VISION FOR WATER AND WASTE IN THE 21ST CENTURY

SUEZ ENVIRONNEMENT

MAKING THE PLANET SUSTAINABLE IS THE BEST JOB ON EARTH

EXECUTIVE SUMMARY

1. **Unprecedented pressure on resources leading to 3 transformations on the water and waste markets**

2. **Water models moving towards improved utility performance**

3. **Growing demand for tailor made solutions for waste in emerging countries**

4. **Resources efficiency driving industrial demand**

5. **Partnership models key to achieve effective results**

21st CENTURY CHALLENGES

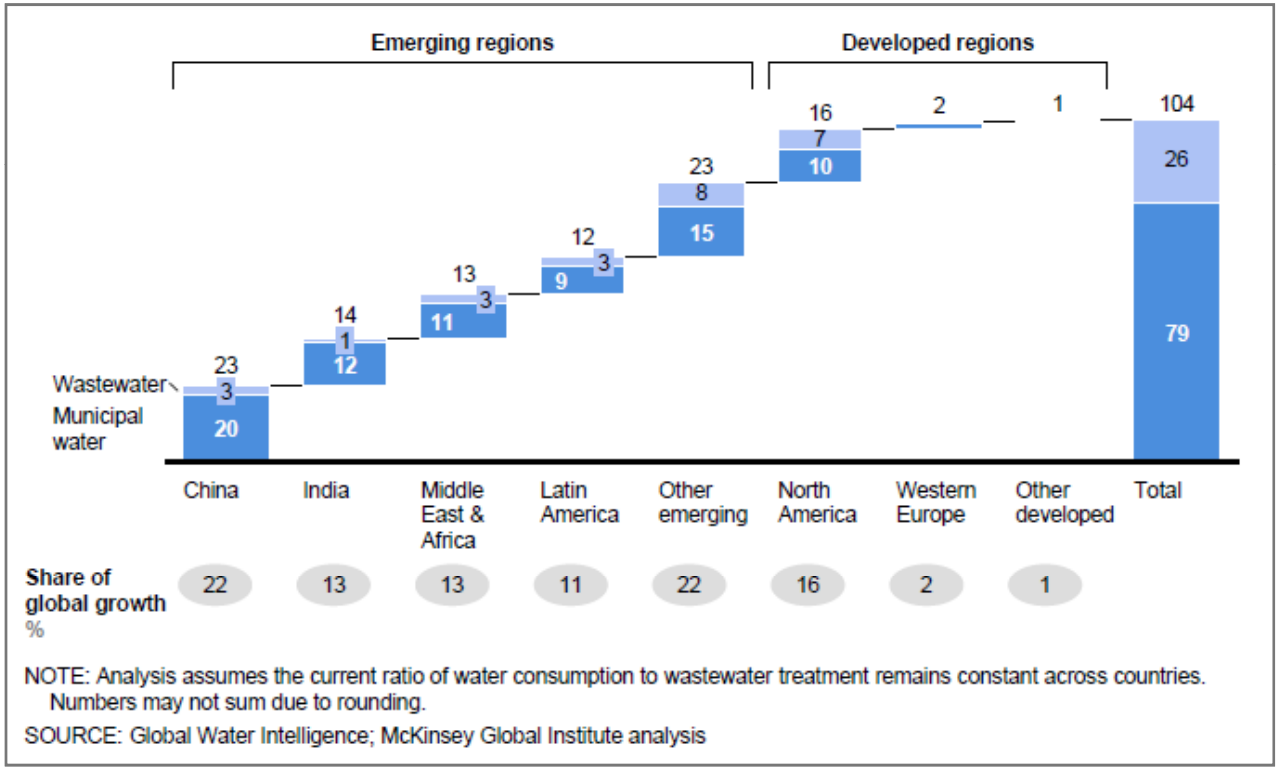
Unprecedented pressure on resources leading to 3 transformations on the water and waste markets

