

Learning Network for
Sustainable Neighborhoods in Vietnam

LNSNV

INTEGRAL WATERMANAGEMENT

BEST PRACTICES FOR USE FOR BUFFERING,
INFILTRATION AND USE OF WASTE WATER IN
ENERGY PRODUCTION

Philippe D. Vermeulen, LTA

CHALLENGES IN ORGANISING UTILITY NETWORK AND WATER FUNCTIONS IN PUBLIC DOMAIN

OWNERSHIP AND EXPLOITATION OF NETWORK INFRASTRUCTURE

- SEWAGE
- POTABLE WATER
- ELEKTRICITY
- DRAINAGE
- TELECOM
- GAS
- MID TENSION GRID

INVESTMENT PUBLIC DOMAIN

- INVESTMENT IN ROAD INFRASTRUCTURE
- INVESTMENT IN BASIC FUNCTIONS
- DRAINAGE
- SEWAGE CANALS
- PUBLIC GREEN
- ECOLOGY

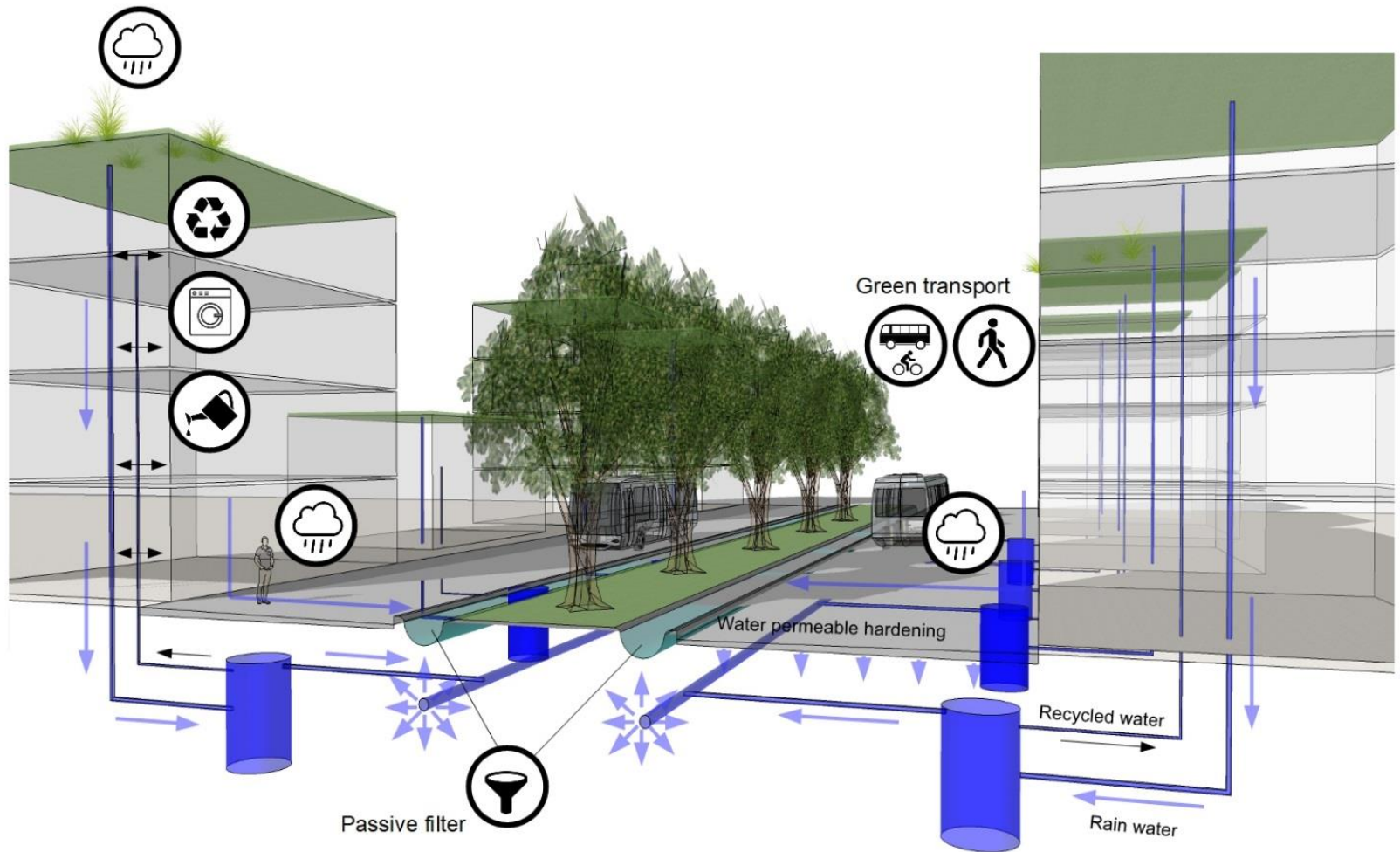
SOME EXAMPLES OF CURRENT SITUATIONS



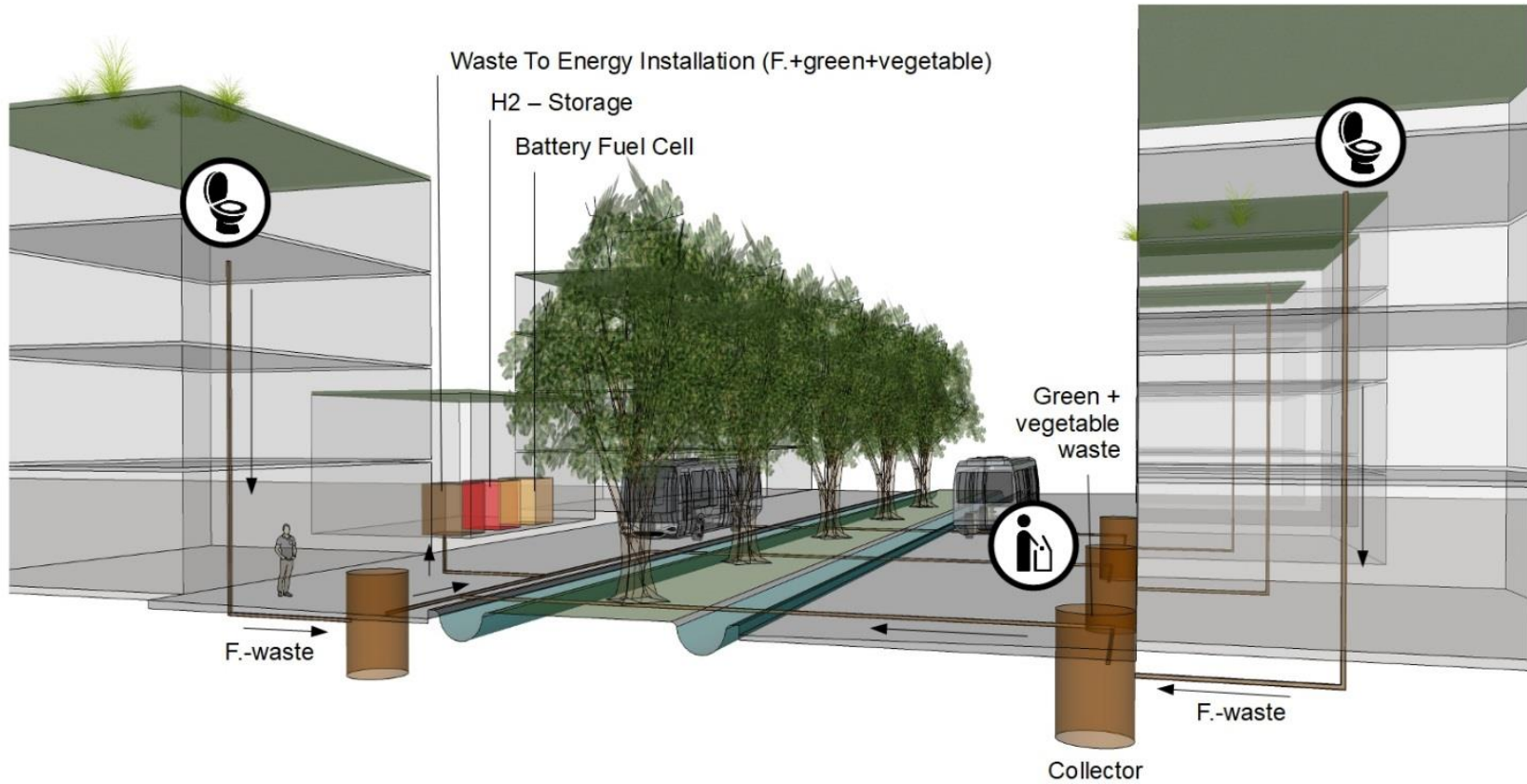
GOALS

- MINIMISE DRAINAGE WATER
- MAXIMISE CONFORT OF USER
- BUFFER AND USE RAINWATER AS CONSUMABLE
- UPSCALE AND COST EFFICIENCY
- USE WASTE WATER – FAECAL MATTER – GREEN WASTE AS SOURCE TO PRODUCE LOCAL ENERGY
- CREATE SMART TOOLS AND NETWORK AT NEIGHBOURHOOD SCALE

