



GOOD PRACTICE STYRIA: REMEDICATION OF CONFIRMED CONTAMINATED SITES

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Content table

1.	General information on the good practice (GP)	3
1.1	General information	3
1.2	Context.....	4
1.3	Short description.....	4
1.4	Objective.....	5
1.5	Method used to identify the good practice	5
1.6	External factors.....	6
2.	Implementation.....	6
2.1	Preparation phase.....	6
2.2	Technical implementation.....	6
2.3	Communicative implementation.....	8
2.4	Organisations involved.....	9
2.5	Key success factors.....	10
2.6	Resources.....	11
3.	Results	13
3.1	Monitoring of the progress of the GP.....	13
3.2	Other results	13
4.	Lessons learned.....	14
4.1	Negative effects	14
4.2	Challenges.....	14
5.	Pictures and other documentation.....	15
6.	Further information	16
7.	Other regions with similar good practices.....	17

1. GENERAL INFORMATION ON THE GOOD PRACTICE (GP)

1.1 General information

Region	Styria
Country	Austria
Short name of the good practice	Remediation of Confirmed Contaminated Sites
Geographical level of implementation (country, region, municipality...)	Austria nationwide
Target group	
Date of implementation/duration	1989 – until now
Waste stream (and subcategory)	all
Legal framework	Act on the Remediation of Contaminated Sites (ALSAG)
Main local instruments involved	Waste tax, legal obligation on waste treatment
Scale (pilot/partially roll out /roll out)	Roll out
Initiator/coordinator	Ministry of Agriculture & Forestry, Environment & Water Management
Demography Austria	
Population	8,5 M.
Number of households	3,7 M
Area (km ²)	84.000
Population density (number of inhabitants/km ²)	101
General waste data (Not necessarily related to the GP but to give some background information. Data about the GP should be included under 3.1)	
Year of the following waste data	2012
Sum of all waste streams excl. residual & bulky waste (kg/inhabitant/year) (Use indicator 1 or 2 from the R4R Online Tool)	269,3

Residual waste (including sorting residues) (kg/inhabitant/year) (Use indicator 8 or 9 from the R4R Online Tool)	128,9
Total waste (add up the previous two)	398,2
Sum of all waste streams excl. residual & bulky waste to DREC (kg/inhabitant/year) (Use indicator 3 of the R4R Online Tool)	269,3

1.2 Context

Originally Austria had no regulations or technical requirements for landfill sites. Dumping was done everywhere where it was possible. The problems that resulted out of this non-regulated landfill sites were:

- soil pollution
- ground water pollution
- odour nuisance
- plague of rats
- risk of fire
- risk of injury for children and animals

Another problem was the non-availability of new spaces for creating new landfill sites, as the acceptance of people towards the dumping sites became lower and lower.

Therefore the national legislature had to react in order to find an appropriate solution for the problem of the non-regulated landfilling.

1.3 Short description

By passing the Act on the Remediation of Contaminated Sites (ALSAG) on 1st July 1989, Austria became one of the first European countries to implement binding and important steps towards a targeted registration of suspected and confirmed contaminated sites. In addition to setting out the framework for instructing the containment and remediation of sites, the Act provides for a financing basis to support suitable measures.

