

**Russian – Danish Local Government Project**  
Gusev Municipality – Kaliningrad Oblast – Russia  
Odense Municipality / Odense Waste Management Company - Denmark

## **Gusev Municipality - Kaliningrad Oblast - Russia**

### **Russian - Danish Pilot Project within the Programme of Local Government Development**

#### **Solid Household Waste Collection, Separation and Processing: Concept Development**

#### **Final Report**

May 2009



**CITY OF ODENSE**

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## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>4</b>
1.1	Background .....	4
1.2	Project Objectives and Targets.....	4
1.3	The Aspirations of Gusev .....	5
1.4	Project Participants.....	5
<b>2</b>	<b>SOLID WASTE MANAGEMENT IN GUSEV.....</b>	<b>6</b>
2.1	Existing Situation .....	6
2.2	New Solid Waste Management Centre in Gusev.....	6
2.3	Restructuring the Solid Waste Management Fees .....	7
2.4	Lack of Federal Legislation to Increase Recycling.....	7
<b>3</b>	<b>PROPOSALS FOR IMPROVEMENT OF THE GUSEV SOLID WASTE MANAGEMENT SYSTEM .....</b>	<b>9</b>
3.1	Solid Waste from Households .....	9
3.2	Sorting and Separation of Solid Waste at Source or Centrally .....	10
3.3	Sale of Waste Fractions for Recycling .....	11
3.4	Bulky Household Waste .....	12
3.5	Hazardous Household Waste.....	12
3.6	New Solid Waste Management Centre in Gusev.....	13
3.7	Close Down and Rehabilitation of the Existing Dumpsite .....	13
<b>4</b>	<b>PROPOSALS FOR IMPROVEMENT OF INFORMATION AND AWARENESS RAISING.....</b>	<b>15</b>
4.1	Introduction.....	15
4.2	Information and Communication Tools .....	16
4.3	Interpersonal Communication Forms.....	17
<b>ANNEXES .....</b>	<b>19</b>	
<b>Annex 1: Project Description and notes from initial visit to Gusev in May 2008 .....</b>	<b>20</b>	
<b>Annex 2: Analytical Note on Solid Waste Management in Odense .....</b>	<b>21</b>	
<b>Annex 3: TACIS Project on Establishment of Household Solid Waste Complex in the Gusev City District .....</b>	<b>22</b>	
<b>Annex 4: Status and Concept for Solid Waste Management Development in Gusev</b>	<b>23</b>	

<b>Annex 5: Analytic Note of Solid Waste Management in Gusev .....</b>	<b>24</b>
<b>Annex 6: Division of Waste Management taxes in Odense Municipality .....</b>	<b>25</b>
<b>Annex 7: Table of Content of household waste regulation for Odense (in Russian).</b>	<b>26</b>
<b>Annex 8: Table of Content of the Solid Waste Management Plan 2005-2008 for Odense (in Russian) .....</b>	<b>27</b>
<b>Annex 9: Program, report and notes from study visit to Odense in November 2008</b>	<b>28</b>
<b>Annex 10: Program for visit to Gusev in March-April 2009 .....</b>	<b>29</b>
<b>Annex 11: Pilot project on source separation of municipal waste in Gusev.....</b>	<b>30</b>
<b>Annex 12: Close down and rehabilitation of the existing landfill in Gusev .....</b>	<b>31</b>

# **1 INTRODUCTION**

## **1.1 Background**

Solid household waste with high pollution potential for the air, water, and soil is now recognized as a major threat to the environment and to human health. A modern approach to solid household waste management has not yet been introduced to Gusev Urban District in Kaliningrad Oblast. Lack of waste treatment and recycling facilities in Kaliningrad Oblast has resulted in an increasing number of dump sites used for the disposal of solid household waste. With waste volumes growing, each disposal dump extends steadily every year. Forests and protected nature reserves along the rivers and lakes are also getting affected by hazardous waste. Rivers flow into the Baltic Sea, which makes their eventual pollution an issue of cross-border and international significance.

