



Ricardo
Energy & Environment

Institutional Structures & Economics of Waste Management

Prof Adam Read

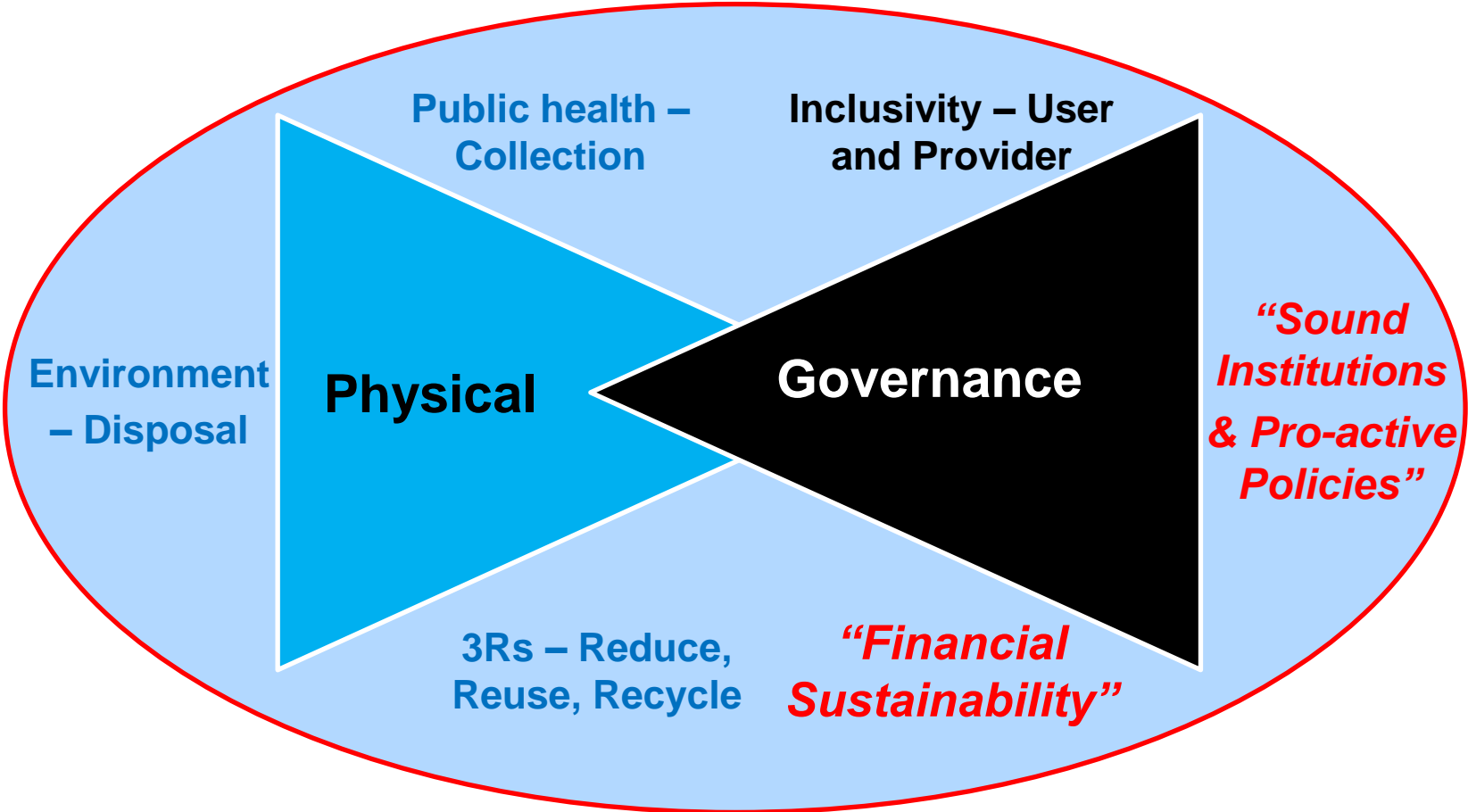
Practice Director

7th June 2016, Manila, Philippines

Effective waste management needs ‘control’

- Strong policy / strategy providing ‘direction’ is the starting point
- Implementation needs ‘ownership’
 - *who is taking decisions locally about what is needed in terms of services / infrastructure?*
 - *are people qualified & experienced to take these decisions?*
- Build infrastructure to suit your needs
 - *Energy / Power / Heat generation*
 - *Landfill reduction / Materials recovery*
 - *Must suit the feedstocks you can secure from your collection systems*
- Cost recovery is critical
 - *ensure systems are sustainable and infrastructure is ‘maintained’*
 - *how are fees / taxes collected and distributed?*

The conceptual framework for integrated waste management solutions ...



