One of the objectives of GIZ IMPACT project is to assist selected municipalities in improvement of their waste and wastewater management according to EU environmental standards. During 2013 and 2014, GIZ IMPACT project advised five Municipalities (Aleksandrovac, Bela Crkva, Svilajnac, Krupanj and Kuršumlija) regarding collecting and analyzing data of composition and quantities of their household waste during all seasons. This approach is called Material Flow Analysis (MFA) and was for the first time applied in Serbia on municipal level.

Results of this analysis have shown how many useful materials are placed inside the waste such as plastic, metal, glass, textile, rubber, paper and garden waste. All of these materials can be reused and turned back into the production process.

Based on the obtained data four MFA scenarios were developed for each of the five pilots and are now further evaluated in sense of their environmental, social and economic impact and benefits. Elaborated MFA scenarios foresee introduction of separate collection, reuse, recycling as well as energy production. This will lead to reduction of waste that has to be finally disposed (e.g. in landfills). This will reduce management costs in the long term.

All the activities have been realized in a learning-by-doing approach, involving municipal project teams and PUC workers, with assistance provided by the IMPACT project team, national and international consultants.

In 2014 GIZ IMPACT expanded MFA from municipal (Aleksandrovac) to regional level (Rasina Region with Krusevac as regional center) aiming to propose the most feasible solution for regional waste management. Implementation of the proposed models will require establishment of cooperation between several municipalities and their joint utilities.

**Material flow management (MFM)** is the goal oriented, efficient use of material streams and energy aiming to improve cost efficiency and environmental performance of the economy or region.
Since 2012 GIZ IMPACT Project has been supporting 5 pilot municipalities (Aleksandrovac, Bela Crkva, Krupanj, Kursumlija and Svilajnac) in setting the basis for proper planning of waste and wastewater management. In this context Material Flow Analysis (MFA) included data collection and measurements of waste quantities and qualities. Material Flow Management (MFM) will be introduced following circular economy principles. Inter-communal cooperation has to be introduced, and last but not least vulnerable minorities have to be integrated in public and private service provision.

Approach

Efficient resource usage is promoted in the pilot municipalities by technologies such as recycling, composting, biogas production and wastewater sludge re-use. Public utility companies (PUC) and municipal administrations are accompanied intensively in order to showcase that customized environmental policy can become a valuable economic factor. Circular economy concepts are fostered in combination with environmental communication and citizens’ participation activities in order to create awareness for environmental protection and to establish corresponding communal services.

At the national level, the project advises relevant national institutions (Ministry of Agriculture and Environmental Protection, Ministry of Economy, Standing Conference of Towns and Municipalities) on topics such as circular economy planning, adaptation of EU policy to the Serbian context, public participation as well as integration of vulnerable minorities.

Impact

- MFA approach is appreciated widely among planners and stakeholders;
- Usage of MFA as a planning tool has been spread to regional level at the Rasina Region fostering inter-municipal cooperation;
- Strengthened communication capacities of local administrative and PUC staff raises interest of stakeholders and citizens to address environmental protection issues.
- Circular economy became a national policy issue.