Meanwhile, there is a serious concern about the lack of public awareness of waste management. Increasing pressure on landfill sites presents an imminent environmental hazard to the region. Negligent human activity may cause catastrophic losses in biodiversity and health problems, whereas an efficient and careful approach to waste collection and recycling can help improve environmental standards in the region. It should be widely recognized that waste management expenses lead to a raise in tariffs and taxes and place an additional burden on the local community.

Based on this the current Russian-Danish pilot project on concept development for Solid Waste Household Waste Collection, Separation and Processing has been initiated within the programme of Local Government Development. The project will be carried out in a co-operation between the municipalities of Gusev; Russia and Odense, Denmark

The project is further described in Annex 1. The project aims at assisting the authorities of Gusev Urban District in the establishment of a cutting-edge facility for the collection and recycling of solid household waste.

## **1.2 Project Objectives and Targets**

The long-term objective of the project is to reduce the harmful effect of waste on the environment and on human health.

The main sustainability objectives are that the project findings will be used by the administration of Gusev Municipality in the further realization of a cutting-edge concept of solid household waste management, and that the use of recycled materials will help cut expenses on collection and processing of solid household waste.

The project findings should be made available for other administrations of Kaliningrad Oblast.

Within this framework and discussions at an initial visit by Odense Municipality to Gusev Municipality in May 2008 the suggested main areas of specific co-operation between the municipalities of Gusev and Odense in this project are:

- How to organise the collection and sorting of recyclable solid waste fractions in the city; and
- How to organise information campaigns to improve public awareness and behaviour in relation to solid waste sorting and recycling

## **Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

### **1.3        *The Aspirations of Gusev***

Gusev is a town with ambitions. It has already received a prize for being the cleanest town in Kaliningrad and is now using this prize to restore and renovate some of its old historic houses. Gusev wants to four-double its number of inhabitants within the near future and is aware of what kind of initiatives would be necessary to make the town and the area attractive for new citizens.

In this connection the Mayor of Gusev gives high priority to and supports a well functioning solid waste management system, for instance like the Danish model seen in Odense. An analytic Note on Solid Waste Management in Odense is enclosed as Annex 2.

A TASIC supported (part-financed) on the Establishment of household solid waste management complex in the Gusev City District is ongoing. The project includes the building of a modern solid waste management treatment plant in Gusev. The new facility should ensure lesser pollution of the environment of the rivers Krasnaja, Pissa and Pregol, see Annex 3.

At present a new waste water treatment plant is under construction in Gusev, with the Danish firm Ramboll as consulting engineers.

### **1.4        *Project Participants***

The main Russian contact person and responsible for project coordination in Gusev Municipality has been Director of MUE "Waste Utilization", Mr. Alexander Tkachuk.

The following persons have participated in the project and the preparation of the report from the Danish site:

Dorthe Lind Christensen, Odense Waste Management Company  
Erik Pedersen, Odense Waste Management Company  
Svend Byrial Poulsen, Odense Waste Management Company  
Elena Pedersen, Municipality of Odense  
Helle G. Sehested, Municipality of Odense  
Kresten Berntsen, COWI

## **2 SOLID WASTE MANAGEMENT IN GUSEV**

### **2.1 Existing Situation**

The existing situation regarding solid waste management in Gusev Municipality and the development perspectives is presented in Annex 4 by Mr. Alexander Tkachuk with assistance of the Department of Housing, Utilities and Construction under Gusev Administration.

Household waste is collected six days a week by MUE “Waste Utilization” (not on Sundays) from containers located at collection sites in the City and transported to an existing dump site located outside the City boarder. No official recycling of household waste fractions take place.

A special waste collection and separation enterprise, the open joint stock "Managing Company" has a licence of March 22, 2007 to collect, use, sterilize, transport and dispose of hazardous waste in Gusev Urban District.

Currently, the design and operation of the dump site and collection sites does not meet environmental and hygienic guidelines. The collection of solid waste suffer from shortage of waste bins, inefficient schedules for personnel and vehicles for waste collection as well as low hygienic and environmental awareness of a large part of the population. There are no collection services for bulky waste and construction waste and the citizens deposit these waste types in the waste bins for household waste, at collection sites or illegal in the nature.