Scheinberg A, Wilson D.C. and Rodic L. (2010). *Solid Waste Management in the World's Cities*

- Who is responsible for taking decisions, setting the agenda, agreeing the funding and regulating the solutions
- *Multiple agencies will be involved*
 - National Government (strategy & policy, plus funding, and regulation), but possibly different departments
 - Municipal Government (local strategy and funding decisions & technology choices)
 - Private sector (service design, delivery & potential infrastructure funding)
 - Industry & Public (service users, fee payers)
- Are decision-makers at each level capable of taking the decisions
 - *Do they understand the complicated web of inter-relations?*
 - *Do they appreciate the needs of the different technologies?*
 - *Can they determine value for money or comparative performance?*

Waste infrastructure projects need focus!

- Often a new team / authority is set up to deliver the services / facilities / sites required to deliver a 'city waste strategy'
- They will need to have a range of skills:
 - *Technology evaluation and selection*
 - *Engineering & project management*
 - *Cost recovery*
 - *Behavioural change & communications*
- Experiences suggest that 3rd party training of staff and secondments of experts really helps to de-risk these activities
- Make sure you do a capacity analysis and training needs analysis before going too far down the road



Competing Interests

- Not all agendas / interests will be aligned
 - *Environment Department wants to protect health / environment*
 - *Energy Department wants to secure energy supply @ the right price*
 - *Finance Department wants to spend as little as possible*
 - *Municipal Authority must satisfy public demands for services and taxes whilst also taking difficult decisions about services, sites and planning!*
- So any strategy must ‘work’ within these contrasting agendas