Original text out of the Federal Waste Management Plan 2011

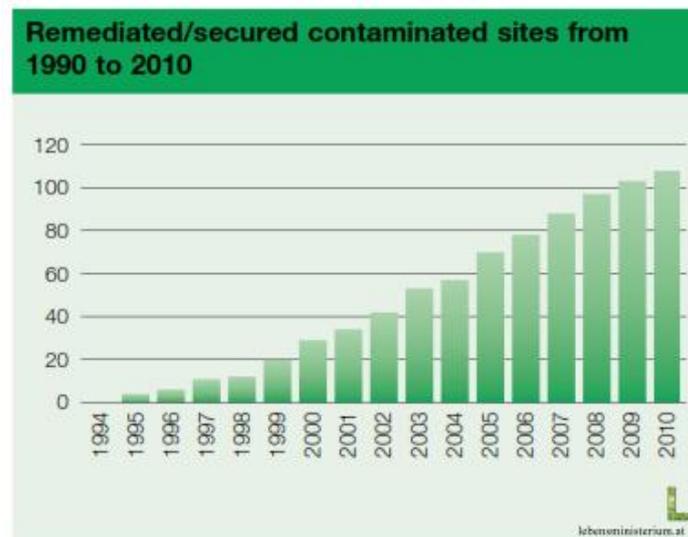
1.4 Objective

The aim of the Act on the Remediation of Contaminated Sites:

- Introduction of a fee system for landfills in order to foster waste prevention
- Regulation of source streams (introduction of recycling)
- Decontamination of sites with the aim of re-establishing the original environmental conditions
- Establish a funding scheme for the remediation of contaminated sites by earmarking landfill fees
- Reduction of risks of unregulated landfill sites (for humans, animals and the environment)
- Register historically contaminated sites within one generation (2025)
- Implement measures (decontamination, containment, observation, restriction of use) for heavily contaminated sites within two generations (2050)

1.5 Method used to identify the good practice

The method used to identify this good practice is evolution.



Original figure out of the Federal Waste Management Plan 2011

The introduction of ALSAG is a Good Practice as it was the first legal and financial instrument to enable the financing of the remediation of contaminated sites in Austria. Since the introduction, the remediation of contaminated sites in Austria increased steadily during the last 20 years.

1.6 External factors

Styria is a very attractive area for tourism and has set its focus on the promotion of the Province as a place with clean air, clean water and clean environment. The remediation of contaminated sites is an important measure in order to ensure that clean environment.

2. IMPLEMENTATION

2.1 Preparation phase

Before the Act on the Remediation of Contaminated Sites was released, a first rough investigation about contaminated sites was carried out and the costs for their remediation were estimated in order to get an overview about the status quo situation. This first investigation was also necessary in order to define the amount of the contribution to be charged in future on landfilling.

2.2 Technical implementation

The process of identifying former disposal or industrial sites (suspected contaminated sites) as sites that require securing and remediation starts with the Provincial Governor (once the relevant data has been recorded) reporting a suspected contaminated site. This notification must contain certain minimum information. If a substantial risk (initial appraisal) is suspected, the information is added to the Register of Suspected Contaminated Sites.

The preliminary assessment also determines whether there is need for additional investigations which can be financed through funds earmarked for contaminated site contributions (commissioned by the Federal Ministry of Agriculture, Forestry, Environment and Water Management through the various Federal Provinces). If the investigations and the subsequent risk assessment indicate substantial risks to human health or the environment, the suspected contaminated site is registered as a contaminated site requiring securing and remediation according to the Ordinance on the Register of Contaminated Sites (since 1 July 2004 by announcement in the Austrian Federal Law Gazette and, previously, by entry in the Register of Contaminated Sites managed in the form of a database by Environment Agency Austria). A (three-stage) priority classification is used to express the degree of risk and the resultant urgency (of funding) for the required remediation.

If the risk assessment indicates no substantial risks, the area is either deleted from the Register of Suspected Contaminated Sites (the data obtained is retained) or it remains in the Register as an area under observation (the existing pollutant potential requires observation that can be funded

using ALSAG funds). Contaminated sites or confirmed contaminated sites that have been remediated or secured are deleted from the Register of Suspected Contaminated Sites or listed as remediated or secured in the Register of Contaminated Sites. Overall, it can be assumed that the level of detection of former disposal or industrial sites is very high (60,808 detected areas), of which 2,144 areas are registered in the Register of Suspected Contaminated Sites (as of 1 January 2011).