Thus, there is an urgent need for implementation of improvements of the waste management system for Gusev including increased information and awareness of the citizens. Based on this the City of Gusev has decided to establish a cutting-edge waste recycling facility and to close down and rehabilitate the existing dump site.

### **2.2 New Solid Waste Management Centre in Gusev**

Gusev municipality is planning to establish a new modern Solid Waste Management Centre and expects that the centre will be in operation towards the end of 2010. Gusev Municipality has acquired an area of 80 ha located outside the City boarder. A description of the concept for the new facility is provided in Annex 5.

This new solid waste management centre is planned to include:

- A solid waste sorting facility for separation of recyclable fractions such as paper, glass, metals, plastic and cardboard from (not separated) municipal waste;
- A controlled landfill with sanitary and controlled depositing of residual household waste;
- A composting facility;
- Reception and sorting of hazardous waste; and
- Recycling station for reception of a number of different waste fractions

The sorting facility is partly financed by EU under the TACIS program (approximately 70 %) and partly by Russian Environmental Funds for the Kaliningrad Oblast. The lead partners of the project are Gusev District Municipality Administration and TACIS. Furthermore Olecko Municipal Administration, Poland and Euroregion Nemunas Marijamploé Bureau, Lithuania are partners in the project.

## **Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

The sorting facility will be established with a capacity of 40,000 tons/year, which is much higher than the actual need for Gusev Municipality and Gusev will establish a co-operation with 3-4 neighboring municipalities about delivery of solid waste to the facility. The sorting will be based on manual sorting from a conveyor belt by hand picking of recyclable materials from unsorted municipal waste.

The Gusev Municipality was advised to strengthening the effort to establish an inter-municipal co-operation on the total solid waste management centre. The experience in Denmark and worldwide is that such modern waste management facilities with increased requirements to design and operation and maintenance should serve a large number of inhabitants to be economical feasible. As an example was mentioned that a Feasibility Study has shown that from an economical point of view (transport expenses versus landfill costs), the optimal number of landfills in Lithuania with approximately 3.7 million inhabitants is 14 landfills (approximately 260,000 inhabitants/landfill).

Gusev Municipality was advised by Odense to be very careful in the design (ventilation and easy to clean) and operation with careful daily cleaning of the facility in order to avoid health problems for the workers. In Denmark we do not have good experience with manual sorting of mixed household waste and facilities have been closed down due to health problems for the workers. We do not any more have such facilities in Denmark. Thus, it was recommended to Gusev as a supplement to the central sorting facility to introduce source separation where the organic fraction is separated from recyclable materials prior to the sorting. Furthermore, source separation will provide a better quality of recyclable materials than separation from mixed waste and as such also a higher selling price.

Gusev was aware of these problems and they wanted also to introduce source separation prior to sorting at the sorting facility. However, source separation is not known by the citizens of Gusev and could not be implemented immediately, so only small amounts of recyclable materials could be expected from source separation. When the large central facility was established and in operation it was the opinion that the amount of recyclable materials would be sufficient for a commercial utilization/sale of the recyclable materials.

### **2.3 Restructuring the Solid Waste Management Fees**

Gusev is in the process of restructuring and increasing the solid waste management fees. In the former system each person had annually to pay 23 rubles for solid waste collection services. This has now been changed to 1.8 rubles per square meter housing area.

The caretakers in the tenement houses are assisting in collection of fees for solid waste collection services. Many households are not able to pay their fee and because of the present financial crisis all are a bit cautious with enforcement.

Gusev was very interested in the structure and distribution of solid waste management fees in Odense Municipality and the experience of Odense Municipality. Thus, the system for collection of solid waste management fees in Odense Municipality has been presented to Gusev Municipality. The Division of Waste Management taxes in Odense Municipality are presented in Annex 6.

### **2.4 Lack of Federal Legislation to Increase Recycling**

Introduction of recycling in Gusev Municipality suffer from lack of legal requirements and National policies for introduction of recycling systems.

## **Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

There are in the overall Russian federal legislation no minimum standards or requirements for recycling, as well as no visions and objectives, no green taxes and no deposit systems in function.