MAKING THE PLANET SUSTAINABLE IS THE BEST JOB ON EARTH

CITIES IN EMERGING COUNTRIES WILL ACCOUNT FOR ABOUT 80% OF NEW URBAN MUNICIPAL WATER DEMAND AND WASTEWATER TREATMENT NEEDS

Total urban municipal water demand growth by region, 2010-2015

Billion cubic meters



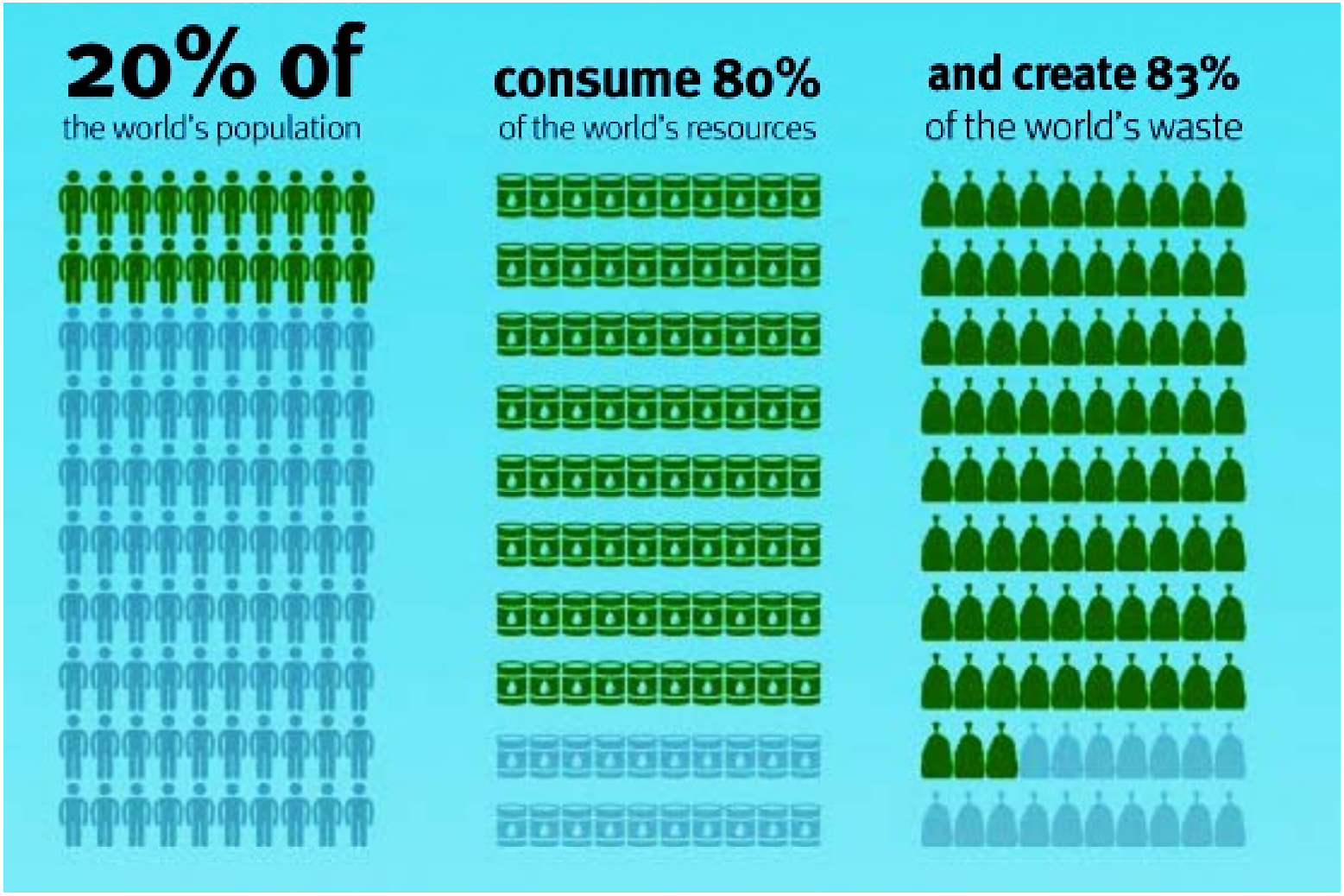
NOTE: Analysis assumes the current ratio of water consumption to wastewater treatment remains constant across countries. Numbers may not sum due to rounding.

