



12 – 14 June
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Sustainable waste management - experience of Bulgaria

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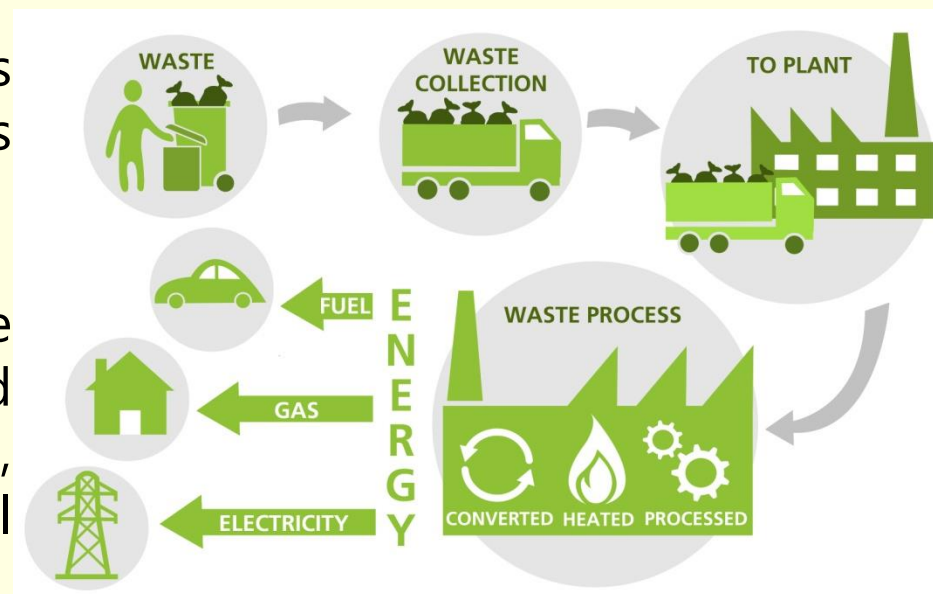


Continuous growth of industry leads to an increase in the volume of waste being formed, its cost of storage, concentration, collection and utilization.



A large part of the waste contains valuable components, which requires returning them to the production.

Formation, accumulation of waste and planning of its use is associated with solving a series of methodical, scientific, logistic, economic, statistical and other issues and knowledge.





Textile waste are some of the waste streams for which may be adopted criteria for "end of waste" by the EU Member States - to indicate when certain waste ceases to be waste and acquires the status of products (or secondary raw materials) which can be put on the market again.





Groups of textile waste:

- Export of second hand clothes (48%)



- Cleaning and polishing cloths (17%)



- “Diamonds” (1–2%)



- Transformation into new products (29%)



- Landfilling and incineration (< 7%) -



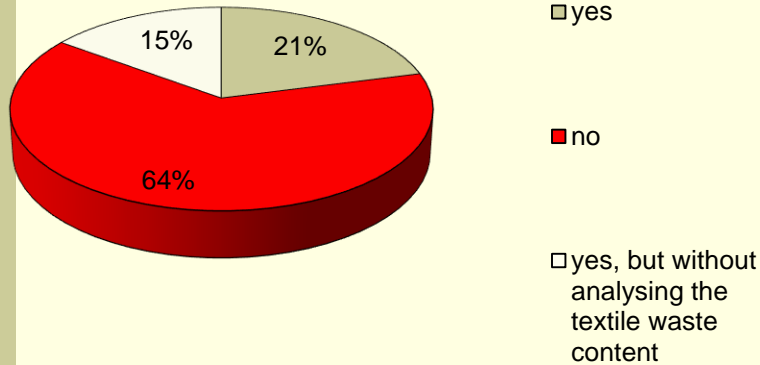


A National Programme for Management of waste activities, 2009-2013 is elaborated where the good development of the textile and clothing production is pointed out.