The Russian federal Government leaves the responsibility for this to the regional level. Within this context Kaliningrad and Gusev are now in the process of establishing an appropriate and up-to-date legislation and regulation for solid waste management.

The solid waste collection system in Gusev includes private households, shops and institutions as well as private and public firms and enterprises. So the new solid waste legislation and regulation should cover all kinds of solid waste producers.

As an example of present cleansing regulation it can be mentioned that each firm or enterprise is responsible for keeping their grounds tidy, otherwise they may be forced to stop production for up to 90 days.

Mr Alexander Tkachuk expressed an interest in getting some of the Danish solid waste legislation and regulation translated into Russian. A translation into Russian of the Table of Content of the Household Waste Regulation of Odense is included as Annex 7. This will be further specified by Mr Alexander Tkachuk at a later stage.

Furthermore, the Solid Waste Management Plan 2005-2016 for Odense was presented to Mr Alexander Tkachuk. He was very interested in the plan and the Table of Content was translated into Russian and presented to him, see Annex 8.

It was agreed that Odense on request by Mr Alexander Tkachuk may translate relevant section of the waste regulations and the Solid Waste Management Plan into Russian.

### **3 PROPOSALS FOR IMPROVEMENT OF THE GUSEV SOLID WASTE MANAGEMENT SYSTEM**

The following proposals and suggestions for improvement of the present and the planned future solid waste handling in Gusev is based on studies of available written reports and notes as well as on observations made and discussions held during the study visit undertaken by Mr Alexander Tkachuk to Odense in November 2008 (see Annex 9), as well the initial visit undertaken to Gusev from Odense in May 2008 (see Annex 1) and not least the visit undertaken to Gusev in March-April 2009 (see Annex 10).

The proposals should also be seen in the context that Gusev Municipality already has decided to establish a central Waste Management Centre including a facility for manual sorting of mixed household waste, see Section 2.2.

#### **3.1 Solid Waste from Households**

The following has been observed:

- At present all containers are emptied all weekdays (except Sunday);
- Some types of containers / bins were observed not having a lid;
- In areas with high building density / blocks of flats it is common to have 4-5 identical containers side-by-side at a collection site for collection of household waste;
- All the inspected solid waste containers seemed to be well located in their local environments; and
- Chemical pest control is undertaken on a regular basis.

#### ***Suggestion: Provide all containers with a lid and consider reducing the collection frequency***

It is suggested that all solid waste containers should be provided with a functioning lid, and that all residents should be informed about and enforced to keep the lid shut after having dropped their waste bag into the container.

The container lid is suggested for a number of reasons:

- The waste in the container is kept dry from rain and snow, to avoid possible problems with frozen waste in the containers during winter time;
- It will be easier to keep pests away from the containers;
- It will be easier to keep a good and healthy working environment free from mould fungus etc. for personnel working in the new solid waste manual sorting facility;
- The waste to sort is kept as dry as possible; and
- The value of certain waste fractions sorted for recycling (new proposed system), such as paper and cardboard, is higher if these fractions are dry.

It should not be neglected that it in the beginning may be a struggle to introduce and enforce the new habit of keeping the container lid shut after dropping of the waste bag.

Furthermore, the Municipality of Gusev should consider if it is needed to collect household waste every day. In Cities in other countries with similar climate as in Gusev household waste is only collected once a week even or every second week (wet and dry fractions) without problems. The Gusev Municipality should consider reducing the waste collection to 1 or 2-3 times a week in

## **Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

order to reduce the costs for collection of household waste. However, it should be taken into consideration that a larger number of containers are needed at the collection sites, if the household waste is not collected every day.

### **3.2            *Sorting and Separation of Solid Waste at Source or Centrally***

According to Mr Alexander Tkachuk and as described previously Gusev has planned that all household waste shall be dropped in the same containers, and all the mixed waste will afterwards be manually sorted and separated at the new central sorting facility placed at a new landfill outside the town area.

However, it is planned that 2 larger shopping centres in high density residential areas should be provided with 3 different containers for source separation of the fractions: glass, paper and plastic.

