

Urban Harvest approach

A resource based tool for urban design

Claudia Agudelo, Adriaan Mels, Karel Keesman and Huub Rijnaarts

Urban Environmental Technology and Management Group – Wageningen University



Problem definition

- Growing urbanization
 - increasing pressure on available resources
 - Waste production
- Lack of integration between urban planning & resources management

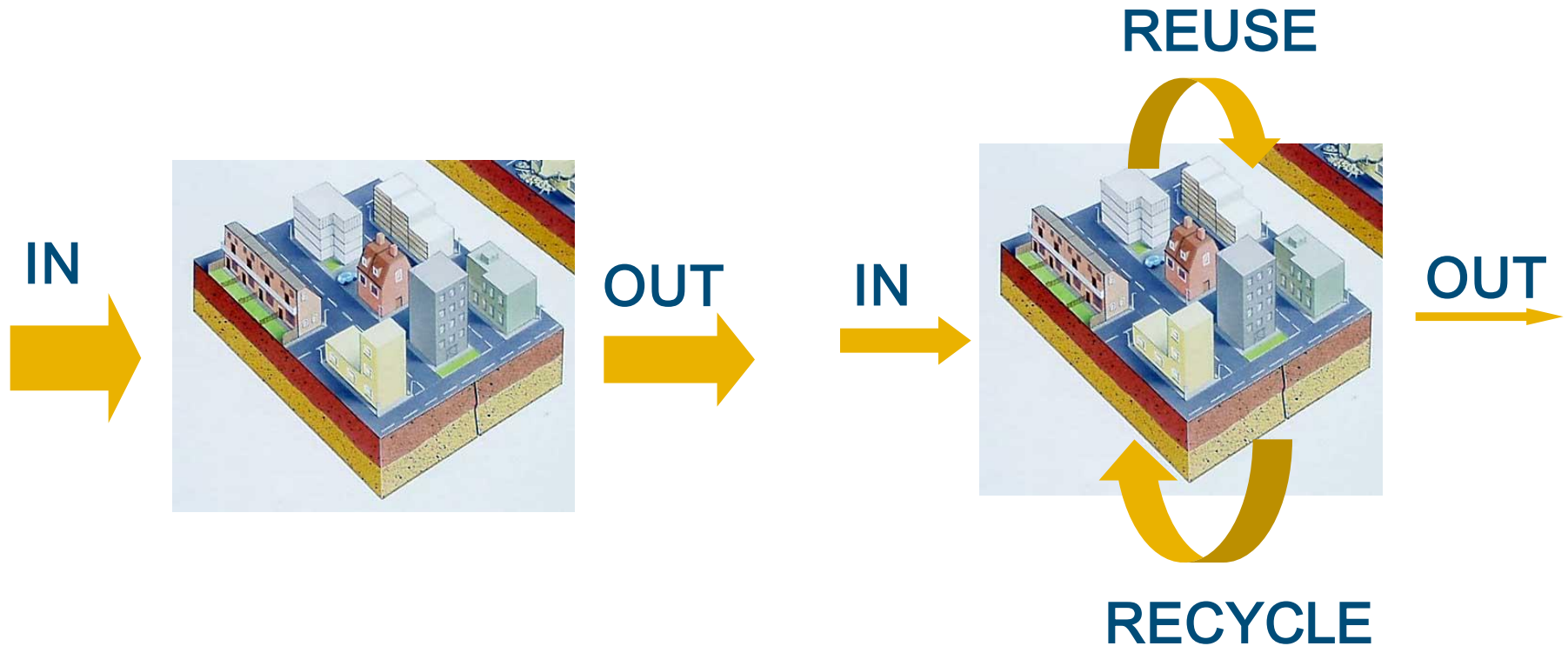
Research questions

How to Identify harvesting potential of urban resources towards sustainable cities?

Is urban resources management a key consideration for urban planning?