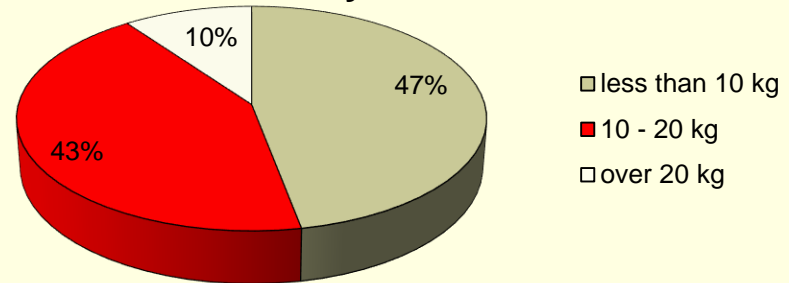
According to the morphological analysis of household waste 4% is the reported content of textile waste.

Co-incineration in cement plants in place of some of the traditional fuel used is described as an existing practice for the treatment of textile waste.

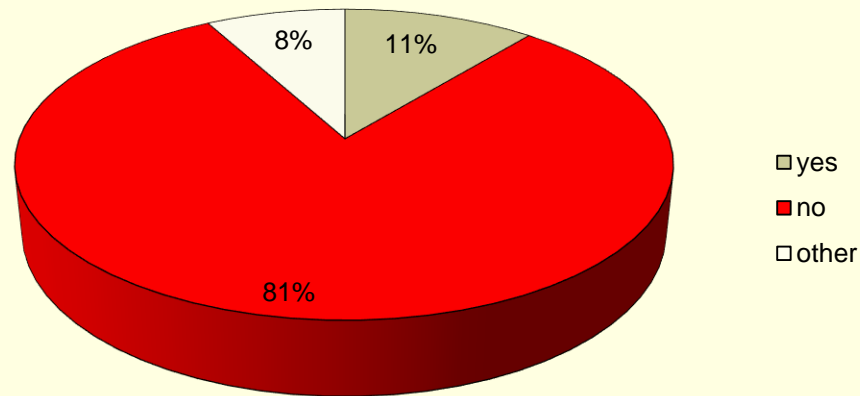
Has any investigation on waste morphology been conducted since 2010?



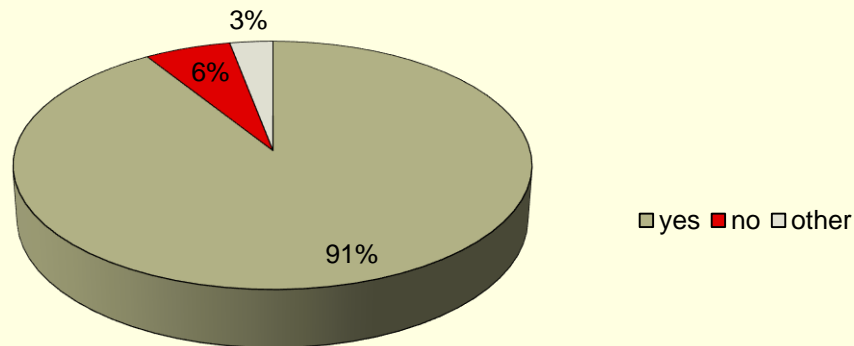
What is the approximate amount of textile waste from your household for a year?



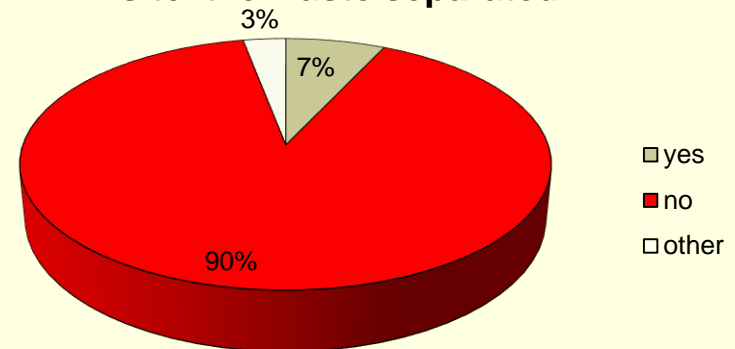
System for separating household waste



Would you support the principle "extended producer responsibility" for textile waste



Is textile waste separated?