As described in Section 2.2 Gusev are aware of possible health problems for workers with manual sorting of mixed household waste and that a higher quality and price for sale of recyclable materials may be obtained by source separation in stead of central sorting of mixed waste. However, it is the opinion of Gusev that it will not be possible to introduce source separation for entire Gusev immediately.

#### ***Suggestion: Establish a pilot project for source separation of household waste in residential areas***

It is proposed that a system for source separation of recyclable waste fractions, which is planned for the 2 shopping centres, should be extended to other high density residential areas. However, it is agreed that it will not be appropriate to introduce a new and not known system with source separation at the same time for entire Gusev Municipality. The strategy should be to test the system in a pilot residential area and if the system is found successful and suitable to introduce the system step by step in other areas in Gusev Municipality.

Based on this it is proposed to establish a pilot project with source separation in a residential area. The proposed system is described in Annex 11. It is proposed to carry out a waste characterization survey in order to assess waste amount and composition as part of the pilot project.

It is assessed that it probably technically will be relatively uncomplicated to introduce a simple source separation system at housing blocks, where normally around 5 similar containers are placed. The major problem with the introduction of a source separation system is to get the people to participate in such a system. Thus, intensive information and awareness campaigns are needed prior to and during the implementation of the pilot project.

A simply model for introducing source separation in housing areas might be to ask the residents to sort only into 2 different fractions/containers:

- RECYCLABLES: paper, cardboard, glass, plastic and metal (typically the dry fractions)
- NON-RECYCLABLES: residual waste such as food scraps, wet and dirty wrapping etc. (typically the wet fractions)

All the containers with recyclables could be emptied e.g. every second day and similarly all the containers with non-recyclables. With this model there would be no extra logistic demands

## **Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

compared to the existing collection system, but just a shift between emptying the two different fractions/containers every second day.

Introducing this model would have various advantages:

- It will be relatively easy for the residents to sort into only two different fractions, namely a dry fraction and a wet fraction;
- The wet residual household waste fractions are kept away from the mainly dry recyclable fractions which are taken to the central sorting facility, where a more hygienic and healthy sorting by hand can take place; and
- The separated dry recyclable materials would be of a better quality and may give a better selling price

Furthermore, it might in Gusev be considered to transport the wet fraction which is mainly organic waste to composting in the planned new composting facility at the waste management centre.

Under any circumstances it will be crucial for a successful introduction of source separation into 2 or 3 different fractions frequently to run information campaigns towards the citizens, so they are fully aware of why they are asked to cooperate and sort their household waste into different fractions and containers.

Many places where source separation of household waste has been introduced, it has given less problems and there have been fewer barriers among citizens, than anticipated.

Gusev was informed about experience from Novgorod in Russia where source separation has been successfully introduced in a project supported by the Danish Environmental Protection Agency. The project included also establishment of a transfer station with sorting facilities, project for close down and rehabilitation of an existing landfill cell and construction and operation of a new landfill cell for municipal waste as well as a section for disposal of hazardous waste. Gusev was provided with contact details for key persons in Novgorod.

### **3.3 Sale of Waste Fractions for Recycling**

At present household waste in Gusev is separated neither at source nor at a central facility.

When the new central solid waste sorting facility in Gusev is in operation a handful of recyclable waste fractions, such as paper, cardboard, glass, plastic and metals will be separated for further treatment and recycling.

Mr. Alexander Tkachuk is presently looking for possible purchasers and treatment/recycling facilities within Kaliningrad or in nearby neighbouring countries.

About 60 km from Gusev there are 2 facilities for glass recycling and 1 for paper recycling. According to Mr. Alexander Tkachuk 2 new facilities for recycling of plastic waste fractions are under construction in Kaliningrad.

During the visit in Gusev in March-April 2009, the Head of Recycling Dept. in Odense, Mr. Erik Pedersen, provided Mr. Alexander Tkachuk with name and contact details of possible international purchasers, who might be interested in buying various separated waste fractions for recycling.

