



## Project 0% Tailings

<b>Contractor:</b>	<b>Graduates of the "Specialised Academy Environmental Protection" 1993/1996</b>
<b>Customer:</b>	<b>Styrian Provincial Government - Specialised Division 1c</b>
<b>Participants:</b>	<b>Commune of Hitzendorf</b>
<b>Date of Publication:</b>	<b>October 1994</b>

### 1. Summary

Prevention, recycling, freeing from pollutants, treatment of the tailings that cannot be recycled and cannot be directly put on a landfill either as well as putting tailings that are fit for ultimate storage on a landfill definitely are the elements on which an integrated concept for waste disposal can and must be based.

This finding has helped Styria to give a good example to other provinces by taking a series of measures for creating and implementing an advanced Waste Management Act.

All the endeavours must be oriented towards getting a grip on the highest potential, i. e. that offered by waste prevention. This is not only due to the fact that it is becoming impossible to find sites for landfills and, above all, to erect treatment facilities for the thermal treatment of non-recyclable waste that is accepted by the population. However, it is also a matter of saving resources, saving energy and thus reducing the environmental impact.



### 2. Starting Position

In § 1 al. 2 AWG (Abfallwirtschaftsgesetz - Waste Management Act), the principles for waste management are fixed for Austria as a whole.

- Waste prevention: The amounts of waste and their content of pollutants are to be minimised.
- Recycling: Waste is to be recycled as far as this is ecologically advantageous and technically feasible, the resulting additional expenditure as compared to other techniques of waste treatment is not disproportionate and a market for the gained materials is there or can be created.
- Waste disposal: Depending on its properties, waste that is not recyclable is to be treated by using biological, thermal or chemical-physical methods. Solid residues should be put on landfills by causing as little reaction as possible and by structuring it in a conditioned way.

The starting point of the study was an amount of tailings of 148 t (without bulky waste) in 1994. This corresponds to a share of 35% in the overall amount. The mean amount of tailings per head amounted to 60 kg/inh.a



### 3. Procedure

The Commune of Hitzendorf was selected because it has a rural structure and does not have an excessive share of trade and industry with its 31 businesses. In the commune, there are 23 different fields where waste is produced, only the following fields having been considered:  
Agriculture and forestry

- Parish & graveyard administration

- Festivals & events
- Farmers' market
- Sports facilities & club house
- Sewage clarification plants

The total waste in 1994 amounted to 524,700 kg. The main share is formed by tailings with 35%. The next items are metal with 15%, bulky waste with 13%, paper with 12% and glass with 11%. The remaining types of waste, i. e. bio-waste, packaging material, problematic material and cans have a share that is below 10%.

The Commune of Hitzendorf was one of the first communes in Styria that had found a very important solution for the problem by erecting an own landfill for tailings in 1985 in a joint administration with its 6 peripheral communes. There are 8 collecting isles with one container for coloured glass, white glass, paper and cans each. The fact that this number is relatively low in relation to the population implies that some citizens have to cover large distances. Furthermore, there are still 25 sites with altogether 37 containers for paper, 19 for glass and 11 for metal. Bins for bio-waste only are necessary for 8% of the population because 92% of the households compost bio-waste alone or together with neighbours.

- Waste disposal: Tailings are transported off in a four weeks' interval. The containers for glass and metal also are emptied in a four weeks' interval. The containers for paper are emptied every two weeks. Twice a year bulky waste is collected. The waste disposal cost per head amounts to ATS 247,-- a year.
- Packaging Regulation: The collection in yellow bags requires additional transport expenditure for the inhabitants.
- Landfill: A comparison between the amount of tailings delivered to the landfill shows a slight reduction from 1993 to 19994 (Packaging Regulation) of 5%.
- Sorting analysis: By using small lorries of the commune, containers were collected, identified and sorted in a well-aimed way and without notice. This analysis has had the following results:
  - In commercial companies, 42% of the produced tailings consist of waste materials that might be fed into an existing waste disposal or recycling system.
  - The tailings of the households only have 23% waste materials.
 On the whole, this results in a share of waste materials in tailings of 27%. A further reduction by 24% would be possible at an additional separation of hard plastics, wood, textiles and diapers.

Conclusion: It would theoretically be possible to reduce the amount of tailings by 51% (27%+24%).



## 4. Goals

The present project study was to study whether it was possible for a commune that was exemplary in the field of waste management and had already taken a lot of action for waste prevention and recycling to reduce the amount of tailings to zero % by taking still other measures. As a rule, the costs and expenses for waste collection / waste transport, separate collection of waste materials, erection and operation of a centre collecting waste materials, bio-waste collection, bio-waste composting, waste consultancy and the like will be passed to the citizen's account. If the "polluter pays" principle, according to which the amount of tailings actually produced is to be taken into account when prescribing the waste fees, the waste disposal cost (ATS/kg tailings) will be increased dramatically, which might encourage people to illegal practices.



## 5. Result / Benefits

The share of tailings amounting to 35% could be reduced to 26% if the waste materials contained in the tailings were removed. If the removal were also applied to diapers (100%), hard plastics (50%), textiles (90%) and wood (50%), the theoretical value of a share of tailings amounting to 17% might be reached. Separating the waste even more can neither reasonably be expected of the population nor is it economically viable.

**The project target 0% tailings is not achievable.**