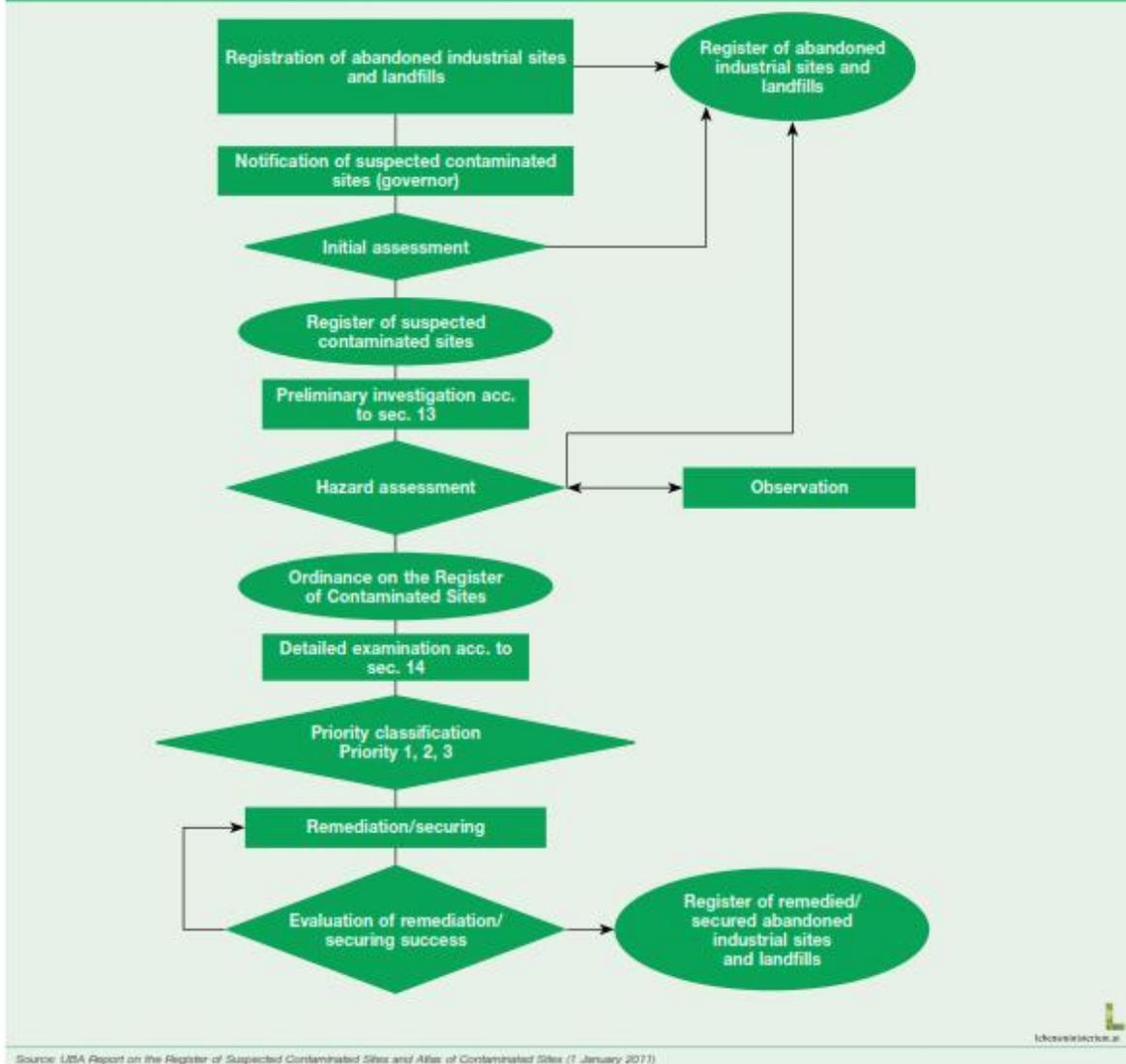
To date, 256 areas have been identified as contaminated sites that need securing or remediation in the Register of Contaminated Sites on the basis of investigations and risk assessments conducted.

108 of these have already been secured or remediated.

Securing or cleanup measures are already underway for a further 86 contaminated sites (as of 1 January 2011). In addition to the Ordinance on the Register of Contaminated Sites, further information on suspected contaminated sites and confirmed contaminated sites can be found at www.umweltbundesamt.at.

