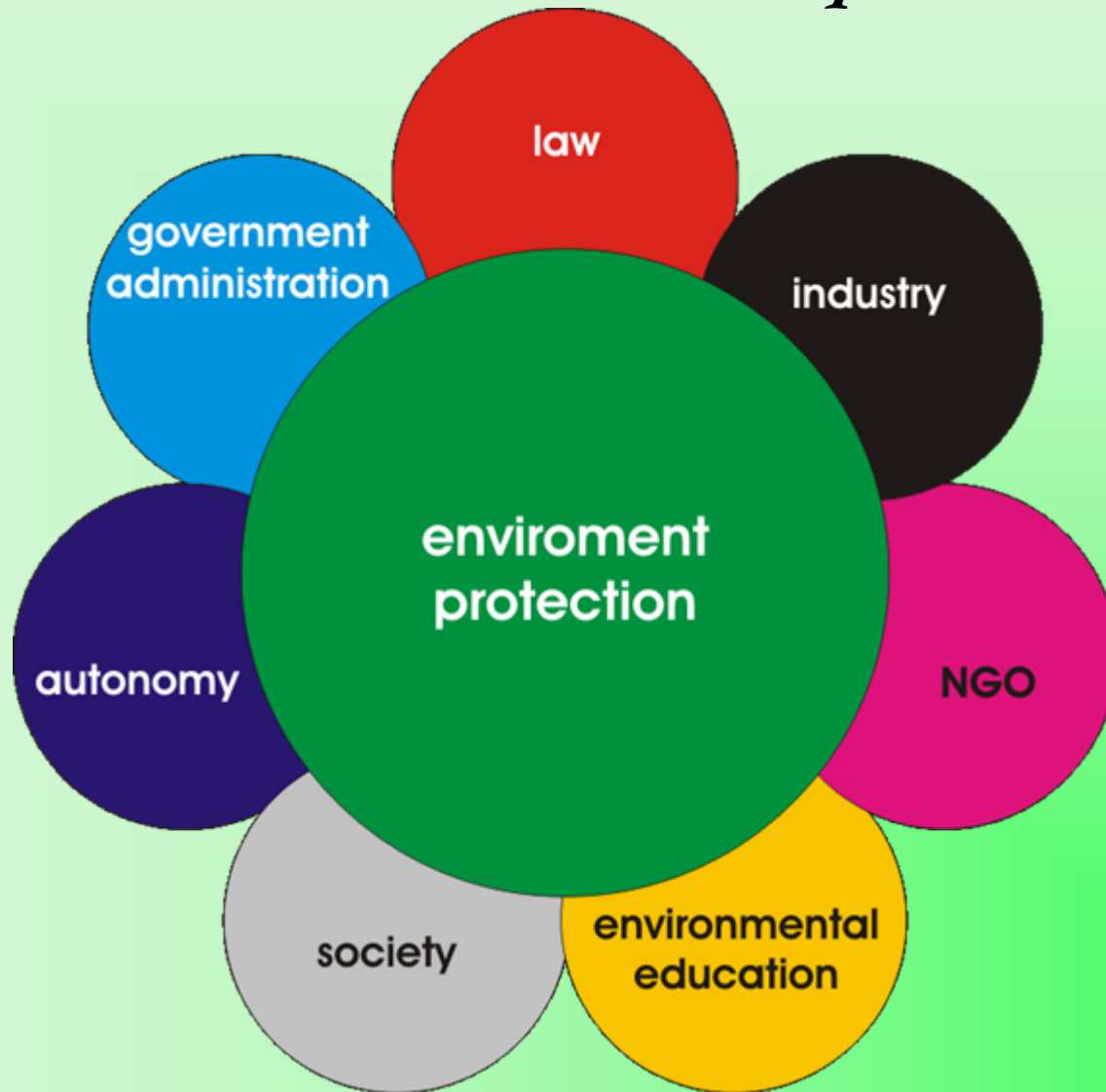
# *Plan of the presentation*

- Introduction
- Main actors influence on environment
- Structure of surrounding institutions for eco-innovation in Poland
- Crucial documents for eco-innovations
- Research and development activities of “green electronics”
- Financial supporting of eco-innovations
- Implementation of „green electronics” products
- Dissemination of knowledge on “green electronics”
- Summary

## *Introduction*

- **RoHS Directive „on the restriction of the use of certain hazardous substances in electrical and electronic equipment”**
- **WEEE Directive „on waste electrical and electronic equipment”**
- **EuP (Energy Using Products) Directive „on establishing a framework for eco-design of end use equipment”**

# *Institutions, subjects and activity influence on environment models and protection*



# *The structure of surrounding institutions for eco-innovation in Poland*

**Parliament**

**Government**

**Ministry of the Regional Development, Ministry of Environmental,  
Ministry of Economy, Ministry of Science and Higher Education**

**National Research and Development Centre  
(NCBR)**

**Polish Agency for Enterprise Development  
(Polish acronym PARP)**

**Industry  
enterprises**

**Research  
institutes**

**Industrial  
association groups**

# *Documents for eco-innovations in Poland*

## **NATIONAL DEVELOPMENT STRATEGY 2007 – 2015**

### **National Cohesion Strategy 2007-2013 (NCS)**

**National Reform Programme**

**National Report on Social Security and Social Integration**

**16 ROP**

**OP Infrastructure and environment**

**OP Human Capital**

**OP Innovative Economy**

**OP Innovative Economy**

**OP European Territorial Cooperation**

**OP Technical Assistance**

**National Strategic Plan for Rural Areas**

**OP Rural Development**

**Fisheries Development Strategy**

**OP Sustainable Development of Fisheries Sector and Coastal Fishing Areas**

**Convergence Programme**

**Other strategies (e.g. sectoral and regional)**

# *The Environmental Policy for years 2003-2006 with the perspective for years 2007-2010*

- **bases of environmental resources**
- **ecological safety**
- **rationalization of water usage and water resources protection and planning**
- **forest management and protections**
- **prevention and mitigation of environmental emergency**