***Suggestion: The market for recyclable waste fractions should be in place before source separation of waste is introduced in full scale***

It is very important to have market agreements in place for recyclable waste materials with the relevant treatment and recycling facilities before the central sorting facility is in operation as well as before source separation may be introduced in full scale.

There are various examples of towns, where its residents were requested to sort and separate their household waste into different fractions, for which there were no market agreements in place.

If residents hear that the household waste that they have made the extra effort to sort and separate, are mixed again after collection, because there was no market agreement in place for the following treatment or the treatment facility did not yet function properly, then it may be really difficult afterwards to convince the residents to cooperate once again, when the market and treatment facilities are in place

### **3.4 *Bulky Household Waste***

Currently there is no system for collection of bulky household waste, such as old furniture etc. and the bulky waste is often burned by people themselves in their own gardens or backyards.

***Suggestion: Provide possibilities for collection/delivery of bulky waste***

In a future comprehensive solid waste management system it may be a good idea to give the citizens a possibility to dispose of this bulky waste in a proper way, e.g. by leaving specific containers for this at central places and/or organizing specific collection of bulky waste a few times a year. Furthermore, a possibility to deliver the bulky waste by the citizens themselves at the new Solid waste Management Centre should be established.

### **3.5 *Hazardous Household Waste***

Hazardous household waste, such as batteries, paint, white spirit, chlorine etc. may if it is deposited in a landfill together with residual household waste, constitutes a serious risk for contamination of the environment (e.g. groundwater sources).

Further, it may constitute an occupational health risk for solid waste workers and people working at a central sorting facility if it is mixed with other waste fractions to be manually separated.

***Suggestion: Provide possibilities for collection/disposal of hazardous household waste***

It is suggested to apply various appropriate methods to specifically collect hazardous household waste as easy as possible for the residents, e.g. give the citizens a possibility to deliver at shops where batteries, paint and other chemicals are sold or establish a direct collection from residential areas a few times a year.

### **3.6            *New Solid Waste Management Centre in Gusev***

As described in section 2.2 a new Solid Waste Management Centre is planned established in Gusev and expected in operation at the end of 2010.

#### ***Suggestion: Appoint and establish training of future management and operation staff***

Most of the activities to be undertaken in the new waste management centre may probably be unfamiliar to the future management and staff. It is proposed that the management and key operational staff be appointed as soon as possible and they should follow very closely the final planning, design and construction of the new centre in order to familiarize with the facility and provide practical input regarding the future operation. Furthermore, it is suggested to plan and arrange for preceding training and practice in the management and operation of the new facilities either in Gusev /Kaliningrad/Russia or in neighboring countries (e.g. in Odense, Denmark) so that the staff is well prepared for the future operation.

Such training and practice courses might comprise e.g.:

- Sanitary and controlled depositing/landfilling of residual household waste as well as other solid waste fractions e.g. various industrial waste fractions. The training package with theory, methods and practice, might include the management, administration and daily operation of a landfill with its various machinery and equipment;
- Composting in theory and in practice, including the management and daily operation of a composting facility with its various machinery and equipment;
- Recycling in theory and in practice, including the management and daily operation of a central sorting facility as well as an extended recycling station with their various sorts of machinery and equipment. Furthermore, the daily administration, contact to citizens etc. might be part of this training package; and
- Reception and sorting of hazardous waste might need a specific training and practice module where especially safe handling of hazardous substances and occupational health aspects should be in focus.

### **3.7            *Close Down and Rehabilitation of the Existing Dumpsite***

As described in Section 2.1 the City of Gusev has decided to establish a cutting-edge waste recycling facility and to close down and rehabilitate the existing dumpsite.

#### ***Suggestion: Make a plan and prepare a Feasibility Study for the close down and rehabilitation of the existing dumpsite***

As soon as the new Solid Waste Management Centre is taken into operation, the existing dumpsite should be closed down and rehabilitated. These activities should be planned in parallel with and co-ordinated with the establishment of the new Centre.

The main potential pollution and hazards from the existing dumpsite include:

- Groundwater pollution
- Surface water pollution
- Landfill gas emissions
- Uncontrolled fires, wind borne litter etc.