In accordance with sec. 18 ALSAG, the Federal Government, as the provider of civil rights, is charged with carrying out the required remedial measures on contaminated sites according to the priority classification, if no other person can be obliged to do so.

Flow chart for the handling of abandoned landfills and industrial sites in the course of implementing the Act on the Remediation of Contaminated Sites



Original text and graphic out of the Federal Waste Management Plan 2011

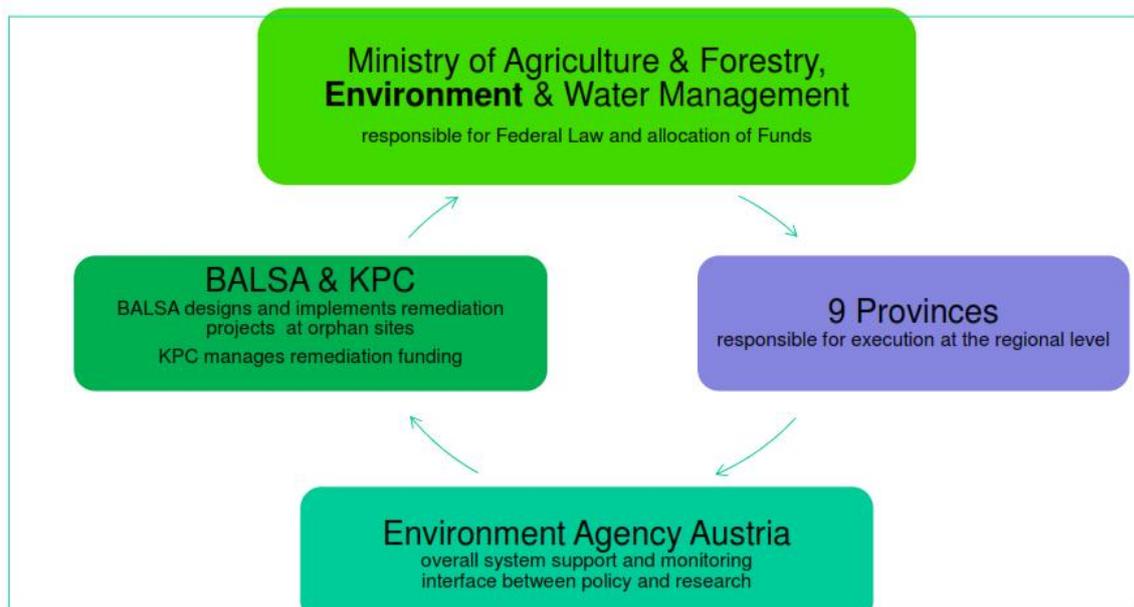
2.3 Communicative implementation

Please describe how the information and awareness campaigns about the new GP are organised.

As ALSAG was released as a law, the parliament decided the act – the Ministry of Finance was responsible for the information of the public. Some accompanying information on the new law were given by the Provincial Governments, landfill operators and the Waste Management Associations.

2.4 Organisations involved

Please give an overview of the organisations involved in the implementation of the good practice e.g. national, regional, local level, NGO's, accredited bodies...



Source: Lebensministerium, "Risk assessment and remediation of contaminated sites"

The Ministry of Agriculture & Forestry, Environment & Water Management is responsible for the Federal Law (Act on the Remediation of Contaminated Sites) and for the allocation of Funds.

The 9 Austrian Provinces are responsible for the execution of the law at the regional level.

The National Environment Agency provides the overall system support and the monitoring of contaminated sites and is acting as the interface between policy and research.

The subsidies for securing or remediation measures for contaminated sites are managed by Kommunalkredit Public Consulting GmbH (KPC).

For those sites that have been located, but whose users cannot be called to account any more (orphan sites), the BALSA GmbH takes over the realisation of remediation measures. BALSA GmbH is a fully owned subsidiary of the National Environment Agency. The BALSA GmbH disposes of a top team of specialists from the technical fields of environmental and construction engineering, waste

management as well as procurement and environmental law. The range of services by the Balsa GmbH comprises the planning of exploration measures, the total implementation of remediation measures and the follow-up.

