



Integrated Solid Waste Management Oran, Algeria

Program Overview by R20 Regions of Climate Action



A PROGRAM BY



Under the leadership of the Algerian Ministry of Environment and Land Planning, R20 Regions of Climate Action is mandated to advise and support the Environmental Authority of the Wilaya of Oran.

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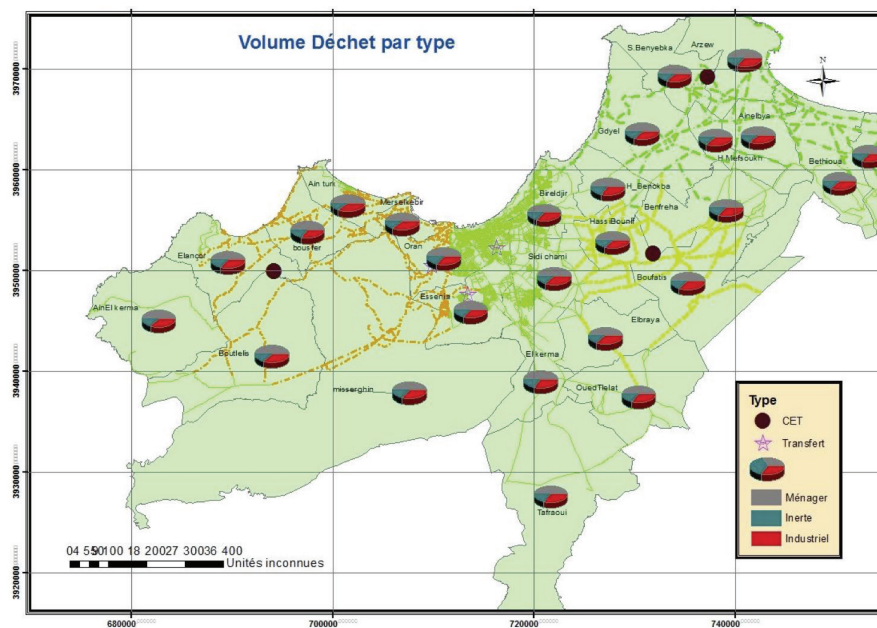
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Training of 50 teachers in sorting (in the two target areas)

INTRODUCTION



GIS Map, Wilaya of Oran, Quantity of Waste per Category

Waste is often considered a financial and environmental burden with no value, and when improperly managed, waste is hazardous to humans, the economy and the environment (both global and local). Municipalities around the world often face the same challenges when dealing with waste, from lacking or inadequate facilities, improper maintenance of, or faulty, equipment, scarce collection points, to over-reliance on landfill disposal, etc. With modern techniques and appropriate technology, municipal waste can be transformed to create economic value through recycling, re-use and/or conversion to energy.

Not all waste needs to be wasted – materials such as plastics, aluminium, glass, textiles, biomass, or even sludge, can be reconverted into either raw materials or energy. Several techniques and technologies exist to add value to waste.

A cooperation agreement was signed in 2013 with the Algerian government – between Arnold Schwarzenegger (on behalf of R20) and Mr Amara Benyounes (Algerian Minister for Environment), with the support of the Prime Minister, Mr. Abdelmalek Sellal – to make the Wilaya of Oran a model region for waste conversion programs. The agreement also covers plans to develop a series of bankable projects in waste management, energy efficiency and renewable energy.

ASSESSING THE CURRENT SITUATION

FEASIBILITY STUDIES: In order to deliver the most appropriate and best available solutions to the Wilaya of Oran, R20 and its expert partners conducted a needs assessment and a number of comprehensive feasibility studies in the field of waste management.

CLEAN-TECH TOURS: R20 took delegations of government officials from Oran on tours of the USA, from New York to San Francisco, France and Switzerland, to showcase the latest cutting-edge waste management technologies and techniques.

GIS MAPPING: The next phase of the program involved developing a detailed geographic information system (GIS) in order to map out both the current waste situation in the Wilaya of Oran, and how and where solutions should be applied. This provided decision makers and actors in the sectors of waste management, public lighting and energy efficiency, the tools and information necessary to steer Oran towards a greener path.

KEY FINDINGS

The Wilaya of Oran, with a population of roughly 1.5 million inhabitants, generates 588,000 tons of household waste per year. The waste is then either sent to landfills; where certain materials (plastic and paper) are informally sorted, or exported to China. The composition of the household waste is:

- **Organic:** 62% (approx. 364,000 tons/year)
- **Paper & cardboard:** 9% (approx. 53,000 t/y)
- **Plastic:** 12% (approx. 70,500 t/y)
- **Glass:** 1% (approx. 5,800 t/y)
- **All metal:** 2% (approx. 11,700 t/y)
- **Other:** 14% (approx. 82,000 t/y)

Based on the findings of the assessment, feasibility studies and analyses from the GIS, R20 made the recommendation to implement a household waste sorting pilot project in two neighborhood in order to demonstrate the potential for region-wide success.

STAKEHOLDER CONSULTATIONS

In order to ensure the successful design and implementation of the program, R20 undertook several consultations and dialogues with various stakeholder groups throughout the phases of the program's deployment. Stakeholders included national institutions, regional and local government officials, local associations, teachers, utility companies, neighborhood committees, the waste management industry, etc.



Wali of Oran visiting the sorting lines

IMPLEMENTATION

Household waste sorting in pilot neighborhoods: AADL Pepiniere and Akid Lotfi neighborhoods (54,000 residents)

The two neighborhoods in the city of Oran were chosen as demonstration sites as part of the wider strategy to modernize and green the entire Wilaya's waste management system.

- **Training and awareness raising:**
 - Door-to-door outreach campaign to inform the 8,000 households about waste sorting, recycling, as well as the economic benefits for the larger community.
 - Training of 125 local professionals (school teachers, imams, association members, housekeepers, etc) through 12 workshops designed to help them promote eco-citizenship, and to present a profitable approach to waste management, based on a rational management of resources. The training sessions demonstrated, through real examples, that waste can be a source of revenue and can create jobs in Algeria.
- **Installation of 136 special bins** to accommodate the different types of waste (glass, tin, plastic, paper) in each neighborhood.
- **Procurement of new high-quality waste collection trucks** designed to prevent leakage of sludge.
- **Installation of two sorting lines** at the Hassi Bounif landfill, where waste will be sorted before being recycled by specialized operators.



Waste sorting lines at landfill facility



Training women in household recycling

FIRST RESULTS 2014-2015

- 136 collection bins installed
- 125 professionals trained
- 80% compliance rate for household waste sorting within first week of launch
- 810 kg/day of recyclable material sorted and sold, rather than sent to landfill

NEXT STEPS 2015-2016

The successful deployment of the first project phases has:

1. Convinced the Wilaya to approve a large budget for the purchase and installation of over 1,000 more specialised sorting bins for 500,000 residents.
2. Garnered approval for R20 to design and develop two large-scale waste valorization projects: plastic recycling and composting – which will be launched in September 2015. The projects are the result of a public private partnership between R20, the government and technology partners. Forecasted quantity of sorted and recycled plastic: 215 tons/day.
3. Driven the proposal to construct a waste-to-energy facility by 2016/2017. This large-scale facility will be used to receive and sort all waste for the Wilaya of Oran and two others. In addition, it will be used to incinerate materials that cannot be recycled. Energy will be recovered from the incineration process.
 - Estimated value of project: USD 450 million.
 - Sorting of 400 t/day
 - Energy recovery: 1250 t/day for three Wilayas.
 - Energy production: 35,6 MWh

PROGRAM PHASES





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