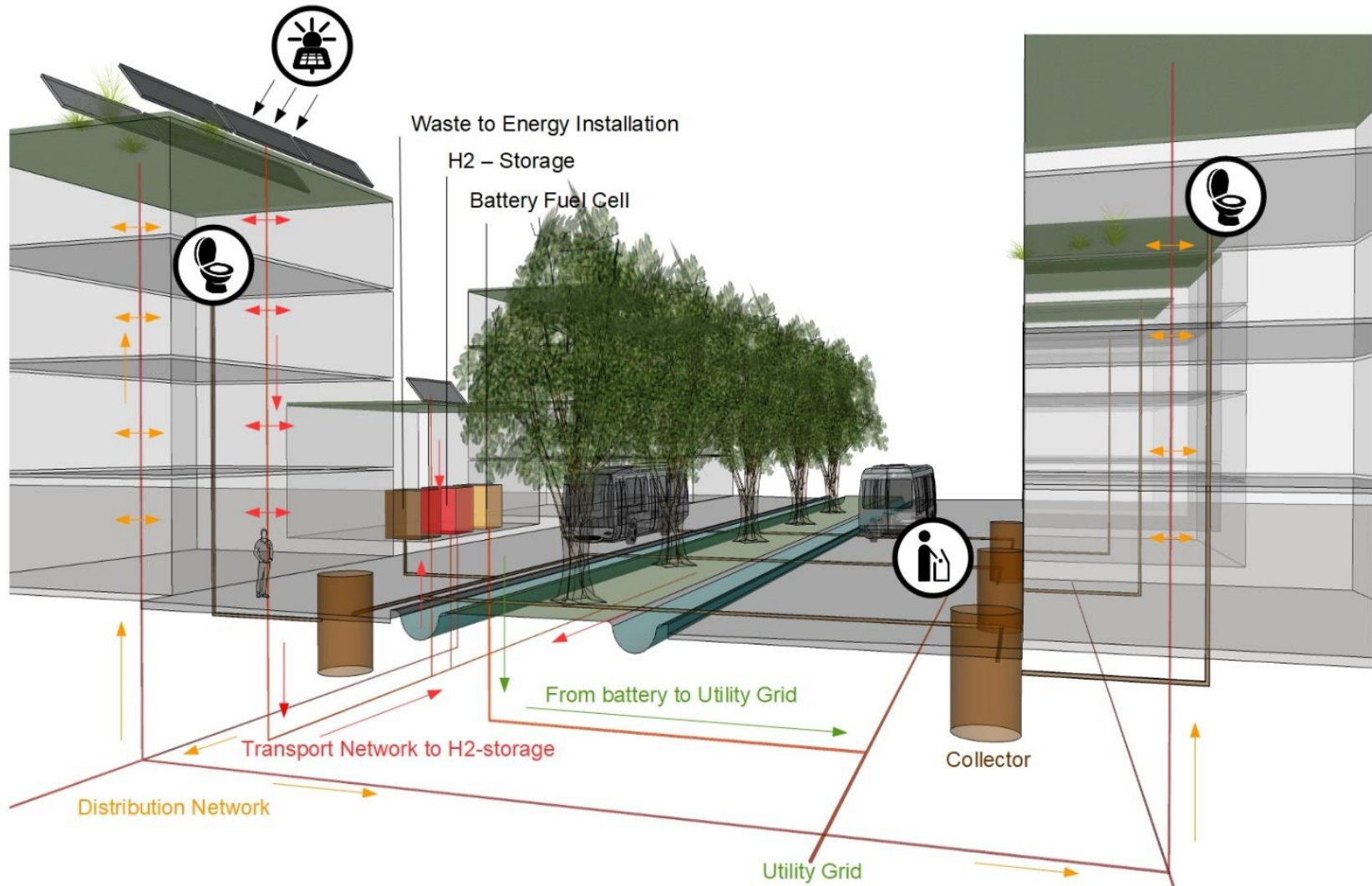
INTEGRATED WATER CYCLE



SEPERATING FAECAL-WASTE AND GREEN AND VEGETABLE WASTE FOR LOCAL ENERGY PRODUCTION



LOCAL ENERGY PRODUCTION AND UTILITY GRID SUPPORT(balancing)



ORGANISING PRIVATE AND PUBLIC TO COST EFFICIENCY

- PRIVATLY OWNED NETWORK AND CABLE INFRASTRUCTURE USING PUBLIC DOMAIN
- STRUCTURING USE OF PUBLIC DOMAIN BY PUBLIC PARTNERS BY INTRODUCING REGULATION
- SET UP COST SHARING SYSTEM FOR INVESTMENT INTO PUBLIC DOMAINS AND ROAD INFRASTRUCTURE BY PRIVATE PARTNERS
- ORGANISING PRIMARY USE OF LOCAL WASTE AS COMMODITY