Original text out of the Federal Waste Management Plan 2011

2.5 Key success factors

Please give a short description of the elements necessary to make the implementation of the good practice successful!

E.g. Involvement of the stakeholders, financial support/funding, accompanying measures, clear and binding responsibilities for all stakeholders, feedback of the results to all stakeholders

By international comparison, Austria ranks among the leaders in the management of contaminated sites in view of the measures taken to date by all stakeholders to comply with the Act on the Remediation of Contaminated Sites. The Austrian remediation model, which has been in effect for more than 20 years, is unique in the world and has received much interest from abroad. Nowhere else in the EU is there a comparable financing model that channels fees paid for waste processing exclusively into the remediation of contaminated sites. In Austria this guarantees a reliable protection of the population and the environment, as well as the speedy mitigation of past environmental pollution.

- The Austrian system is solution-oriented: Subsidies are provided for necessary remediation efforts on contaminated sites, speeding up the process and making it possible for stakeholders to voluntarily remediate contaminated sites without running the risk of financial ruin.
- The Austrian System is standardised throughout the country: as it falls under federal jurisdiction, it has been possible to harmonise implementation procedures throughout Austria. In many other European countries the regions and provinces are responsible for the remediation of contaminated sites. As a result, different programmes for the remediation are being implemented in those countries. This diversity results in inequalities across the various regions of the country, concerning both the economic aspect and the protection of the populace.
- ALSAG funds guarantee a reliable implementation of high-quality measures: investigations into the hazard potential are financed from contaminated site contributions. Accurate conclusions can be drawn from these studies on the hazard to human health and the environment.

Original text out of the Federal Waste Management Plan 2011

2.6 Resources

A contaminated site contribution is charged to finance the measures necessary for the implementation of a comprehensive management programme for contaminated sites in Austria (this contribution is earmarked primarily for the registration, assessment and remediation of contaminated sites).

The contaminated site contribution introduced by the ALSAG Act in 1989, which has been payable since 1990, is essentially comprised of a charge on the landfilling of waste; it was amended to take into account the latest changes in the Landfill Ordinance during the adjustment period (1996-2004 and 2009), and thereby turned into an effective steering mechanism. (A charge of € 87.00 per tonne was payable for the landfilling of untreated waste that did not conform to the Landfilling Ordinance.)

From 2006 onwards, an additional charge was introduced for the incineration of waste and the production of fuel products (while the residues from incineration remained exempt).

The current charges payable:

Landfilling of waste

- € 8.00/t on excavated soil, inert wastes well as construction and demolition waste landfills
- € 18.00/t on residual waste landfills
- € 26.00/t on mass waste landfills

Incineration of waste, production of fuel products from waste, feeding a blast furnace with waste

- € 7.00/t

Storage of waste for disposal (> 1 year), for recovery (> 3 years) and landfilling with waste (incl. backfill)

- € 8.00/t for mineral waste (up to the quality of construction and demolition waste)
- € 87.00/t for all other waste

Use of Revenue from Contaminated Site Contributions

Of the funds generated by contaminated site contributions 85% is used for

- the promotion of securing and remediation measures
- securing and remediation measures of the Federal Government in acc. with sec. 18 ALSAG
- reimbursements (limited in time and amount)

and 15% is used for

- the implementation of supplementary investigations at suspected and confirmed contaminated sites as well as for studies on these and handling costs.