Concepts: urban metabolism



Linear Metabolism

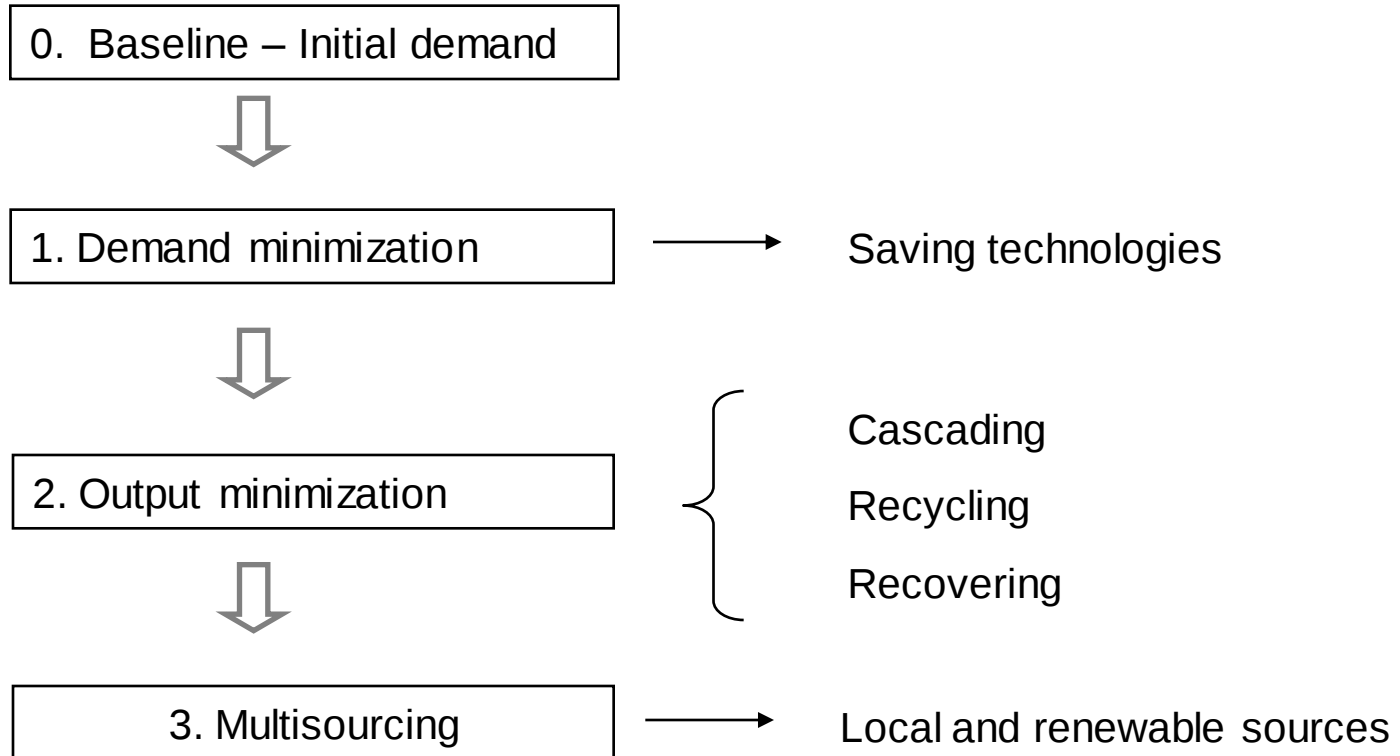
Circular Metabolism

Urban Harvest approach

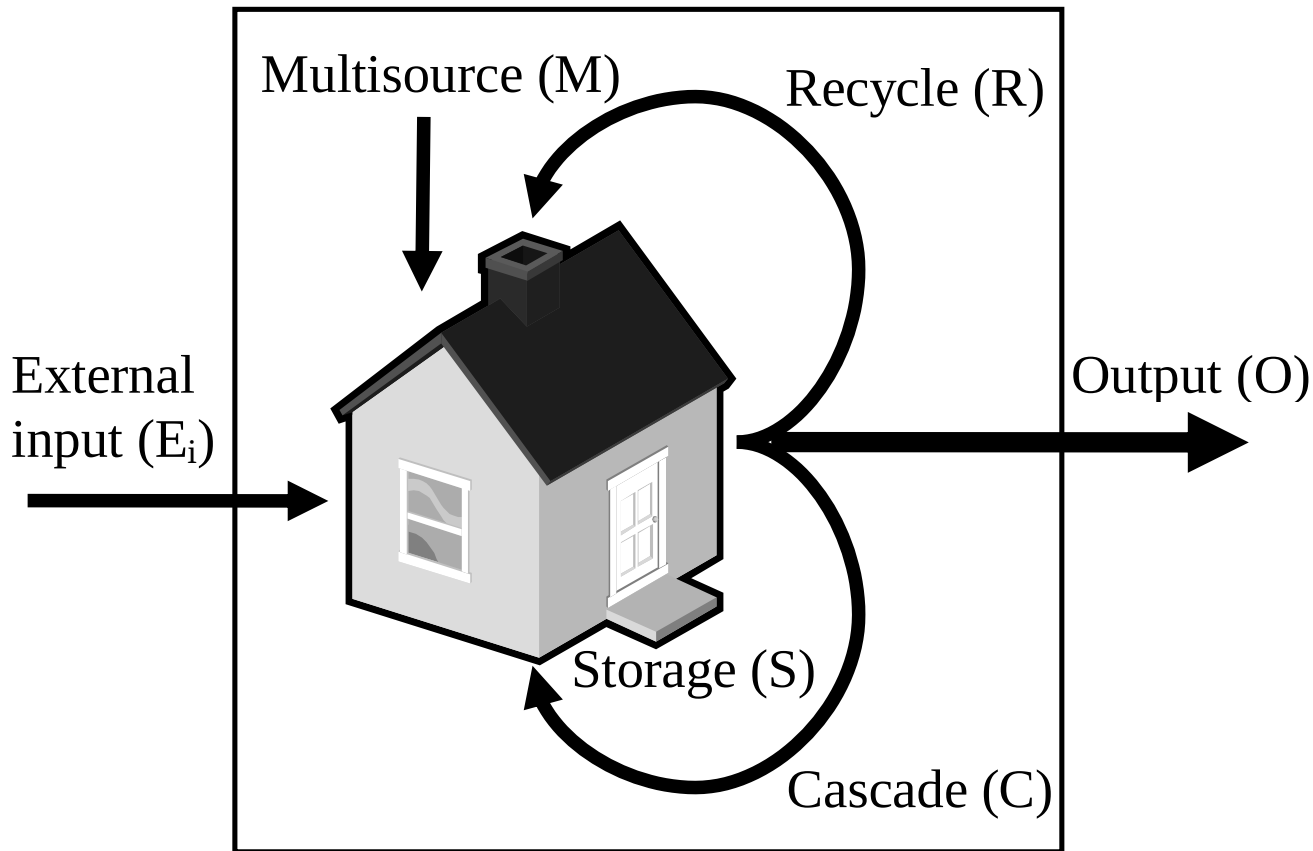
- Focuses on improving resources management within urban system
- No waste, only resources in different qualities
- Unified methodology to manage urban flows
- Bridge the gap between technology and planning
- Urban resources management as key consideration of urban planning



