

Urban waste for biomethane grid injection and transport in urban areas

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Summary report on promotion of sustainable waste management in Graz

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Abbreviations

| | |
|-----|-------------------------|
| TF | Task Force |
| MD | Managing Director |
| CEO | Chief Executive Officer |
| PM | Project Manager |
| WtB | Waste to Biomethane |

1 Introduction

In the UrbanBiogas proposal it is foreseen that a separate waste collection system is introduced in the target cities at the end of the UrbanBiogas project. In order to support the urban waste companies a dedicated promotion campaign for citizens should be organised which highlights the trade-off of separate waste collection and sustainable biogas production.

In the city of Graz a separated waste collection is already existing since more than 25 years. So the activities of Graz Energy Agency focussed on the evaluation of the existing system and figuring out what can be optimised. As the city of Graz has an own department for waste management all activities were organised in close cooperation with this institution.

2 Overview of promotion of sustainable waste management activities in the city of Graz

The city of Graz has a long history in waste separation. The separated waste collection started more than 25 years ago. On more than 34.000 sites in Graz (properties, households and public collection centers) the waste containers are positioned. For the following waste fractions different waste containers are foreseen: residual waste, paper, glass, light packaging, metal and organic waste. Textiles, bulky waste, hazardous waste, building rubble, waste oils etc. can be disposed at special collection centers.

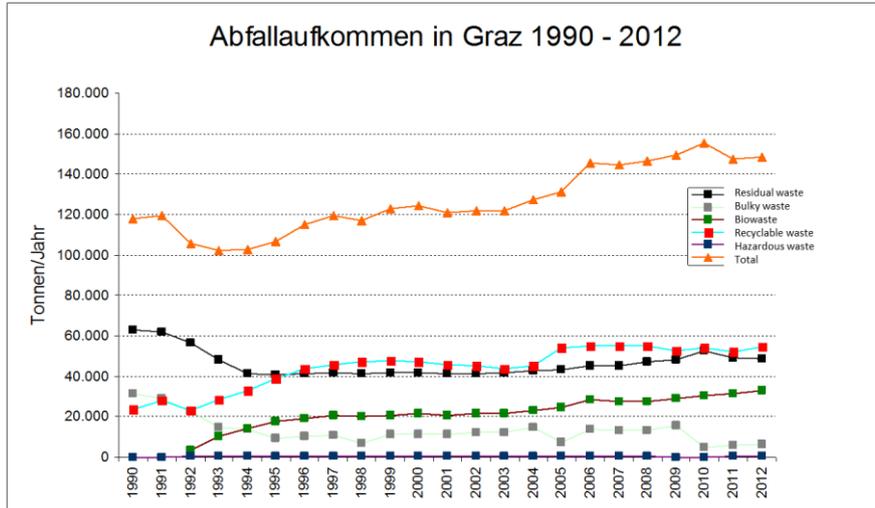


Figure 1: Separated municipal solid waste collection in Graz (Source: Stadt Graz - Umweltamt, 2013)

The collection of biowaste started in 1992 and the yearly collected amount of biowaste per inhabitant constantly increased to about 145 kg/year in 2012.

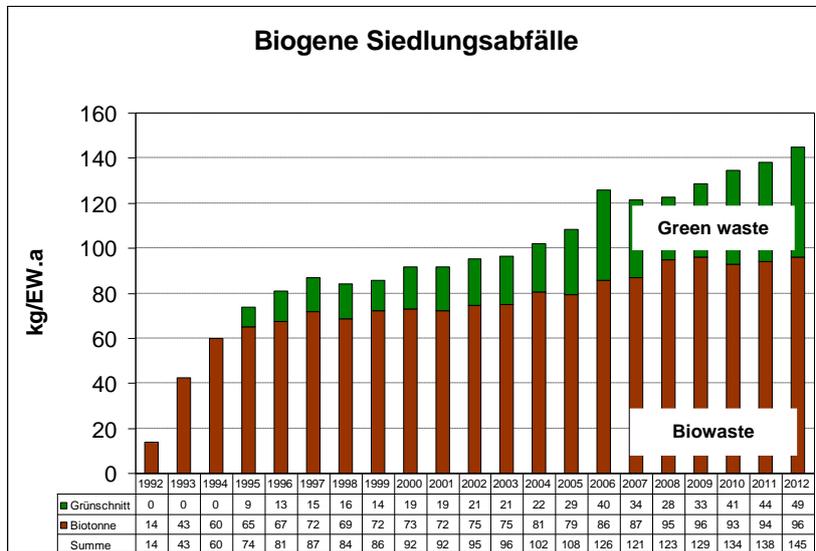


Figure 2: Amount of organic waste from separated municipal solid waste collection in Graz (Source: Stadt Graz - Umweltamt, 2013)

Figure 2 shows the amount of organic waste from the separated municipal solid waste collection in Graz per inhabitant per year. It contains compostable municipal solid waste, like kitchen waste, garden rubbish, tree cut, waste resulted from food market and cemetery waste.

The waste separation in Graz is quite good compared with the Austrian average. Concerning the percentage of the separated collected organic fraction in the municipal solid waste Graz is with 21% two percentage points above the Austrian average. An evaluation of the

remaining residual waste figured out, that with the remaining organic fraction in this residual waste and optimal waste separation behaviour this percentage could theoretically be increased to about 30 to 34%.

About 8% of the citizens of Graz are composting their organic waste themselves. They get a reduced price for the waste disposal but they have to make sure that they really compost their organic waste and they are also controlled.

In the city of Graz the department of environment has an own section for waste management which organises trainings for different target groups. These are especially:

- Citizens in residential areas
- Migrants
- Children in kindergarten's and primary schools
- Companies with high amounts of residual waste and biowaste like restaurants, food markets, etc.