Approaches in recycling

- recycling of the product in its original form;
- melting the thermoplastic materials and obtaining a new product which has a low level of physical, mechanical and / or chemical properties;
- pyrolysis and hydrolysis, which transform plastic waste for example, in basic chemicals or fuels;
- combustion of solid waste and use of waste heat.





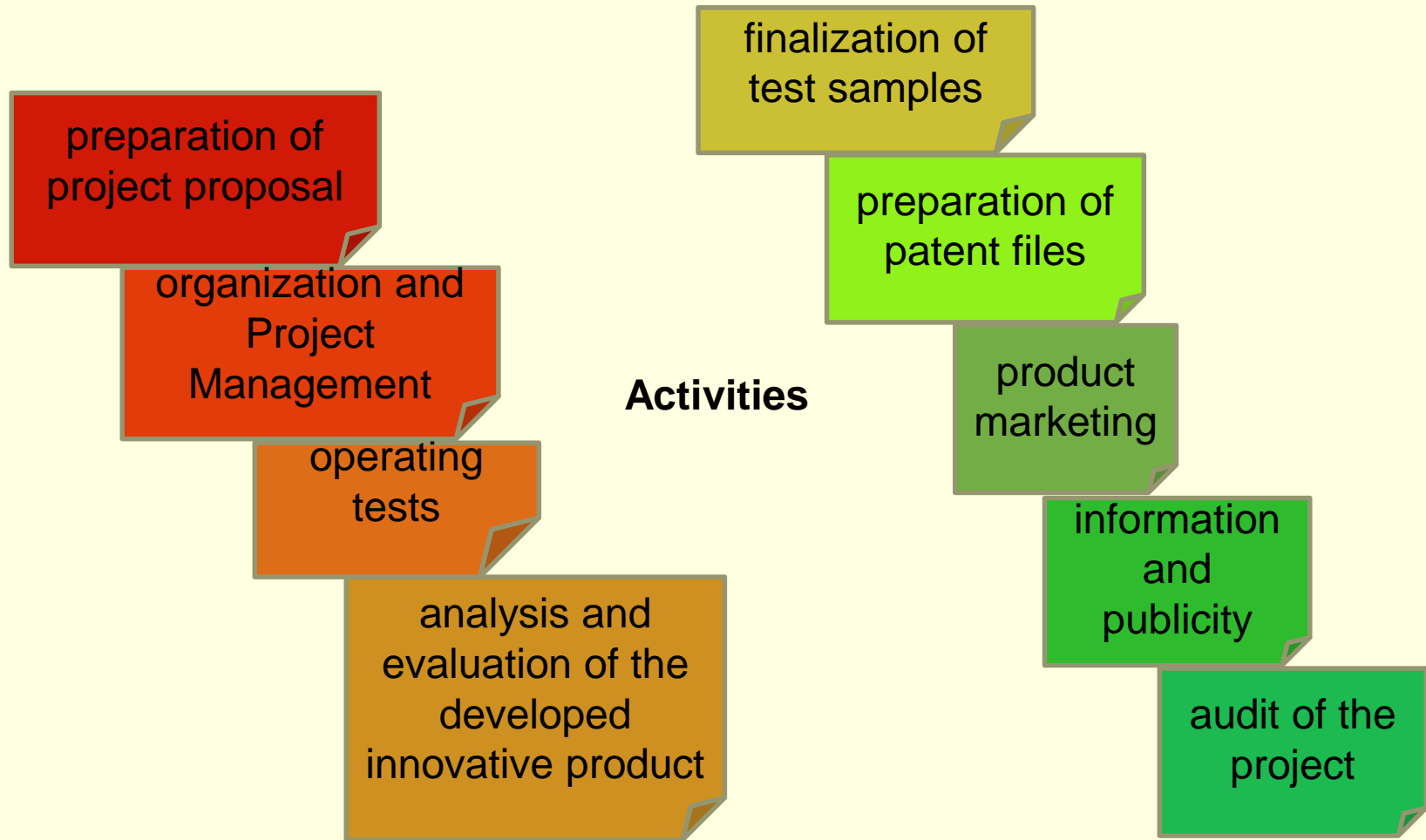
Project BG161PO003.1.1.05-0261 "Filter Media of nonwovens"

