National Strategy Waste to Energy

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SONAGED-presentation

SONAGED key data

- 1960-2011: SOADIP, SIAS, APROSEN, ENTENTE CADAK CAR, SOPROSEN (1970, first closing Hann dump site; 1968: Opening Mbeubeuss dumpsite; 2010: construction of Senegal new controlled landfill of SINDIA, but NIMBY syndrom;
- 2011-2022: UCG Dakar, UCG Senegal 2018: PDGSU with contruction of 3 controled dumpsite « CET »; 2020: PROMOGED with national strategy for the construction of infrastructures (waste transfert site, organic & recycling waste plant, controled dumpiste, etc
- 2022: SONAGED
  - National agency for waste management (including: industrial cleaning, dangerous waste management, operation of waste recycling plant and controled dumpsite, profitable business with private company: PPP, or other contract, etc
  - 14,000 employees (national coverage)

WASTES

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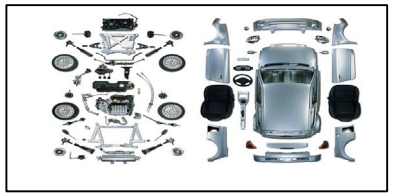
1960- 2011

- SOADIP
- SIAS
- APROSEN
- CADAK CAR
- SOPROSEN
- UCG DAKAR
- UCG NATIONAL



- 1970 Closure of Hann Landfill
- 1968 Oponing of Mbeubeuss Landfill
- 2010 Projets: CET Sindia, Mbao
- 2018 PDGSU
- 2020 PROMOGED

2011

UCG

2018-2022
PGDSU

2020-2025
PROMOGED

2022

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LOCAL COMMUNITIES

PRIVATE SECTOR

Tri et prétraitement

INFRASTRUCTURES

MANAGEMENT

EVOLUTION

REVOLUTION IN PERSPECTIVE

SONAGED-key data

Senegal key data about waste management in Senegal

- National production: 3,023,666 Tonnes in 2022
- Production per capita: 0.471 kg/capita/day (global average= 0.74; regional average= 0.46; Seychelle: 1.57; Lesotho: 0.11)
- Waste collection average: 99% (Dakar, urban area). As comparison, Urban waste collection in Subsahran africa = 43%
- Rural waste collection: 38% (rural area), as comparison rural waste collection average in subsaharan africa is 9%
- Waste composition: 53% fine elements, 12% organic, 9% plastic, 5% papers & cardboards, etc
- Waste to energy potential = 816,389 T/year (incineration/pyrolysis/gaseification); Biogas = 1,025,022 T/year; Hydrogen: Not estimated
- Other ressource for waste to energy production: feacal sludge: 4,500 m3/day; wastewater sludge: 21 T/day ;
- Green House Emission from waste : 12%

Source: Rapport annuel 2018, ONAS, Direction Exploitation et Contrôle; Rapport caractérisation des déchets UCG 2015 (estimation 2023 par SONAGED); Silpa Kaza, Lisa Yao, Perinaz Bhada-Tata, and Frank Van Woerden (2018) What a waste 2.0: a global snapshot of solid waste management to 2050. urban development series, World bank group.p77

Waste to energy-projects in Senegal

Former project

- Thiès slaughterhouse (1989): Transpaille biogas plant, 36 KWh/ day; other biogas project from slaughterhouse waste from Guet Ndar, Podor, UGB, ESP Dakar)
- Thecogas (2009): biogas from slaughterhouse waste (biodigestor 4,000 m3, production of 100 KW. Project stopped to site unavaibility
- PNB (2009): household biogas project (8,000 digestors program from 2009-2013 but only 875 was installed; new program from 2013 to 2017 for the construction of 10,000 biodigestors but only 2750 was installed)
- ONAS (1989): biogas production from wastewater sludge

New project

- CETUD-SONAGED: biomethane, biodiesel production from MSW, alguae, rice, sugar canne, but sweet (Technical studies are ongoing)
- SONAGED-SOCOCIM: production of Solid Recovered Fuel for cemant plant (200 T/day)
- SONAGED mobile incineration plant for hospital waste
- SONAGED: production of biogas from organic waste

Waste to energy-Institutional & political environment

Key actors:

- SENELEC – ANER – AEME – ASER – CRSE

National Strategic plant (PANER: 2015-2020-2030)

- Bioethanol share in gasoline consumption = 10 % in 2030
- Biodiesel share in diesel and DDO consumption = 7 % in 2030

National Strategic plant

- Law No. 2010-22 of December 15, 2010 on the orientation of the biofuel sector: The purpose of this law is to create favorable conditions for the development of the biofuel sector
- Law No. 2010 of December 20, 2010 on guidance on renewable energy: This decree aims to promote the development of renewable energies throughout Senegal
- Decree No. 2011-2014 implementing the orientation law on renewable energies relating to the conditions of purchase and remuneration of surplus electrical energy of renewable origin resulting from own production
- Adoption of the ECOWAS Renewable Energy Policy (PERC) with objectives for 2020 and 2030;

Waste to energy-SWOT analysis

Strenghs	Weaknesses
• Desire to implement waste to energy project for the implementation of Senegalese CDN • Biogas production experiments; • Incineration project (cement plant) with use of RDF • Waste availability for energy production	• absence of a legal and regulatory framework adapted to the production of biogas & biofuel; • weakness of the organizational framework of the sector; • low funding for the biogas/biofuel sector • absence of a training cycle specific to biofuel
Opportunities	**Threats**
• Desire of the Senegalese state to develop renewable energies, SONAGED with waste • Senegal Business environment favorable for investment • Market mechanism • Existence of support mechanism for the development of renewable energies technologies intended for the production	• Institutional framework • valorization initiatives segmenteded by sub-sector

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Waste to energy-development program

Axis 1: Legal and financial reforms (contextualize legislative and regulatory texts and put in place innovative financing mechanisms for biofuel production, specially for biogas);

Axis 2: Developement of PPP project for the implementation of industrial waste to energy plant (biofuel & incineration)

Axis 3: Development of circular economy among national territories (introduction of recycling plant for organic waste, specially for biogas)

Axis 4: Improvement of municipal solid waste management systems (strengthening technical, financial and human resources capacities of local authorities)

Axis 5: inclusive and responsible management (behavior change, communication, social marketing, etc)

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THANKS FOR YOUR ATTENTION