## **Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

The recommended planning of dumpsite closure and rehabilitation measures includes:

- Preparation of a Feasibility Study including cost-benefit analysis for the restoration and after treatment of the closed dumpsite;
- Preparation of a study on environmental effects (current effects, mitigation measures, and resulting effects after remediation);
- Detailed design of closure and rehabilitation measures;
- Agreement on financing of rehabilitation measures;
- Execution of the measures (under possible involvement of private contractors); and
- Operation and monitoring of the dumpsite site after closure and rehabilitation.

A brief description of planning of the close down and rehabilitation of the existing dumpsite including possible remediation measures is provided in Annex 12.

Odense Waste Management Company may partly assist Gusev in this process as Odense recently has been through the process of closing its old dumpsite at Stige Island.

## **4 PROPOSALS FOR IMPROVEMENT OF INFORMATION AND AWARENESS RAISING**

### **4.1 Introduction**

At present there is not much communication with citizens on solid waste in Gusev. In general people seem not to be very much aware of environmental issues and not really motivated to do something extra as e.g. to sort and separate their household waste.

However, among the administrative staff met in Gusev, there seems to be a growing awareness that more information to the citizens will be needed.

Many new initiatives on solid waste management are in the shaping in Gusev at the moment. It is therefore an important condition for a successful implementation of these new activities, that the citizens are currently kept well informed about the contents of the new solid waste solutions and not least why these initiatives have been initiated.

When Odense introduced the idea of sorting and separating household waste for recycling as an alternative to landfilling in the 1980's, people were very sceptical. It took quite a long time and a lot of information campaigns to convince people that their household waste might actually be turned into a valuable resource. Not least it was important to convince the citizens that the sorted solid waste collected separately at the households was not afterwards just mixed to be landfilled or incinerated.

Further, being a garbage collector was at that time a job with low status. However, today the overall picture is different. We have not only been able to change peoples view on waste but also their view on the garbage collector as a person (man or woman) who is working for environmental improvements.

From the experiences and lessons learnt in Odense in changing people's attitudes, we have various suggestions and recommendations on how to approach and improve information and public awareness on the recycling of household waste issue.

In Odense, whenever a new initiative or activity is launched, a number of different information channels are used.

An information campaign may initially comprise advertisement and brief press releases in the local newspapers, followed by distribution of information folders to all citizens explaining what news are happening and why, as well as what new actions they are expected to perform.

Sometimes there may be held a public meeting where all citizens are invited to come and get more information on a new initiative as well discuss this with administrative staff and / or local municipal politicians.

In Odense once a year an interview examination is undertaken among the citizens, in order to measure to what degree the users in general are content with their household waste services. Just as important is it to find out if they are discontent with something and / or have new ideas to how the services might be improved.

## ***Suggestions: Implement information initiatives with both short and long term effects***

To undertake information and communication broadly it is important to play on all available strings and use all available media and communication forms.

Some of these are targeting more long term impact as e.g. environmental awareness, nature protection, sustainable use of resources and adequate handling and treatment of solid waste. This may be undertaken in kindergartens, schools as well as in local community residents associations etc.

Others are targeting on the short term to give quick and precise information on e.g. new activities and initiatives to be launched, so people know how to act correctly within the new systems.

In the following is described a wide range of different information and communication tools that have been in use during the many years of transforming people's awareness in Odense.

## **4.2 Information and Communication Tools**

### **Written media**

During the visit to Gusev a wide collection of written information material used in Odense was handed over to the administrative staff in Gusev (however, all in Danish language).

The written material includes the following:

- A comprehensive solid waste handbook is sent to all households each year describing new and as well as existing household waste services etc.;
- Brochures and pamphlets on certain subjects giving detailed explanations and descriptions;
- Advertisement and brief press releases in the local newspapers;
- Posters and public notices centrally placed at supermarkets etc.; and
- At special occasions, special issue newspapers are distributed to introduce new initiatives: what to do and why to do it.

### **Radio and TV**

A local radio channel may be an excellent media to announce immediate changes or reminders of what people are expected to do.