SOURCE: Global Water Intelligence; McKinsey Global Institute analysis

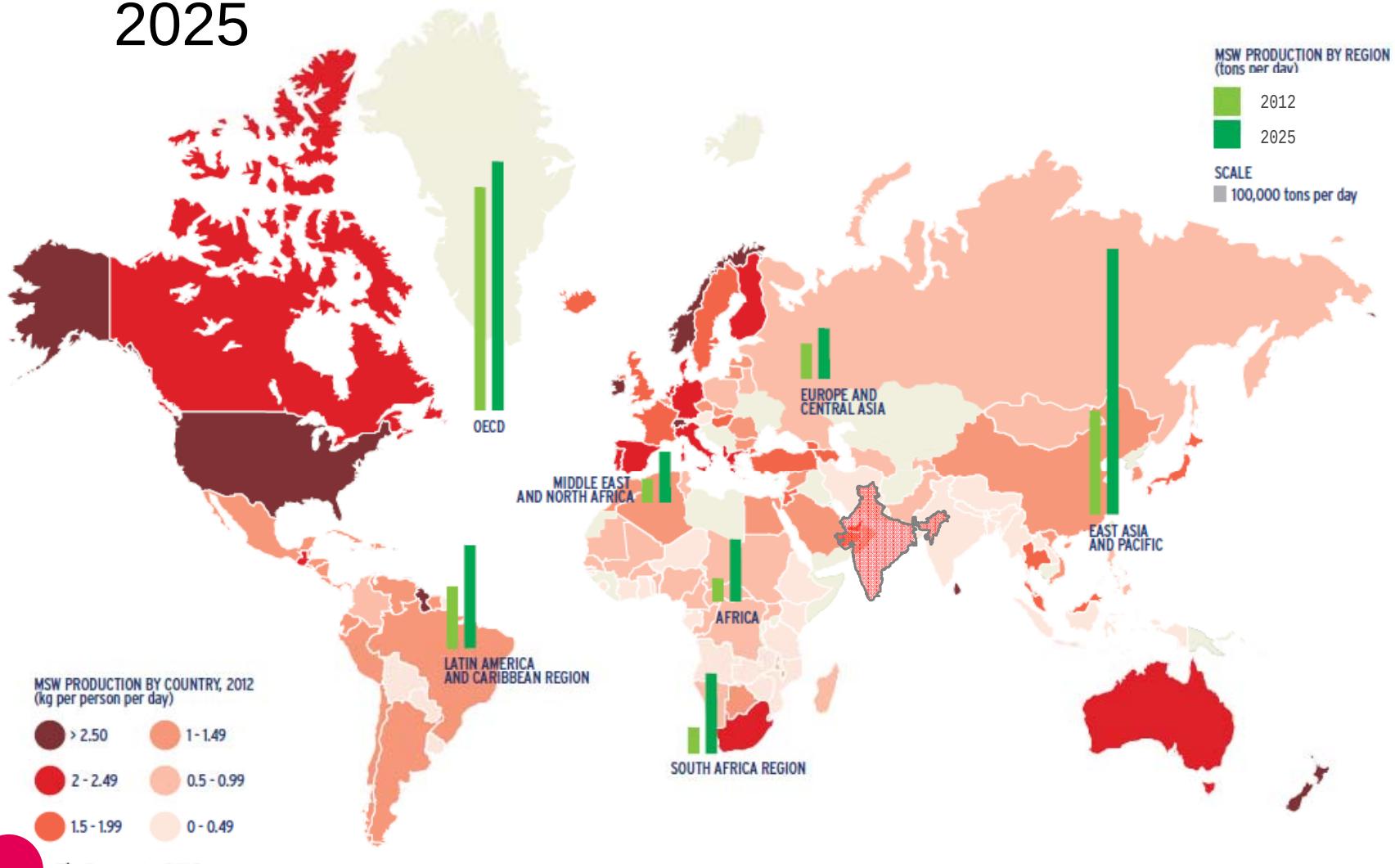
- Urban water municipal demand is expected to rise 40% above today's urban global level.
- East and South Asia will account for more than 50% of this increase in water consumption.
- Serving this rising demand will require investments in water supply and wastewater treatment of about $480 billion by 2025
- $200 billion will be in the Emerging 400.