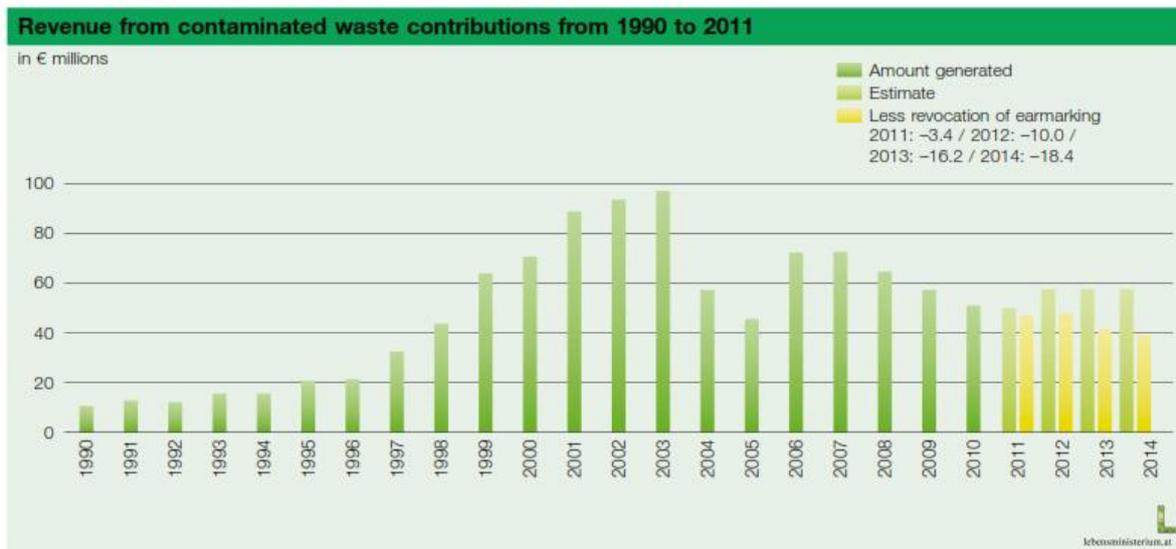


Figure: Federal Waste Management Plan 2011

The revocation of the earmarking (2011 – 2014) is a one-off measure that is intended to help consolidate the budget and will not be extended.

Total revenue from contributions to contaminated sites currently amounts to some € 1.02 billion (1990 – 2010).

To date, the Federal Minister for Agriculture, Forestry, Environment and Water Management has approved 237 subsidisation projects with a total investment volume of approx. € 1.02 billion and guaranteed subsidies of a volume of approx. € 774 million. The earmarked subsidies of approx. € 774 million are distributed across

- 208 contaminated site projects in the amount of approx. € 743 million
- 29 research projects in the amount of approx. € 13 million
- Immediate measures at the contaminated site Fischer-Deponie in the amount of approx. € 18 million

The subsidies are granted mainly for production and implementation measures (investment costs), ongoing securing and remediation measures over a period of five years (operating costs), as well as planning and construction supervision measures. The subsidies for securing or remediation measures for contaminated sites are managed by Kommunalkredit Public Consulting GmbH.

Original textout of the Federal Waste Management Plan 2011

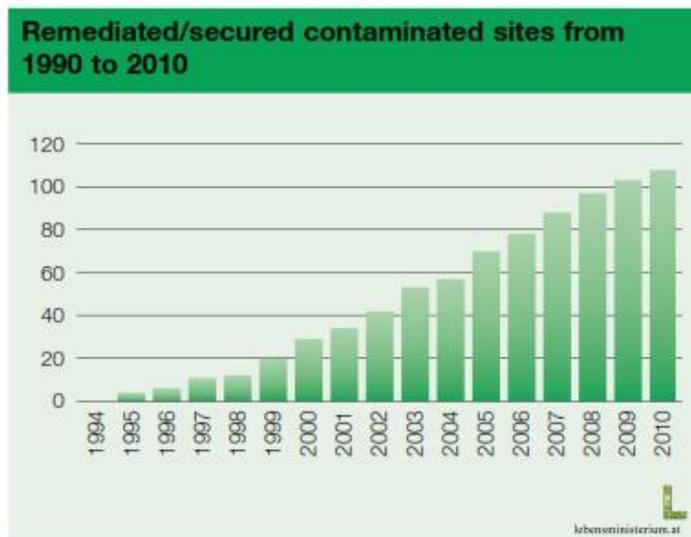
3. RESULTS

3.1 Monitoring of the progress of the GP

Please give a short description of the evolution of waste data since the implementation of this GP and prove this with some statistics if possible. Use the reports generated in the R4R Online Tool.