- beneficiary: "E-Solar" Ltd;
- funded with the financial support of Operational Programme "Development of the Competitiveness of Bulgarian Economy 2007-2013";
- cofinanced by the European Union through the "European Regional Development Fund";
- the financial support from EU funds amounts up to 90% and the remaining 10% is financed by „E-Solar” Ltd;
- it will be implemented in the period 2013-2015;
- represents the second phase of the development of innovative products, by performing a series of tests and studies.



Specific objectives :

- to provide cost-effective and easily accessible commercial decision of environmental problems with waste from the textile industry and petroleum liquids and oil waste;
- to implement the second phase of research on the development of the innovative product „Filter Media of nonwovens“, namely experimentally to demonstrate the sorption properties of the product and fuel properties of the saturated with oils filter media at a pre-industrial level;
- to implement successfully the scientifically and experimentally developed innovative product and to encourage the development and deployment of innovation in companies after completion of the project;
- the scientific work to be patented, thus to protect industrial property rights of the applicant's research team „E-Solar” Ltd.





- **Methods of organization, coordination and management**
- Planning the implementation of project activities and developing a detailed timetable;
- Definition of job descriptions for team members and preparing tasks, responsibilities and deadlines for implementation;
- Communication, coordination and administration of tasks among the members of the project team and the contractors;
- Preparation, negotiation, management and control of the project signed performance contracts;
- Preparation of periodic reports;
- Planned and convened on necessarily workshops.





- **Methods of financing the activities**
- Advance payment by the Managing Authority to the applicant in the amount of 20% of the total grant;
- Financing the project activities with funds from the advance payment and own funds;
- Four interim payments by the Managing Authority to the applicant at the amount of actually paid costs for separate project activities and the issuing of interim technical and financial statements, but no more than 80% of the grant;
- Final payment by the Managing Authority to the applicant in the amount of 90% of the payments actually made.





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Methods for financial management, reporting and control:

- Operational Plan for the implementation of the project budget;
- Detailed reports for implementation of the planned project budget;
- Technical specifications and terms of reference for the award of activities;
- Double-check of the contracts, accounting documents and records prepared for the procedures for selection of contractors;
- Duly storage and completion of primary documents from the applicant and provide the opportunity to access of the Managing Authority.





Methods for providing publicity and transparency:

- Presentation of the project through the website of the candidate and marking of the purchased assets with stickers and the experimental sites with tables;
- Ensuring transparency in the selection of suppliers through the selection procedure for contractors.