Source: McKinsey Global Institute "*Urban world: Cities and the rise of the consuming class*" – June 2012

While the developed world is generating the most waste per capita …



…developing countries will face the greatest challenges as urban waste grows 70% by 2025



THREE MAJOR TRANSFORMATIONS

WATER

- Performance oriented innovative PPP models (eg. management contracts, alliance contracts, O&M contracts…)
  - Focus on Utility transformation and efficiency

WASTE

- Tailor made models for emerging markets

INDUSTRY

- Environmental services to large industrial players

NEW MODELS FOR WATER

Water models moving towards improved utility performance

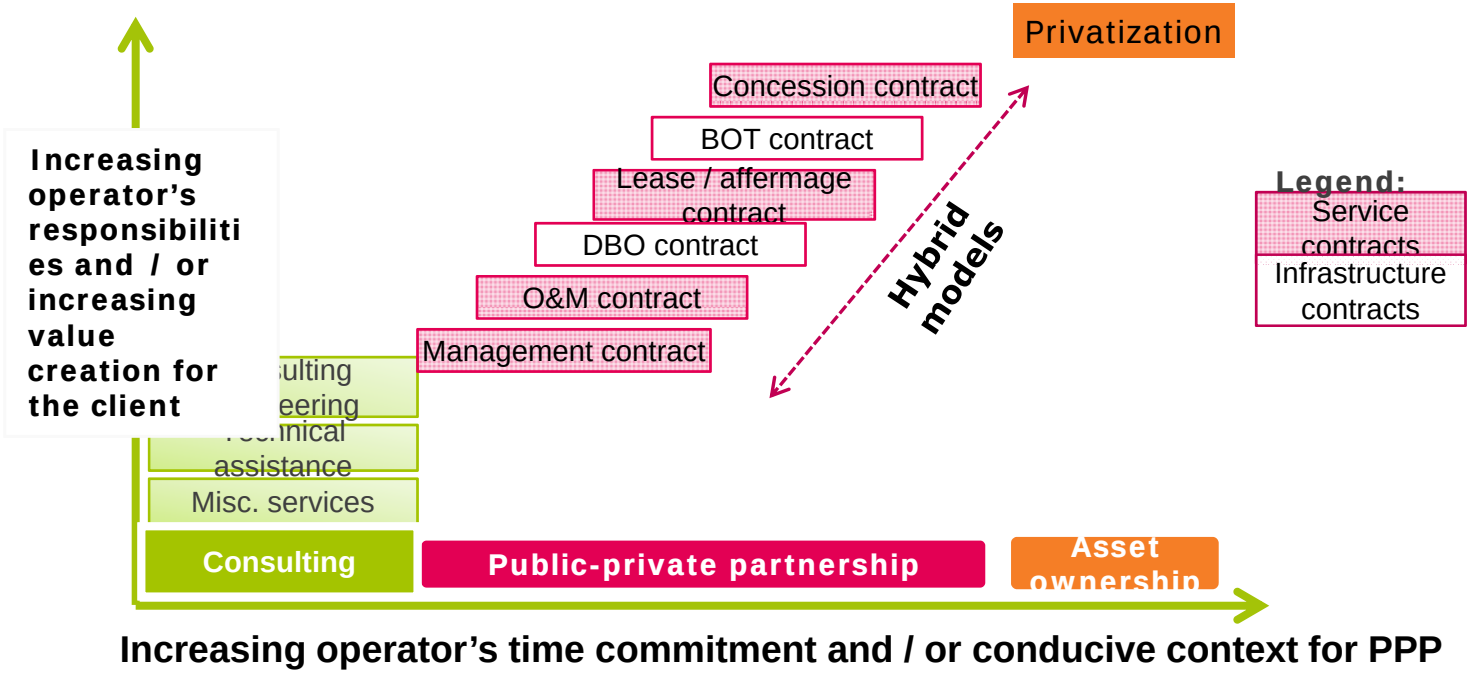
MAKING THE PLANET SUSTAINABLE IS THE BEST JOB ON EARTH

PPP IN WATER AND SANITATION SECTORS

NEW EXPERIENCES, ONE GOAL : UTILITY TRANSFORMATION

- In the late 90's, Suez Environnement implemented concessions business models addressing both management (technical, managerial) and financing needs

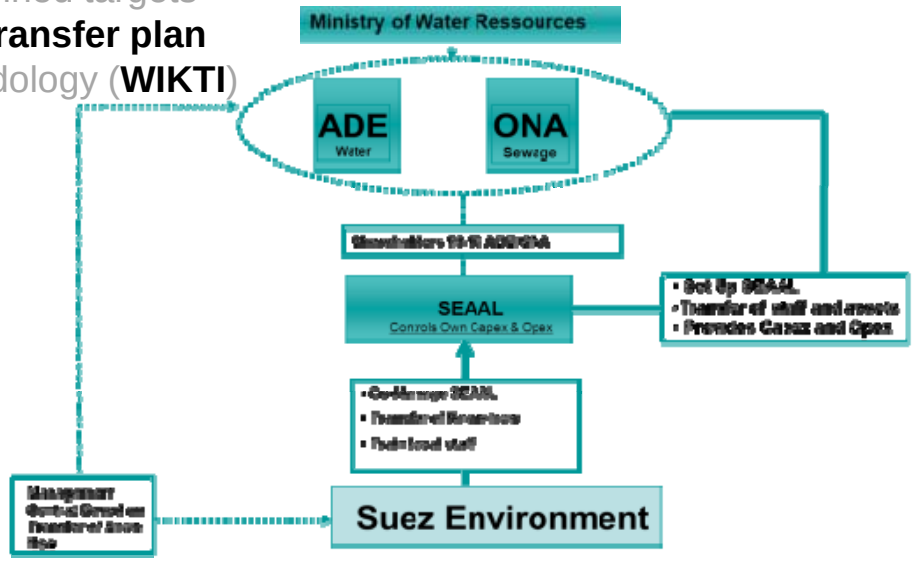
Over the last 10 years, focus upon operational efficiency, knowhow transfer and organizational changes whereas investments are provided by government or IFIs



ALGIERS
ALGERIA
Water & Wastewater

- **AN INTERNATIONAL OPERATIONAL EFFICIENCY REFERENCE**
  - **5 year management contract** (3.5M inhabitants, 24/7 supply achieved in 3 years)
  - 2nd contract awarded in 2011 to Suez Environnement
  - O&M : management with the local company, **management know how transfer**
  - Investment : 100% Algerian State, but CAPEX optimisation with SE

- **KEY SUCCESS FACTORS**
  - A thorough **initial diagnosis**
  - Precise and jointly defined **KPIs**
  - Financing and expertise **adequately sized** in line with the defined targets
  - **Ambitious know how transfer plan** with a structured methodology (**WIKTI**)



WASTE MANAGEMENT IN EMERGING COUNTRIES

Growing demand for tailor made solutions for waste in emerging countries

MAKING THE PLANET SUSTAINABLE IS THE BEST JOB ON EARTH

ADAPT WASTE SOLUTIONS TO LOCAL NEEDS

CONTEXT

→ Waste market is rapidly growing in emerging countries

→ Solid Waste Management will be specific
- Different composition of waste, different collection practices…