Urban Harvesting strategies



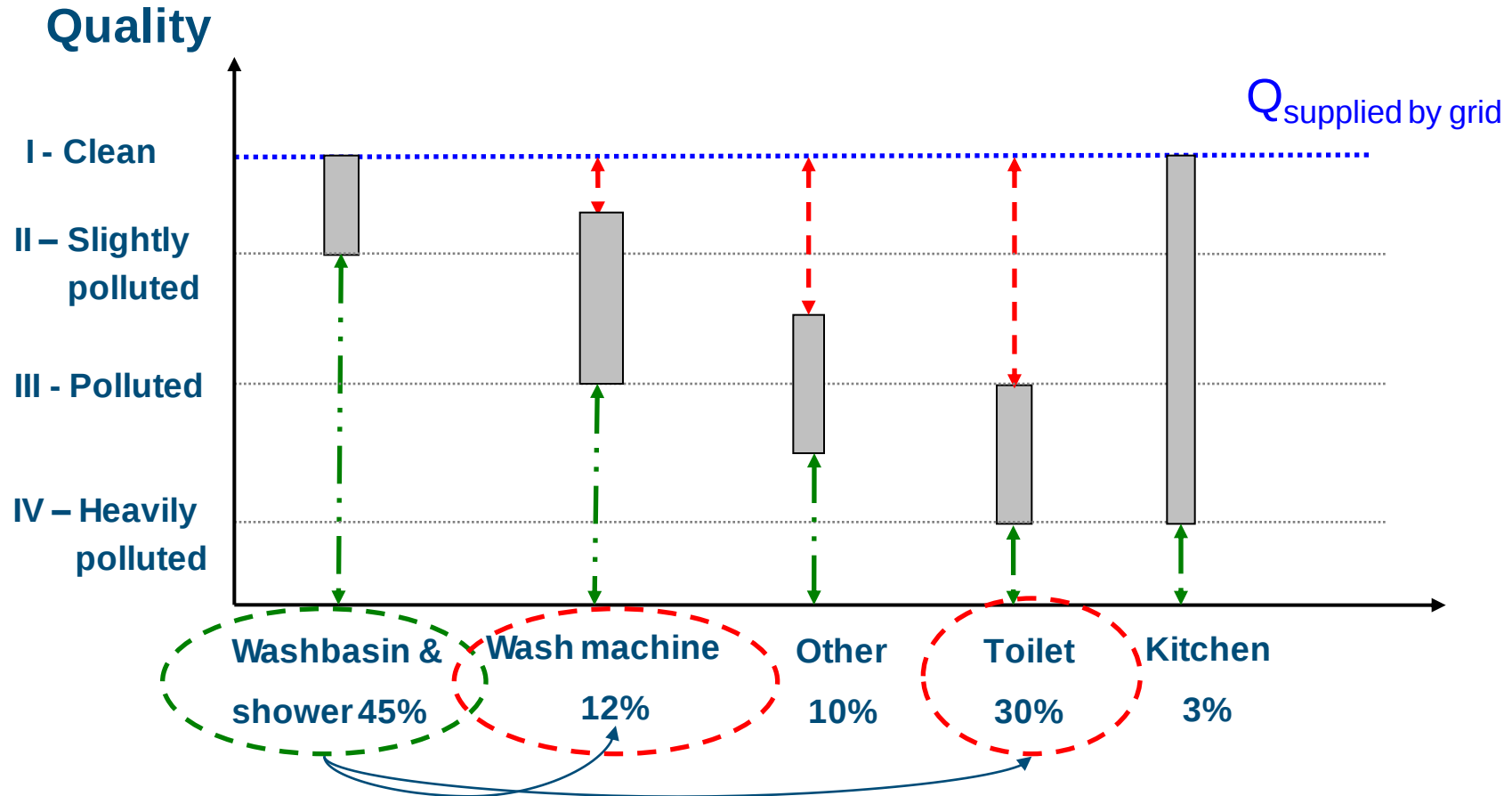
UHA at household level



Water balance:

Total inputs = Total outputs + storage

Urban Harvest applied to water cycles



2 types of losses:

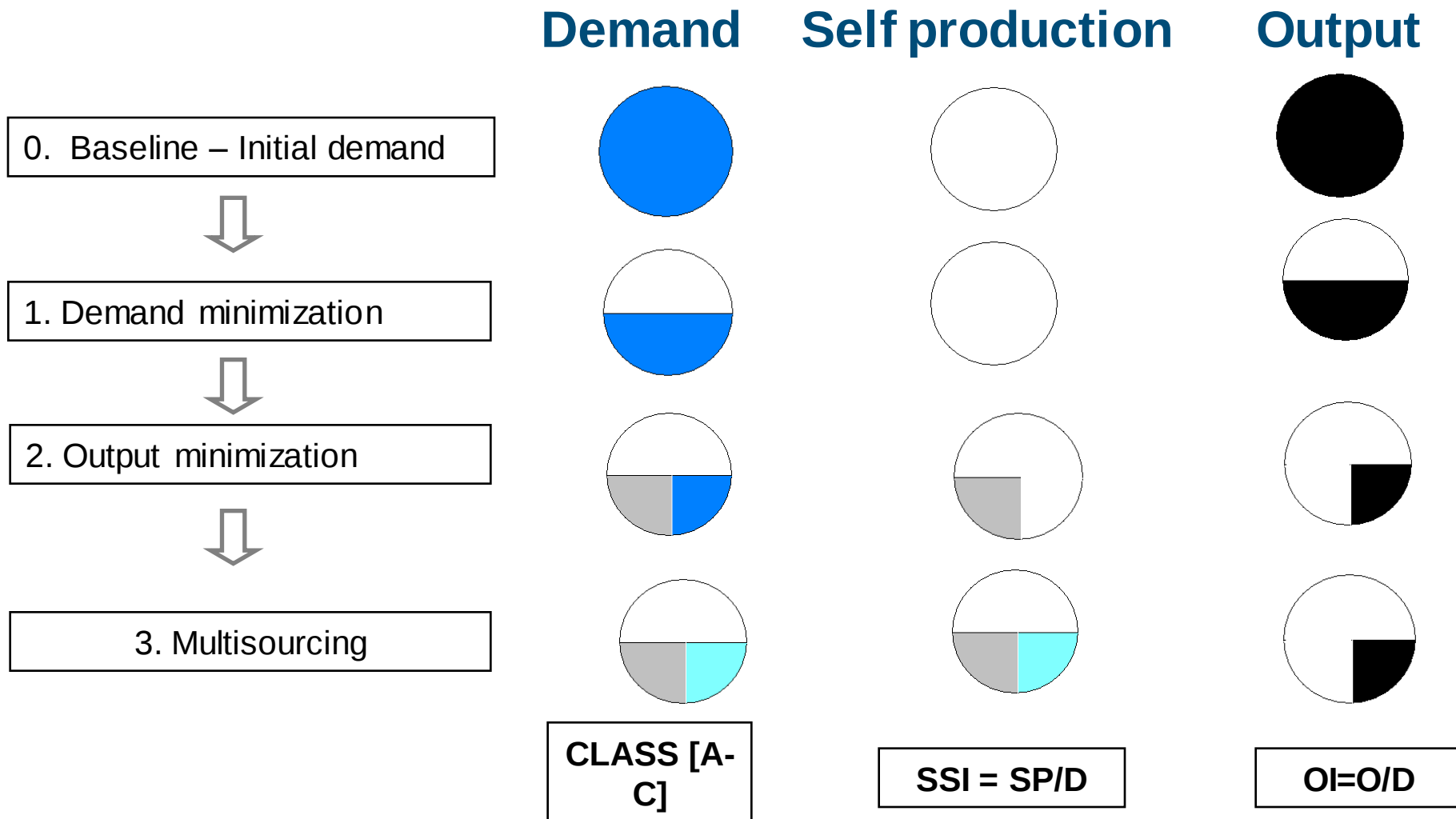
- Q_s = quality surplus supplied
- Q_r = unused quality of the remaining flow

Evaluation of potential for reuse of the different flows for the NL

	Rain water	Bathroom	Laundry	Kitchen	Mixed
Quality	+++	++	+	+	-
Quantity	++	++	+	-	++
Temporal	++	+++	-	++	+
Location	+	+	+	+	+