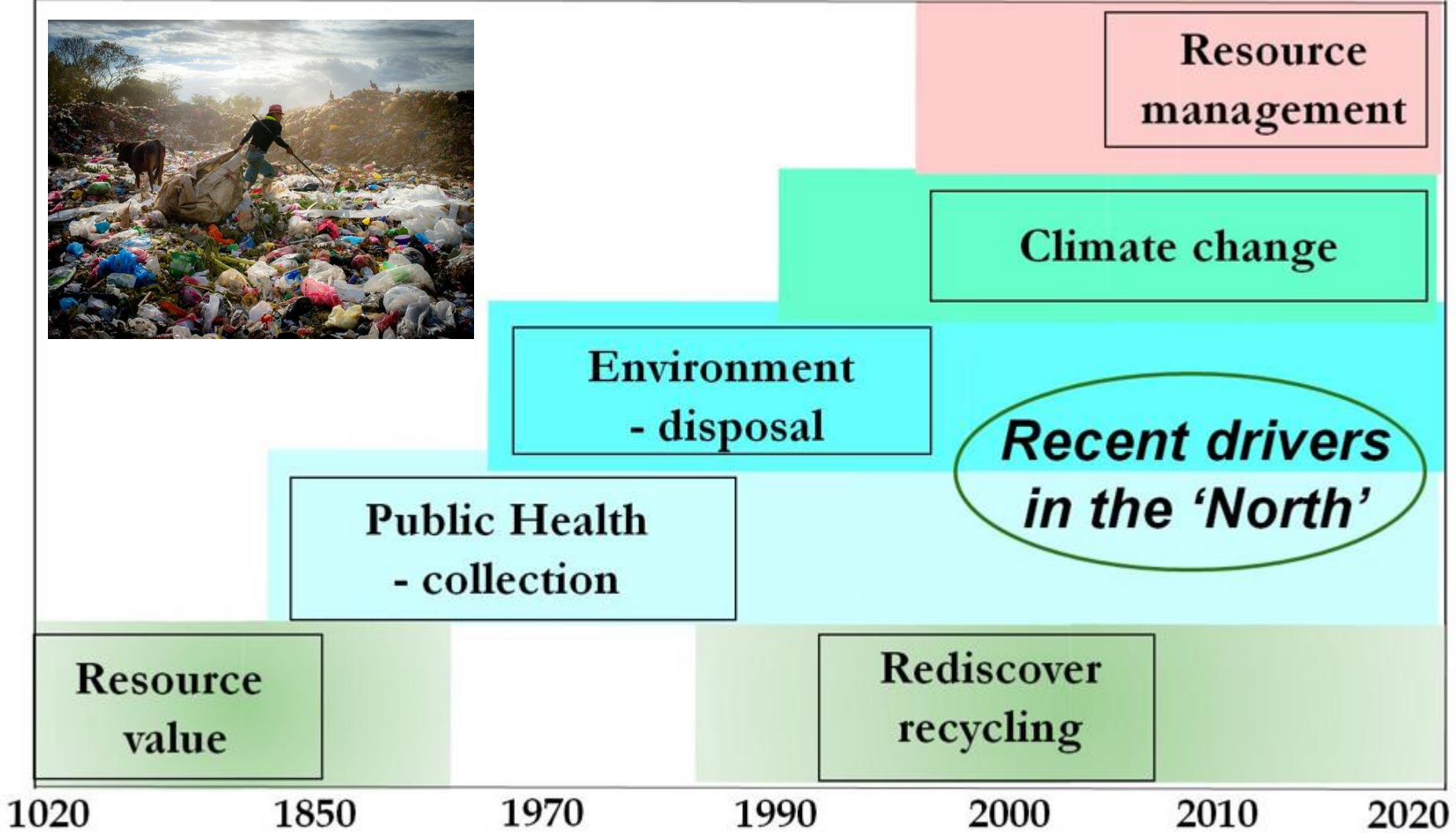


“What gets measured gets managed” (Peter Drucker)



- Agree short, medium & long term waste management objectives!
- What data is required?
- Do you measure it, or if not how can you?

Institutional Drivers over time



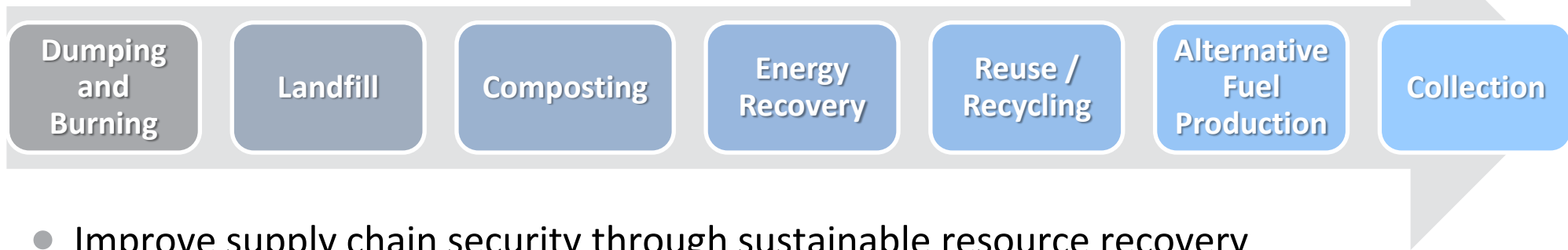
Economics of waste management?

- There is value in the bin:
 - *Reusable materials*
 - *Recyclable materials*
 - *Refuse Derived Fuel (RDF) or Solid Recovered Fuel (SRF)*
 - *Bio-fuels / Bio-diesel*
 - *Energy / Heat / Power*
- But we do not fully understand actual costs and revenues
- We need to focus on improving ‘cost recovery’
- We need to assess ‘push and pull factors’ (market forces etc.)
- Offtake markets for products (suitability, stability & interest?)
- Waste service provider (private sector will want to generate a margin)



Socio-Economics of waste management

- Job Creation



- Improve supply chain security through sustainable resource recovery

- *Recyclates / Compost*
- *Alternative Fuels*
- *Power / Heat*

- Role of the Informal Sector

- *Safer working environment*
- *Impact on recovery rates*
- *Monitoring informal operations*
- *Can the informal be formalised?*

- Best value is all of the above!



- Must fit with the current policy & regulatory regime
 - *may need policy / incentives to drive change (energy / heat secured prices, recycling credits etc.)*
- May have to satisfy competing agendas (particular for WtE projects)
 - *job creation or power security?*
 - *recycling rate or maximising revenue generation?*
- Must understand the value chain & economics of the whole system
 - *from waste collection to end markets / sites*
- Must have an effective cost recovery system
 - *fees / taxes, fines etc.*
- Must have the right resources to take decisions and implement them
 - *trained, experienced and prepared!!*