# *The Roadmap for Implementation Environmental Technology Action Plan 2007 - 2012*

- **The strategy of implementation in Poland of the Integrated Product Policy**
- **The National Strategy of the Ecological Education**
- **The strategy of changes of patterns of the production and the consumption on favourable of the realization of principles of sustainable development**

# *Research and development activities of “green electronics”*



# *Materials Recycling Centre of Excellence at Wroclaw*



## ***Principal objectives:***

- integration the science and technology sector of the Newly Associated States into the European Research Area
- dissemination of a knowledge on recycling of various products, eg. waste packaging, end-of-life vehicles, electronics, buildings
- putting capabilities of science and technology sector at the service of the economic and social needs of Newly Associated States
- **POLYMER ENGINEERING AND RECYCLING LABORATORY**

*Institute of Metallurgy and Materials  
Science, Polish Academy of Sciences*



- **IMIM PAS is the Coordinator of the Polish National Network of the Elfnet**

<http://www.elfnet.pl>

**ELFNET is a European research network of the national organisations, technical experts and industry bodies in micro-electronics**

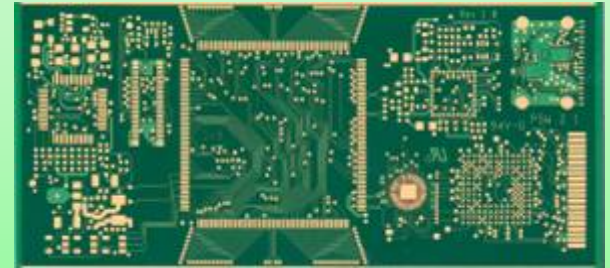
- **IMIM PAS realizes basic research projects for searching a new lead-free solders, e.g. COST 531 Project**

# *Centre of Advanced Electronic Interconnect Technology CENELIN*



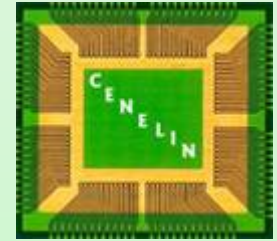
## ***The main field of activities:***

- new assembly materials in accordance to ecological rules
- high density printed circuit boards
- microvias technology, embeded components technology end lead-free assembly
- trainings in eco-friendly assembly processes for electronic SMEs



# *CENELIN*

## *European Projects*



- **PRINT** project - PCBs with High Solderability Tin Coating for Lead Free Soldering
- **GreenRoSE** project - Removal of Hazardous Substances in Electronics: Processes and Techniques for SMEs
- **Eco-design Raising Campaign**
- **Elfnet** - the European network for lead-free soldering.
- **EC-GEPRO** project - Europe-China Cooperation in Green Electronics Production Research

# *Pilot line for immersion tin coatings production*



# SMT pilot line in Semicon



# *Financial supporting of “green electronics” activities*

- Ministry of Science and Higher Education - co-financing of goal orientated projects e.g.:  
*„National gathering and utilization system for electric and electronic equipments take-back from exploitation”*
- EU Support Framework in years 2004-2006: Sectoral Operation Programme, Priority 2.4: Supporting for investments adapting enterprises to environmental protection standards
- 5, 6 & 7th Framework Programmes of European Commission
- EEA (European Economic Area) Financial Mechanism and Norwegian Financial Mechanism

# *Implementation of „green electronics” products*

<b>Business sector in electronics industry</b>	<b>Big electronics company (about 20)</b>	<b>Small and Medium Size Enterprises (about 200)</b>
<b>Contract assemblers</b>	<b>Flextronics, Jabil, Kimball, Sofrel</b>	<b>Semicon, RWT</b>
<b>Kinescopes manufacturers</b>	<b>Videocon, LG</b>	<b>—</b>
<b>PCBs producers</b>	<b>—</b>	<b>Eldos, TechnoService, Wojart</b>
<b>Producers of other equipment</b>	<b>—</b>	<b>Apator, DGT, Omig, Radmor, Rawar, Satel</b>

# *Dissemination of knowledge on “green electronics”*

## ***Conferences:***

- Ecology in Electronics
- Plastics Recycling and Recovery
- Recycling of the end-of-use electric and electronics equipment
- Practical aspects of the RoHS Directive implementation
- Electronic Industry one day before RoHS Directive putting into practice
- Electrical and Electronic Industry- state after RoHS Directive came into force

# *Dissemination of knowledge on “green electronics”*

## ***Seminars and workshops:***

- **Lead-free Surface Mount Technology and Training Session**
- **GreenRoSE training sessions on the pilot line: Lead-free SMT Technology**
- **Elfnet workshop**
- **Eco-design workshop**

# *Summary*

- National and European rules connected with ecology in electronics are implemented in Poland
- Research activities concentrate on lead-free electronics as well as on recycling of the end-of-use electric and electronics products
- Several financial sources for supporting research and also SMEs are approachable
- Dissemination of knowledge about „green electronics” is an usually practice in Poland

## *Acknowledgment*

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**„Europe-China Cooperation in Green Electronics Production Research”**

■ *Thank you for your attention*