By January 1st 2011, a total of 256 sites had been registered as a source of substantial environmental hazard in accordance with the Ordinance on the Atlas of Contaminated Sites, and were rated as contaminated sites requiring securing and/or remediation. In the meantime, 108 of these contaminated sites have been categorized as secured or remediated. For an additional 92 contaminated sites, securing and remedial measures are currently underway or being planned.

Original text out of the Federal Waste Management Plan 2011



Original figure out of the Federal Waste Management Plan 2011

3.2 Other results

Are there other important results to mention, e.g. environmental impact, satisfaction/response from the target group, employment creation, increasing the recyclability (purity) of the collected waste streams.

The Act on the Remediation of Contaminated Sites (ALSAG) and the Environmental Support Act (Umweltförderungsgesetz, UFG) have together made a significant contribution to the remediation of historical environmental harm. Since 1990, the Federal Ministry of Agriculture, Forestry, Environment and Water Management has provided funds of more than € 770 million in the form of

subsidies for environmental projects to do with the remediation and containment of contaminated sites.

These measures have improved the state of the environment and prevented harm to human health. The remediation of contaminated sites made it possible to improve the quality of approx. 46 million cubic metres of groundwater – equivalent to the annual water consumption of approx. 1.7 million persons. A total of 16.5 million tonnes of contaminated site materials were removed, thus preventing the further dispersal of pollutants through seepage water. 246 tonnes of solvents were extracted from the groundwater. As a direct result of the remedial measures, approx. 145 hectares of fallow land was rehabilitated and is now used for economic activity.

116 contaminated sites in areas where groundwater is used have been remediated; at 8 sites, escaping landfill gases were contained.

The implementation of the Austrian Act on the Remediation of Contaminated Sites has contributed substantially to the reduction of climate-relevant greenhouse gases, particularly methane, emanating from all landfills.

In 1990, domestic abandoned landfills produced 3.4 million tonnes of CO-equivalent worth of greenhouse gases (approx. 4.3% of the total Austrian greenhouse gas emissions). Thanks to the measures implemented for the remediation of contaminated sites, these emissions had fallen to 0.7 million tonnes of CO-equivalent by 2005.

Original text out of the Federal Waste Management Plan 2011

4. LESSONS LEARNED

4.1 Negative effects

Some negative effects resulting out of the introduction of the contaminated site contribution are illegal dumping, for example in forests or illegal incineration of waste in order to avoid the fee for the landfilling of waste.

4.2 Challenges

Building on the experience gained in over 20 years it is the stated aim of the Federal Ministry of Agriculture, Forestry, Environment and Water Management to implement a procedural law for contaminated sites in the current parliamentary term.

A new federal act governing the implementation and financing of the remediation of contaminated sites will take on board the successful elements of ALSAG 1989, but set out separate, new procedure. The current practice of approving measures to remediate contaminated sites on the

basis of law governing the various materials, particularly water law, must be considered as sub-optimal in light of these laws and regulations that aim to ensure precautionary environmental protection.

Contaminated sites constitute environmental damage that has arisen sometime in the past (according to the current laws in the period prior to 1 July 1989), where decontamination with the aim of re-establishing the original environmental conditions is usually neither technically nor economically feasible or expedient. Both the categorisation as a long-term contaminated site and the definition, based on this categorisation, of remediation targets should not orientate themselves solely on the encountered contaminants, their reaction potential and the site-specific factors, especially geological and hydro geological factors, but should also include the possibility of dispersion of pollutants as well as the intended future use of the site and the protected assets concerned.