These events are organised at different locations according to the target groups. The events for children take place on one hand directly in the schools and kindergarten's (about one event per week) and on the other hand together with the consultation events in the larger residential areas where 2 groups are formed – one for the children and one for the elder people (about 2 events per month from spring to autumn). In these events the participants are trained in waste separation in theory and in practical use. Therefore the content of the residual waste bins are analysed at site to show the people how waste separation can be done in a more effective way in future and what the cost-saving trough reducing the amount of the residual waste can be.

For migrants there are general info events and also special events in residential areas with a higher percentage of migrants. In Graz the info sheet about waste separations is available in 19 languages and also in braille.

Additional to these info events mainly organised by the department of environment of the city of Graz also the waste disposal company organises about quarterly info events at the centres for taking over bulky waste and green waste.

Joint events for the citizens of Graz are organised about half-yearly at the main square of Graz where the department of environment, the waste disposal company, Re-Use companies etc. show how the optimal way of waste separation can work. In most cases small competition events are a part of these events.



Figure 3: Info event on waste separation on the main square of Graz – 25.04.2014 (Source: GEA)

3 Description of main target groups and participants

The target groups for the regularly info events in the city of Graz were already mentioned in the chapter before as the way of waste separation and also training the population is a well-known one in Graz. Graz Energy Agency in cooperation with the department of environment organised two info-events within the UrbanBiogas project:

1. First event at the 25.04.2014 on the main square of Graz in the frame of an info-event about waste separation and Re-Use. As the event started at 10 am and ended at 5 pm there were about 200 to 300 visitors the whole day with about 40 direct contacts. It was combined with small competition event with questions about waste separation.



Figure 4: Info event on waste separation on the main square of Graz – 25.04.2014 (Source: GEA)

2. Second event on the 06.05.2014 in the housing settlement “Floßlandsiedlung” in Graz. 2 hours info event about the correct way of waste separation with 2 groups: children between 4 and 12 and elder people (mainly parents and grandparents of the children). Together 19 participants.



Figure 5: Info event on waste separation housing settlement “Floßlandsiedlung” in Graz – 06.05.2014
(Source: GEA)



Figure 6: Info event on waste separation housing settlement “Floßlandsiedlung” in Graz – 06.05.2014
(Source: GEA)

4 Summary results of promotional activities

That the population of Graz is used to waste separation doesn't mean that they don't have to be reminded about the correct way of doing it. That's the reason why regularly info events are organised. On the other hand there must be a chance for migrants to learn about the way of waste separation. That's the reason why in Graz the info sheet is translated to 19 languages and also in braille and special info events for migrants are organised.

Children like to learn about waste separation. The strategy for the info events in the residential areas is to invite the children in kindergarden or in school to participate to the events organised in the residential areas they are living in and to bring their parents to these events. This "strategy" works quite well as the children try to train their parents to do waste separation in the correct way (remind them).

As the organic waste of the city of Graz is up to now composted the content of tree cut etc. is no problem. Experiences from other cities where biogas/biomethane plants are installed have shown that the population has to be trained how to separate these materials as tree cut is no good feedstock for biogas plants. This step has to be done in Graz when the biogas/biomethane plant will start in Graz.

Concerning the citizens self-composting their organic waste (about 8% of the population of Graz) right now there will only be a chance to convince them to give their organic waste to the city and the biogas plant when they don't have higher costs for waste disposal compared to the situation now and when there is a chance for them to get humus in an equal quantity for free.

Concerning the acceptance of the citizens for a biogas/biomethane plant in their city (result from survey and interviews with the citizens): The question about the plant location is the most critical one as there are negative experiences with especially one plant in another city nearby Graz (especially with odour). It's important for the citizens to hear about good practice from existing biogas/biomethane plants and to show them their benefits. The plant position has to be at in a suburban area to ensure that no negative effects like odour, higher traffic frequency, etc. arise for the citizens.

Table 1: Summary of activities for promotion of sustainable waste management in Graz

| Name of WM promotion activity | Date (time period) | Number of participants | Short description of activity |
|--|--------------------|--|--|
| Info event on main square | 25.04.2014 | about 200 to 300 visitors of the event; about 40 direct contacts | Joint info-events for the citizens of Graz in cooperation of the department of environment, the waste disposal company, Re-Use companies etc. show what can be done concerning the optimal way of waste separation |
| housing settlement "Floßlendsiedlung" in Graz about waste separation | 06.05.2014 | 19 participants | Info event about the correct way of waste separation |

5 Conclusion

The **most effective tools** for raising public awareness for waste separation in a city where waste separation is implemented since more than 25 years are the following:

- Target group specific info events at locations where the waste is collected (residential areas, companies, etc.),
- Events on public areas with competitions etc.,
- Integration of the children and make them the “good example” for their parents and the elder people,
- Info material has to be translated to the languages the people are speaking (don't forget students and workers from foreign countries) and special trainings have to be organised,
- Regularly info events are necessary to keep the trained things in mind,
- Distance to the next waste collection centre must be in the same distance or closer as the nearest grocery shop.

Main problems faced during implementation promotional activities:

- “Getting” the people for the activities/events as they think they do waste separation already in the correct way
- Problem of understanding: “it's more effort for me, what's the profit for me”
- Mentality of migrants from countries (or even other Austrian cities) where waste separation is not standard
- Especially for elder people it's sometime quite hard to change their behaviour

General proposals for future promotional activities form promotion sustainable waste management:

- On site-training – waste separation in larger residential areas
- Info events on public areas combined with competition events etc.
- Integration of children as good examples and multipliers