The same may apply to a local TV channel, which may however in most cases be too expensive to use extensively.

### **Web**

A possible company / municipality webpage may, if applicable in Gusev, briefly describe all relevant household waste matters to adult citizens.

Further, it may also, if applicable, be recommended to use web in order to reach other target groups with more in detailed information. Especially for school material it is recommendable to avoid buying expensive books, and not least facts are easily updatable on the internet compared to printed media.

## **4.3        *Interpersonal Communication Forms***

### **Public visits to the local recycling station / waste management centre**

School classes and institutions – both children and adults – may be invited to visit their local recycling station for e.g. a one-hour session where they get a detailed introduction to solid waste in general and to household waste handling at the recycling station specifically.

The focus should not only be on how to sort and separate your waste correctly, but just as much on why you should sort and how each recycled waste fraction is being treated. A constant confirmation of the fact that recycled household waste may be an important resource is necessary for all age groups.

### **Children's books in kindergartens and preschools**

Most children at the age of 4-7 are despite of their young age capable of understanding the importance of good waste handling habits.

A children's book on why not to litter and on what to do with the family's household waste may be an excellent way to introduce the issue of waste recycling to the youngsters. The book could be part of other activities focusing on waste and cleansing such as picking-up waste in the neighbourhood.

### **An annual open-house-arrangement**

Inviting the public inside the different waste handling facilities of the municipality e.g. once a year would be a good way to improve the knowledge of what happens to household waste after it is collected from the residential area. Over a cup of coffee or tea it is possible to meet the citizens in a positive manner and get a response on household waste matters which may lead to improvements of the waste handling system and services.

### **Centre for creative recycling – turning waste into art**

Several cities in many countries have established creative centres with activities where solid waste may be transformed into something valuable – into pieces of "art". A number of children, adults, seniors, handicapped etc. find great pleasure in giving so called waste materials (that are not contaminated) a new life. These activities are supporting the idea that waste is a valuable resource that should be treated as such.

### **Presence on local festivals**

Presence on e.g. local festivals may be important in order to hand out pamphlets and chat with people on solid waste matters, as well as present e.g. games or competitions on how to sort your household waste correctly.

### **Waste ambassadors**

It may be possible to gather a group of committed volunteers which receives a special solid waste / environmental education and which agrees to take the responsibility of spread out information among their friends etc. in their local housing block or neighbourhood.

### **Direct phone line to municipal waste information office**

Citizens shall be able to get in easy contact with the waste management company and / or the municipality whenever a question on household waste matters may occur, e.g. on what to do with a specific fraction of waste.

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**Exchange of experience with colleagues in other cities and countries**

It may be a good idea to join a group of and cooperate with colleagues from nearby cities in order to exchange information and also to jointly develop campaign and teaching materials, in order to inspire each other and to keep costs low.

Cooperation with colleagues from other countries may be another source of inspiration.

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## **ANNEXES**

**Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

**Annex 1: Project Description and notes from initial visit to  
Gusev in May 2008**

## **Annex 2: Analytical Note on Solid Waste Management in Odense**

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**Annex 3: TACIS Project on Establishment of Household Solid Waste Complex in the Gusev City District**

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Gusev Municipality – Kaliningrad Oblast – Russia

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## **Annex 4: Status and Concept for Solid Waste Management Development in Gusev**

## **Annex 5: Analytic Note of Solid Waste Management in Gusev**

## **Annex 6: Division of Waste Management taxes in Odense Municipality**

## **Annex 7: Table of Content of household waste regulation for Odense (in Russian)**

## **Annex 8: Table of Content of the Solid Waste Management Plan 2005-2008 for Odense (in Russian)**

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**Annex 9: Program, report and notes from study visit to  
Odense in November 2008**

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**Annex 10: Program for visit to Gusev in March-April 2009**

**Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

Odense Municipality / Odense Waste Management Company - Denmark

**Annex 11: Pilot project on source separation of municipal waste in Gusev**

**Russian – Danish Local Government Project**

Gusev Municipality – Kaliningrad Oblast – Russia

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**Annex 12: Close down and rehabilitation of the existing landfill in Gusev**