→ Energy is key

FRAMEWORK

→ Adapt waste hierarchy to local realities

→ Avoid technology / sophisticated infrastructure trap

→ A few key principles to be followed

DIFFERENCES TO BE TAKEN INTO ACCOUNT

Collection

Developed countries

- Segregated collection of dry recyclable and residual waste
- Investment in sorting and recycling plant

Emerging countries

- Collection of dry recyclable by informal sector
- Collection of residual waste

→ No need to invest in complex collection and sorting systems for each type of dry recyclable waste
→ Need to adress informal sector situation

Treatment

Developed countries

- Separation of organic waste within the collection system
- Organic waste is diverted to composting systems

Emerging countries

- Need for energy
- Difficulties to set up collection of organic waste

→ Need to capture energy on landfill from biogaz
→ Opportunity to capture recyclables and waste with high calorific value (SRF) through pretreatment on landfill site

5 KEY PRINCIPLES TO ACT

1. ADOPT A GLOBAL VISION

2. SELECT THE RIGHT EXPERTISE

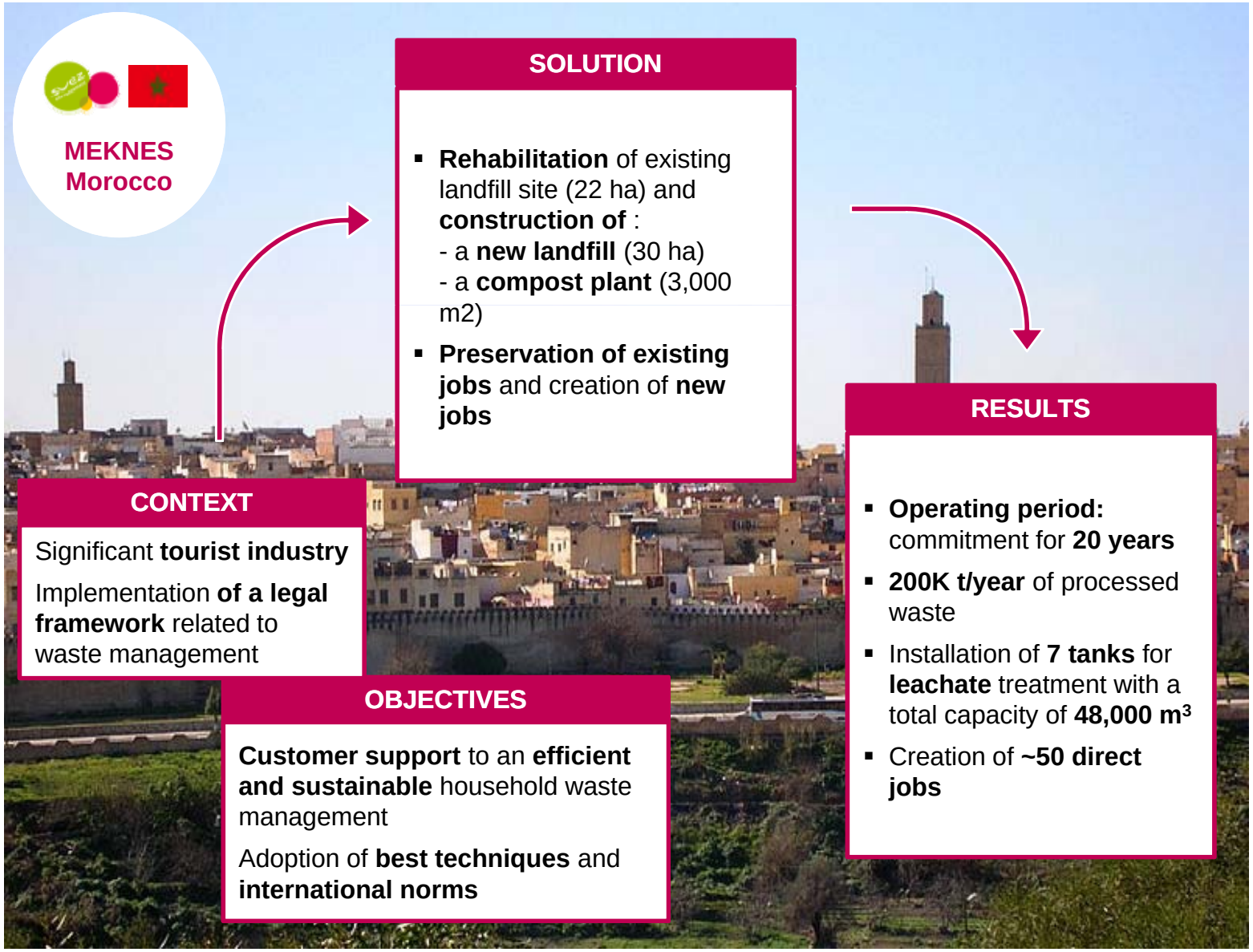
3. ADAPTED CONTRACTUAL MODEL

4. ENGAGE IN A SUSTAINABLE WAY

5. COMMIT TO CONTINOUS IMPROVEMENT

5 KEY PRINCIPLES based on lessons learnt can MAKE THE DIFFERENCE in delivering SUSTAINABLE WASTE SOLUTIONS FOR EMERGING COUNTRIES

LONG-TERM MANAGEMENT
MEKNES, MOROCCO



MEKNES
Morocco

SOLUTION

- **Rehabilitation** of existing landfill site (22 ha) and **construction of** :
  - a **new landfill** (30 ha)
  - a **compost plant** (3,000 m2)
- **Preservation of existing jobs** and creation of **new jobs**

CONTEXT

Significant **tourist industry**

Implementation **of a legal framework** related to waste management

OBJECTIVES

Customer support to an **efficient and sustainable** household waste management

Adoption of **best techniques** and **international norms**

RESULTS

- **Operating period:** commitment for **20 years**
- **200K t/year** of processed waste
- Installation of **7 tanks** for **leachate** treatment with a total capacity of **48,000 m³**
- Creation of **~50 direct jobs**