Reporting and control

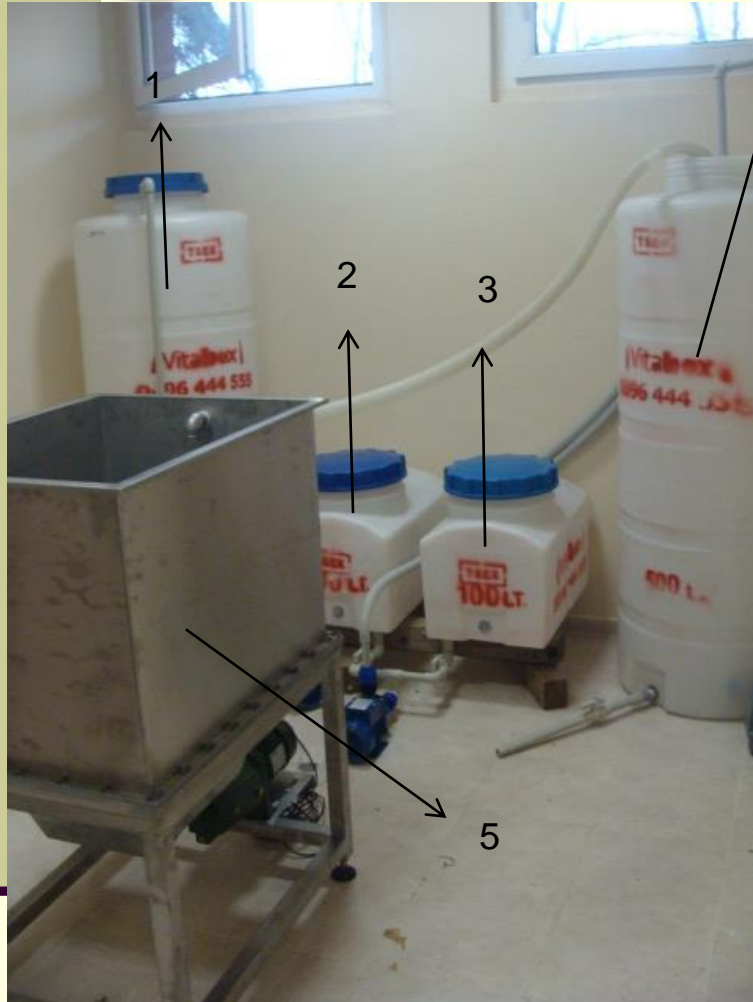
- Interim Report - presented on every request for interim payment, and in the cases specified in the special conditions of the grant contract. It consists of an interim technical report and interim financial statements.
- Final Report - covering the reporting period subsequent to the last approved interim report, and consists of a final technical report and a financial final statement. The final technical report shall contain a detailed description of all activities performed and the conditions under which they were met; results, information on steps taken to ensure the transparency of EU funding, as well as information with which to be assessed the impact of activities.





Expected results:

- after project implementation the beneficiary successfully to launch innovative business, supported by funds from the Operational Programme;
- to create five new employments, 4 of which in the field of research and development activities;
- to be successfully implemented the project „ Filter Media of nonwovens“ in cooperation between the beneficiary "E-Solar Ltd" and research institution – Technical University-Sofia;
- to prepare the successful incorporation in the market of an innovative product - filters of nonwovens;
- to be carried out all necessary actions to register the patent /1/ for the innovative product "filter media" and for utility model /1/ for the installation that manufactures the product.



1. Container for circulation water, which is obtained from preparing the filter media in 5.
2. Container for moisturizing the fibers.
3. Container with a solution of cellulose for dosing in 4.
4. Container for wet casting, comprising an aqueous solution of fibers and cellulose in a ratio of 4:1 and in a concentration of 0.25%.
5. Camera for wet casting.



Strategic role in this respect has the introduction of waste-free and low-waste technologies.

However, sorption process for the purification of waste water retains its role as a growing tendency for the use of non-woven fabric in the manufacture of filters.

Filter media of nonwovens have a number of advantages such as advanced surface, high sorption efficiency, ease of operation, recyclability.

Technologies for producing nonwoven filters with different functions are characterized by high productivity, low production cost, waste-free and allow the use of waste or reclaimed fibers as raw material.



Conclusion

In conclusion, the analysis of the situation of the textile and clothing industry, the ability to collect and sort waste from textile and ready-made manufacturing and household is not yet regulated and organized in accordance with European and international practices.

The country has sufficient resources of textile waste and providing a market for products made of secondary raw materials will solve both the problems of environmental protection and finding economically reasonable way to use waste in various areas of human activity.

Companies for the production of nonwovens have the capacity and competence to produce products that may be integrated in different areas of production and household.

A method and an installation are developed for utilization of textile waste that will be incorporated in industry for minimization of generated waste.



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