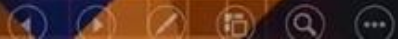


Circular Economy & Resource Recovery

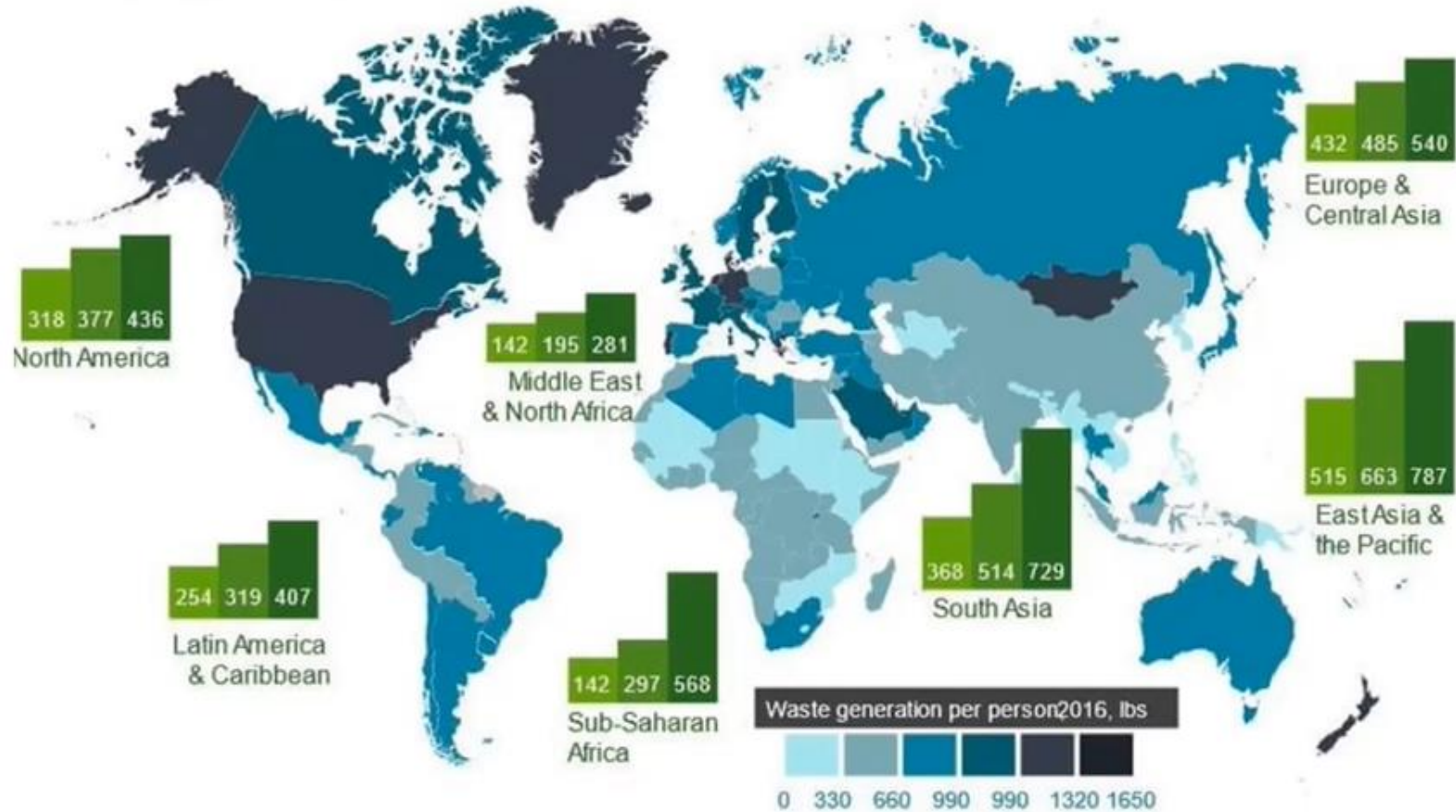
Linking industry & academia



A THROWAWY WORLD

Regional waste generation
US ton (millions)