Furthermore, special provisions will ensure that the responsible polluters can be swiftly identified. Experts are in agreement that in order to ensure a successful continuation of the measures set so far and to achieve the overriding aim of completing the remediation of long-term contaminated sites in Austria within the time frame of two generations (i.e. by 2050), funds of approx. € 100 million from public and private sources must be invested every year. The sourcing of these funds or of part of the public funds of at least € 70 million therefore also necessitates an adaptation of the existing contribution system in the medium term.

Original text out of the Federal Waste Management Plan 2011

5. PICTURES AND OTHER DOCUMENTATION

Federal Waste Management Plan 2011: <http://www.bundesabfallwirtschaftsplan.at/>

Risk assessment of contaminated sites in Austria: [presentation](#) of the Ministry of Life

Use of contaminated site contributions – as of 1 January 2011				
	Focuses	Pre-allocations	Payments	Total
	1	Subsidies: amount in € million		
		184.53	558.17	742.70
		2.57	10.30	12.87
		0.70	17.78	18.48
86%	Subsidy total:	187.80	586.25	774.05
	Measures taken by the Federal Government in acc. with sec. 18 ALSAG:			
	2	284.01	22.55	306.56
	3		88.90	88.90
15%	4	38.88	54.74	93.62
100%	total	510.69	752.44	1,263.13

Original figure out of the Federal Waste Management Plan 2011

Breakdown of funds used by Federal Province			
FP	Number	Investment costs	Subsidy
Burgenland	8	12,345,678	7,241,055
Carinthia	22	112,368,014	76,801,544
Lower Austria	44	247,489,014	205,413,964
Upper Austria	57	159,489,077	115,236,708
Salzburg	9	99,378,852	62,289,668
Styria	12	52,004,088	38,578,984
Tyrol	17	53,641,499	34,218,212
Vorarlberg	1	1,603,110	1,122,177
Vienna	38	248,026,718	201,798,104
Total	208	986,346,050	742,700,416

Original figure out of the Federal Waste Management Plan 2011

6. FURTHER INFORMATION

Organisation	Office of the Federal State Government of Styria, Division Waste Management and Sustainability
Address	Bürgergasse 5a, A-8010 Graz
Contact person	Wilhelm Himmel

Phone	+43 316 877 4323
E-mail address	wilhelm.himmel@stmk.gv.at
Website	abfallwirtschaft.steiermark.at
Others	

7. OTHER REGIONS WITH SIMILAR GOOD PRACTICES

The following partners of the R4R-project have a good practice similar to the good practice described in this factsheet:

Organisation	Southern Regional Waste Management Office
Address	Limerick City & County Council, Lissanalta House, Dooradoyle, County Limerick IRELAND
Region	Limerick/Clare/Kerry Region (now part of the larger Southern Region)
Country	Ireland
Contact person:	Philippa King/Carol Sweetnam
Phone	00353 61 496842/00353 61 496841
E-mail address	philippa.king@limerick.ie carol.sweetnam@srwmo.ie
Website	www.srwmo.ie
Others	
Short description of the main differences.	In accordance with the Waste Management Act, 1996 waste management plans, in Ireland, are required to include an inventory of sites identified as previous disposal/recovery sites. A risk assessment of these sites is required as well as identifying the remedial action to be

taken. To ensure a consistent approach to environmental risk assessment by local authorities the EPA issued a *Code of Practice for Environment Risk Assessment for Unregulated Waste Disposal sites* in April 2007. The Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations, 2008 required all landfills closed between 1977-1997 to have at a minimum Tier 1 assessments (desktop & walk-over survey) completed by the 31st December 2009 with Tier 2 (site investigations and testing) and Tier 3 stages (quantitative risk assessment) following on as soon as possible. On completion of the assessments the local authorities applied for the Certificate of Authorisation from the EPA. The Department of the Environment have provided funding for Tier 2 & 3 investigations of some landfills. However a number of local authorities within the region are currently awaiting further funding from the Department prior to commencement Tier 2 and 3 stages of assessment, due to the significant costs involved.

The historic landfills will be ranked and a roadmap prepared for dealing with these landfills as a policy action in the New Regional Waste Management Plan.

REGIONS FOR RECYCLING