+++ very good, ++ good, + satisfactory, - bad,

Results – Metabolic profiles

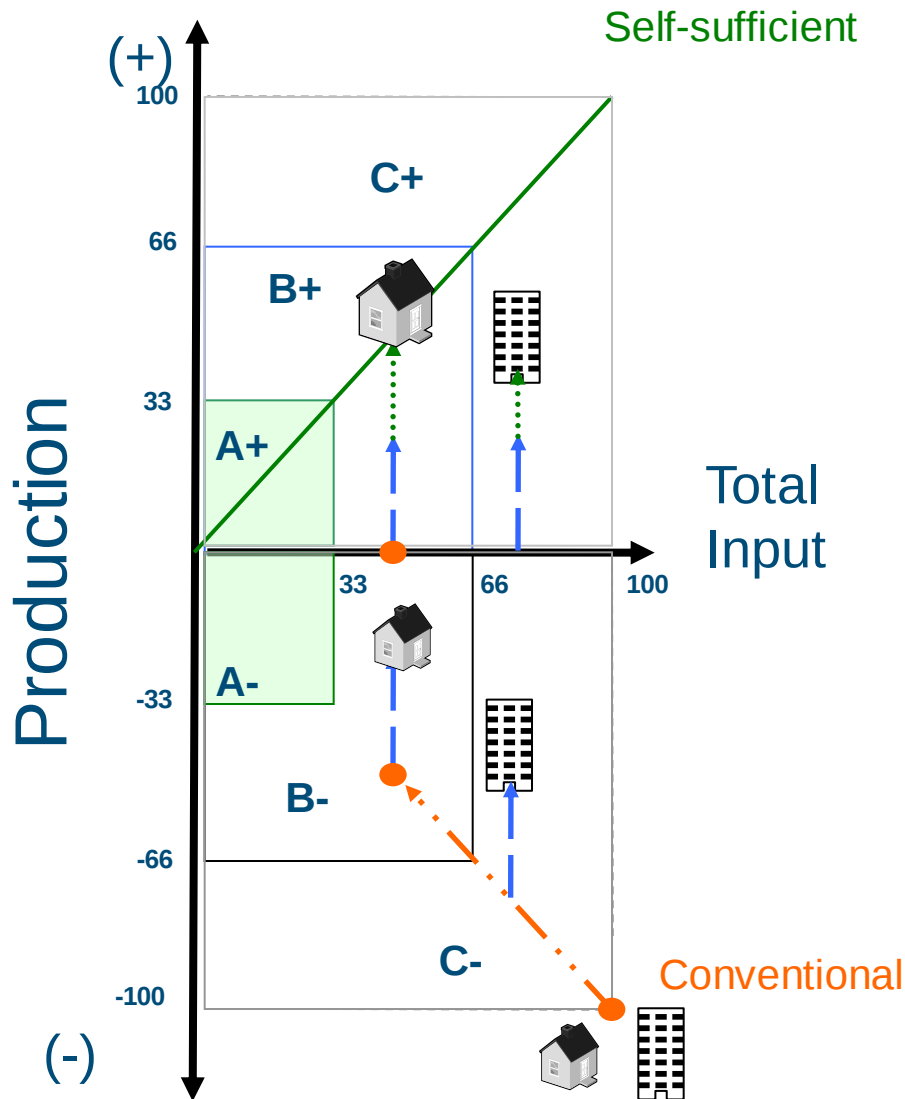


50% reduction in demand - 100% of the remaining demand can be supplied by recycling and multisource – Output can be reduced 75%

Conclusions

- Single measurement implementation is not enough. Strategies should be combined to achieve less impacting urban areas
 - minimization demand,
 - minimization output
 - multi-sourcing urban
- Urban areas are reservoirs of resources, therefore urban resources management is a key element of future city design
- Urban planners and managers must be aware of potential linkages of flows, to facilitate exchange among different urban functions

Metabolic profiles (%)



1 Minimization



2 Cascade & recycling



3 Multisourcing



Customize
solutions for the
built environment

Questions?

Claudia.agudelo@wur.nl



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