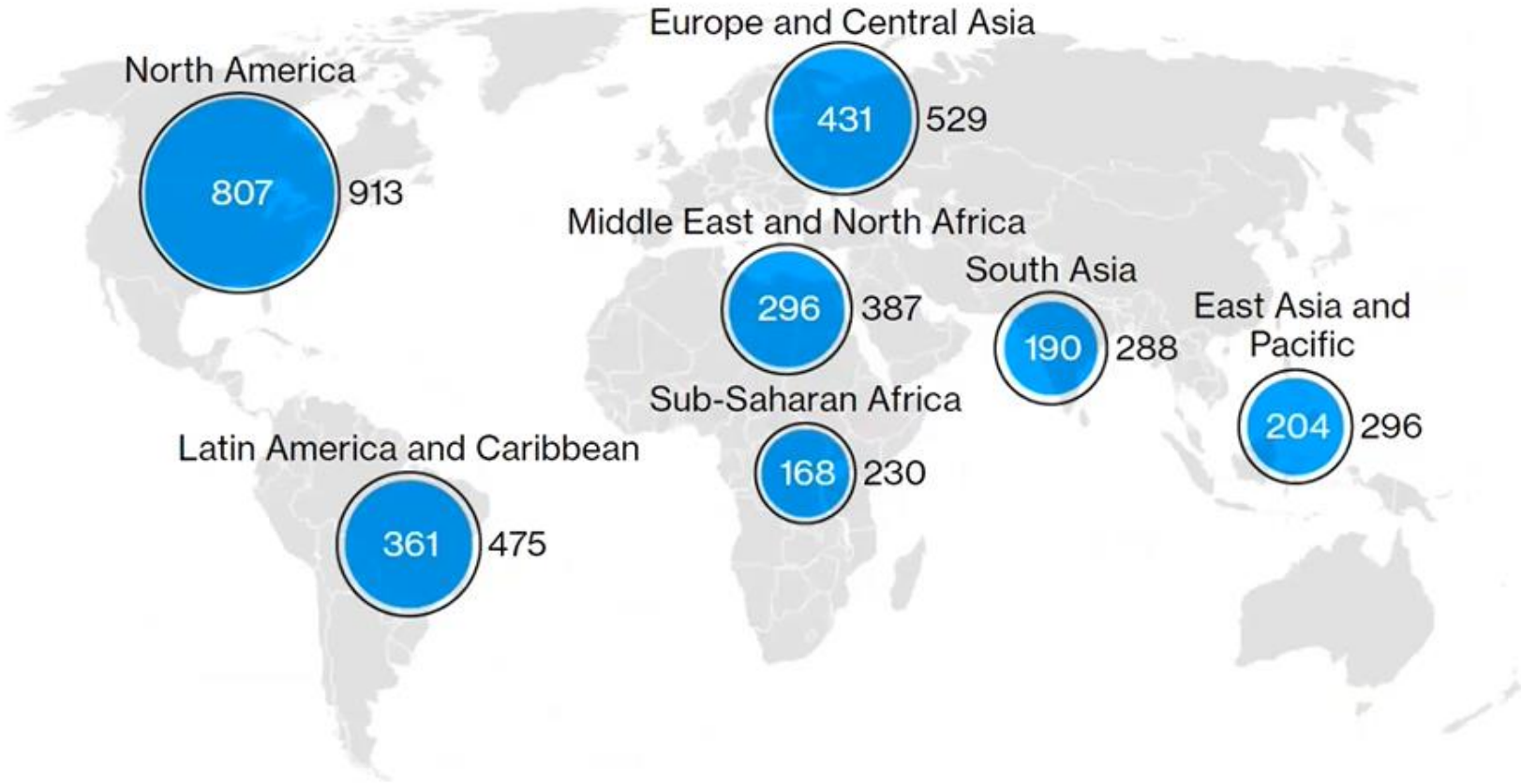
2016 2030 forecast 2050 forecast



Waste Generation Is Rising Globally

Kilograms of solid waste each person creates a year

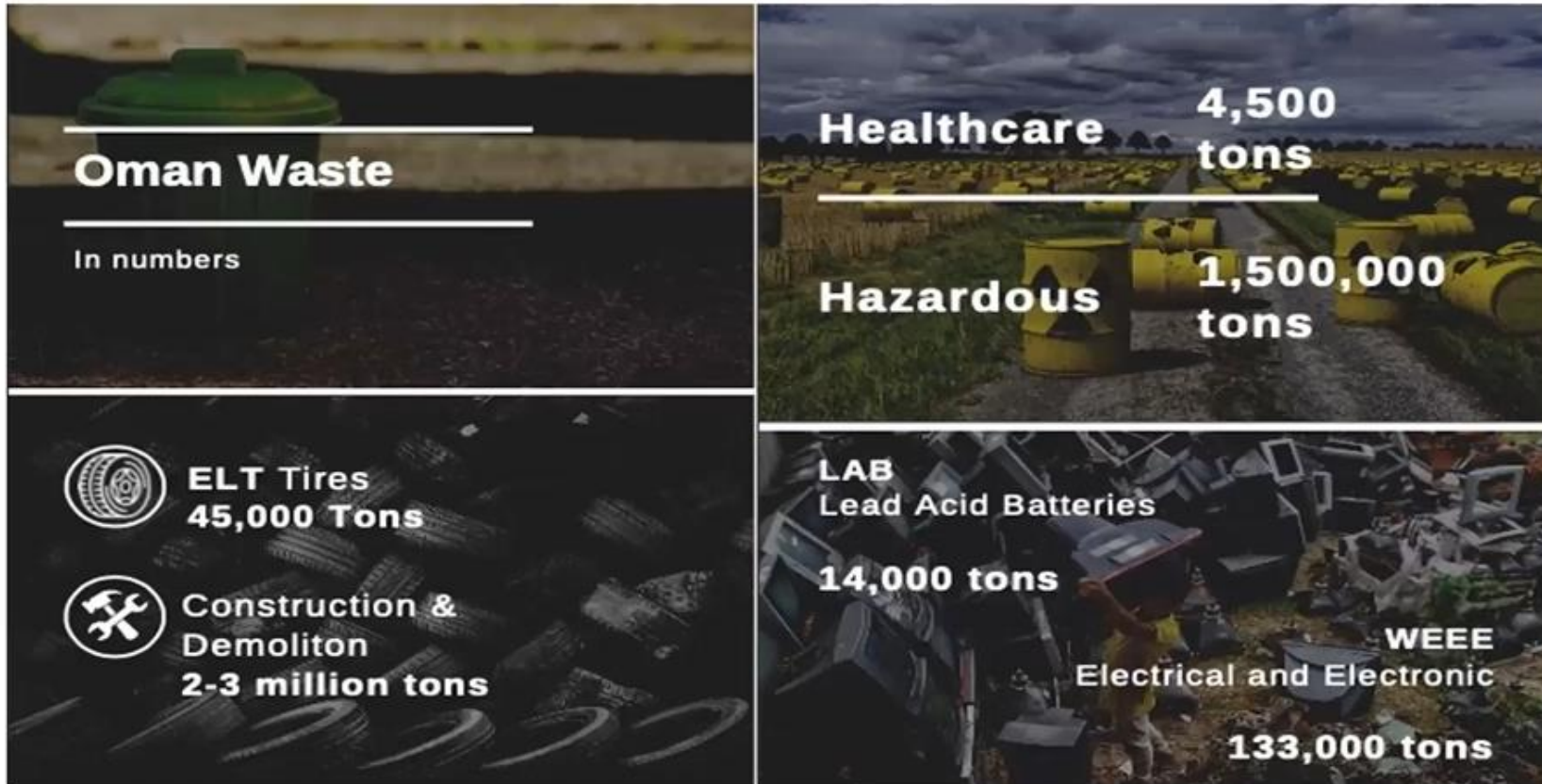
● 2016 estimated average ○ 2050 projection



Amounts of E-waste per capita



Waste Landscape



Waste Hierarchy



ACADEMIA – INDUSTRY INTERFACE-DIGITAL SOLUTIONS



**Academic
Affiliation.**



**Collaborative
Partnerships.**



**Industrial
engagement.**



**Industrial
professors.**



Lab facilities.