ENVIRONMENTAL PERFORMANCE OF INDUSTRIAL PLAYERS

Resources efficiency driving industrial demand

MAKING THE PLANET SUSTAINABLE IS THE BEST JOB ON EARTH

INDUSTRIAL WATER: MIDDLE EAST, ASIA AND THE US EXPECTED TO BE THE MOST DYNAMIC AREAS

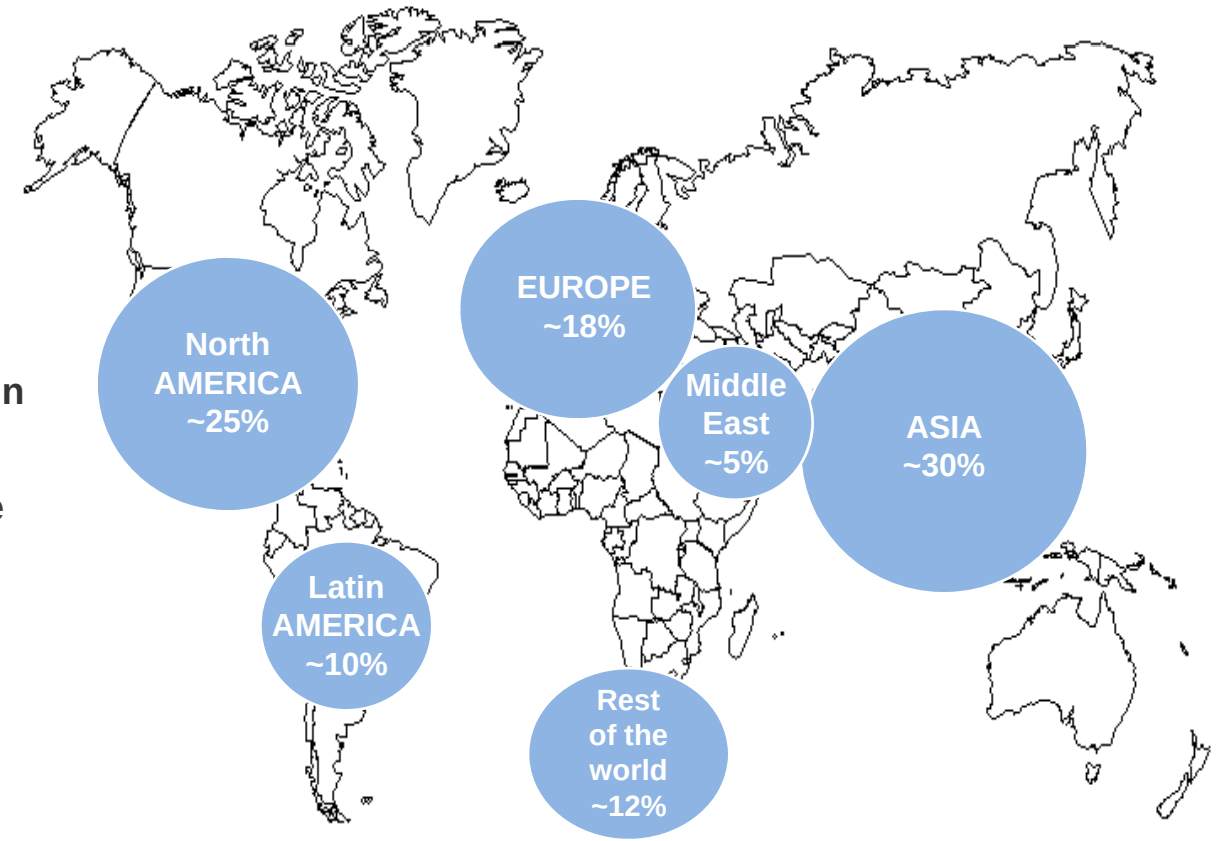
Drivers for industrial water services

- **Freshwater availability** is critical ➔ **operation risk** in some cases
- **Regulatory constraints**, notably on pollution

Most dynamic geographies will be in the emerging countries and the US

- **Asia will account for ~33% of the market** by 2016

Geographical split of industrial water market in 2016 [1)]



Source: GWI 2014, Ceres, internal
1) GWI 2008

INDUSTRIAL WASTE: INCREASED INTEREST FOR HAZARDOUS WASTE MANAGEMENT AND RECYCLING

Hazardous waste management and soil remediation are fast growing markets in emerging countries

- More stringent regulation around industrial hazardous waste
- In China, rehabilitation of industrial sites to be transformed into commercial / residential areas

Increasing interest for recycling, especially in Asia and the Middle East

- Asia made up 50% of recycling market in 2011, and this share will rise to 60% in 2017
- Strong appetite for secondary materials, especially in China and India
- Fast development of formal (and informal) recycling in these countries (example of “Venous parks” in China)

SCIP – SHANGHAI

HAZARDOUS INDUSTRIAL WASTE INCINERATION PLANT

SCIP SITA
Waste Services Co., Ltd.

The **Shanghai Chemical Industry Park (**SCIP) is a large industrial zone for the fine chemical and petrochemical industry that has attracted companies such as Bayer, BP, Sino French, and Air Liquide

OBJECTIVES OF THE CONTRACT:

- **Treat hazardous waste** (solid, liquid, gazous)
- **Treat flue gas emissions** according to **European standards**
- **Recover the energy** generated from waste incineration in the form of steam

KEY INDICATORS

- Services provided: Construction and operation of a hazardous waste incineration plant
- Capacity: 60,000 tons / year
- Investments: € 53M