



WASTE ELECTRICAL & ELECTRONIC EQUIPMENT RECYCLING AS A SOCIOECONOMIC AND INSTITUTIONAL CHALLENGE IN SERBIA



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- Characteristics of Waste Electrical & Electronic Equipment
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- Socio-economic benefits of WEEE recycling
- Recycling of WEEE in Serbia
- Incentives for recycling WEEE in Serbia
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Characteristics of Waste Electrical & Electronic Equipment

- “Electrical and electronic equipment” or ‘EEE’ means equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields and designed for use with a voltage rating not exceeding 1 000 volts for alternating current and 1 500 volts for direct current.“ Directive 2012/19/EU
- Rapidly growing waste stream, 3-5% per year
- Consumption society addicted to technology
- Population nowadays consumes a large amounts of EEE
- Lifespan of EEE is rapidly shortening
- Large potential for recuperation raw materials
- Contains hazardous and toxic substances with harmful impact on environment and public health

Institutional framework-European Union

- EU Battery Directive, 2006/66/EC;
- EU Landfill Directive, 1999/31/EU;
- EU Waste Framework Directive, 2008/98/EC;
- The Restrictions of Hazardous Substances Directive, 2011/65/EU;
- **Waste Electrical and Electronic Equipment Directive, 2012/19/EU;**
- End of Life Vehicles Directive, 2000/53/EC;
- The Mining Waste Directive, 2006/21/EC;
- EU Packaging and Packaging Waste Directive, 94/62/EC;
- Council Directive on the Disposal of Polychlorinated Biphenyls and Polychlorinated Terphenyls (PCBs / PCTs), 96/59/EC;
- The Urban Waste Water Treatment Directive, 91/271/EEC;
- EU Regulation on Ship Recycling and Amending Regulation, 1257/2013/EU;
- Council Directive on the Waste From the Titanium Dioxide Industry, 78/176/EEC, 82/883/EEC, 92/112/EEC;
- EU Directive on Waste Oils, 75/439/EEC.

Institutional framework-Serbia

- Law on Environmental Protection, (2004)
- Law on Waste Management, (2009)
- Waste Management Strategy for the Period 2010-2019, (2009)
- Rulebook on adjusted values of stimulation funds for reuse, recycling and utilization certain kinds of waste, (2017)

Institutional framework

- European legislation on waste management is much older and far more developed
- Transposition of the European laws into the Serbian legislative system-very complex process
- Insufficiently matured and stable Serbian institutions caused implementation of these regulations bellow the expected level

Categories of EEE-ANNEX I WEEE Directive 2012/19/EU

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment and photovoltaic panels
5. Lighting equipment
6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)
7. Toys, leisure and sports equipment
8. Medical devices (with the exception of all implanted and infected products)
9. Monitoring and control instruments
10. Automatic dispensers

Socio-economic benefits of WEEE recycling

- Greenhouse gas emission reduction
- Fossil resource saving
- Significant amount of the resource extraction
- Green jobs creation
- Achieving a recycling-oriented society
- Implementation of Circular economy concept as an alternative for today's linear business model- keeping the added value in products as long as possible

Recycling of WEEE in Serbia

- Market of WEEE in Serbia
 - Greater lifespan of EEE
 - Low purchasing power of citizens
 - Import of used EEE from high-income countries
 - Small number of companies that are dealing with recycling process
 - Low level of human awareness for recycling
 - Low collecting rates of WEEE
 - Serbia 10-20%, EU above 70%
- Solution
 - Incentives for recyclers

Incentives for recycling WEEE in Serbia

Categories	Incentives (RSD per kg)
1. Large household appliances	43
1.1 Large cooling appliances, Refrigerators, Freezers	108
2. Small household appliances	58
3. IT and telecommunications equipment	58
4. Consumer equipment and photovoltaic panels	27
4.1 Television sets	86
5. Lighting equipment	32
6. Electrical and electronic tools (with the exception of large-scale stationary industrial tools)	48,5
7. Toys, leisure and sports equipment	27
8. Medical devices (with the exception of all implanted and infected products)	48,5
9. Monitoring and control instruments	97
10. Automatic dispensers	97

Quantities of treated waste after implementation of the financial stimulation policy

Year	Quantity (t)
2011	7084
2012	10601
2013	18998
2014	20972
2015	27351
2016	37004

Source: Serbian Environmental Protection Agency, SEPA

Conclusion

- Serbia has a large base of end of life EEE;
- Prospective for developing recycling of WEEE in Serbia is good
- Implementation of financial stimulating policy resulted increasing of the collecting and treatment rate year by year;
- Further developing of recycling industry would decrease unemployment rate ;
- Transposition of the ecology acquis from EU into Serbian legislative system requires additionally adaptation of every European law to the current state of institutions before passing this laws;
- Implementation of the EU legislative at the company level follows great difficulties -lack of appropriate seminars and educative work shops, very complex procedure for for using financial stimulation benefits;
- Further developing current financial stimulation policy towards Extended Producer Responsibility (EPR) concept like in EU.







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