**Solving industrial
issues.**



**Mentoring and
coaching students.**



**Quality &
Assurance.**



**Industrial
applications.**

Waste transport – application development



01 Feasibility study
Process assessment
Document analysis

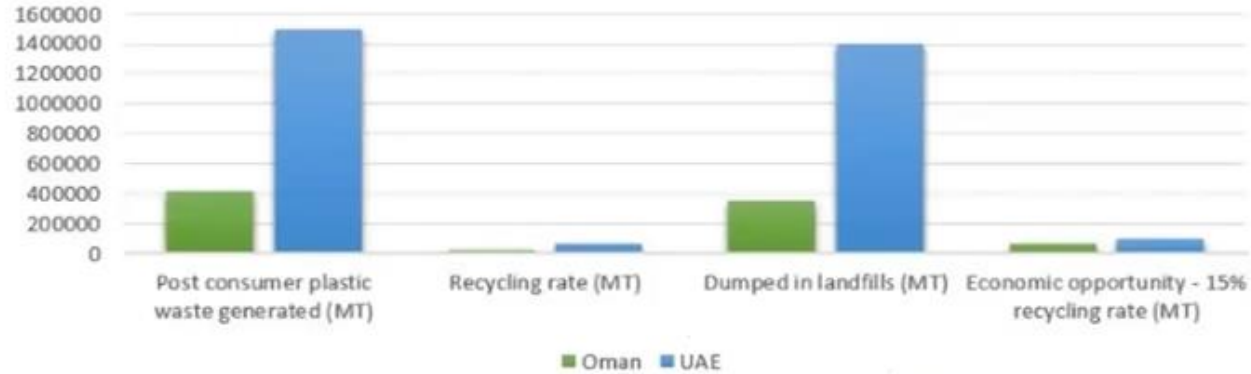
02 Business case
Basic requirements
Technical feasibility
Stakeholder engagement

03 Pilot
Field test
Final requirements

04 Setup organisation
Launch

Recycling opportunity Oman and UAE

Plastic Waste Management in Oman and UAE¹



“A studies commissioned by the Gulf Petrochemicals and Chemicals association found that of the 420,000 MT of post-consumer plastic waste being generated in Oman, only 4% is currently recycled and 85% is dumped in landfills. If we compare this with the European average of 15% recycling rate, Oman has an opportunity to recycle a further 40,000 MT of plastic waste. This can add substantial value to Oman’s economy in terms of value retention and value creation, job growth, economic diversification as well as environmental protection.”



Transform old waste in new products



Recycling PET plastics generates a new value chain.

Focusing on plastic bottles here, they have one huge advantage – unlimited recycling potential. PET is one of the few polymers that can be recycled into the same form over and over again. Think of it as a closed-loop recycling solution.

Recycled PET, or rPET, can be used to make many new products. This can range from clothing, automotive parts, packaging as well as bottles for food/non-food products. Depending on the application required, rPET will be blended with the original PET.

Recycling PET



1. Additive Manufacturing Field lab (triple helix)

- Experimental hub to showcase the possibilities of recycled PET (rPET)
- Raising awareness & sharing knowledge
- Discover and define business cases



2. Print factory

- Production of prototypes (product development / R&D – purposes)
- Production of (critical) spare parts
- Production of singular products



3. Industry based Additive Manufacturing solution

- Secured end-to-end sharing of IP-protected AM designs between partners within an industry (aviation, automotive, oil & gas, water & energy, etc.)