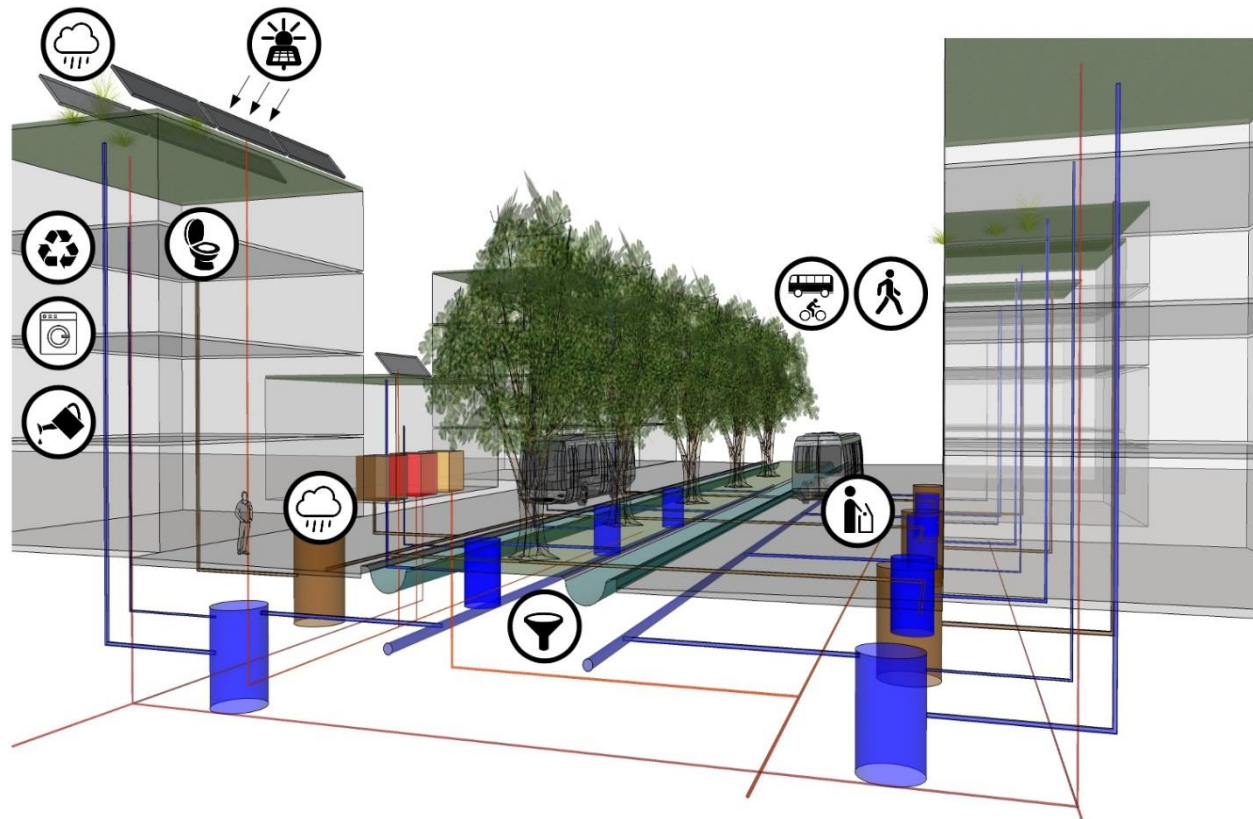
DURABILITY

- BUFFERING ROOFTOP WATER FOR LOCAL USE
- INFILTRATING WATER ON PUBLIC DOMAIN
- INTRODUCING LOCAL ENERGY PRODUCTION ON ROOFTOPS
- SEPARATION FAECAL AND SEWAGE WATER CIRCUITS
- COLLECTING GREEN AND VEGETABLE WASTE
- INTRODUCING LOCAL ENERGY PRODUCTION AND STORAGE SYSTEM
 - WASTE TO ENERGY (FAECAL MATTER AND GREEN + VEGETABLE WASTE)
 - H2 PRODUCTION
 - BATTERY - FUELCELL

BENEFITS

- COST SHARING WITH PRIVATE PARTNERS
- SHIFT COST TO PRIMARY USERS
 - LOW COST USE OF HARVESTED RAIN WATER FOR PRIMARY USER
 - LOWER COST FOR DRAINAGE ON PUBLIC DOMAIN
 - LOWER COST FOR TREATMENT OF SEWAGE WATER
- SUPPORTING LOCAL ELEKTRICITY PRODUCTION
 - PRIMARY LOCAL USE
 - ORGANISING ENERGY STORAGE AT NEIGHBOURHOOD LEVEL
 - USE OF WASTE TO PRODUCE ENERGY
 - LESS TRAFIC
 - WASTE MATERIALS CAN BE USED IN AGRICULTURE
 - COST EFFICIENCY

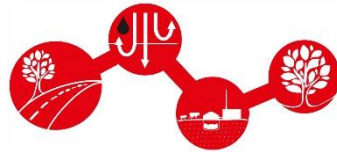
ORGANISING PUBLIC DOMAIN AND UTILITY INFRASTRUCTURE





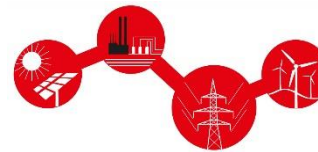
AVALON LANDSCAPE - ENGINEERING

AVALON Landscape+Engineering divides its design work in three knowledge areas. Landscape Architecture, Energy and Masterplanning. Each with their own specific approach.



LANDSCAPE ARCHITETURE

Since 20 years we develop our experience as designer of the most diverse landscape- and infrastructure projects. Characteristic for our projects is a intensive technical engineering in addition of our own design



ENERGY

We offer integrated solutions to the development of energy infrastructure. Based on a rapidly changing legislation and a challenging development environment AVALON L+E support the development of new grid and renewable projects: site analyses, remediation, development and planning steps up to construction. From yield estimations, research and development of energy balancing and storage solution and the operational grid management and site operational management.



MASTERPLANNING.

AVALON L+E creates and supports a platform where all planning parties such as architecture, urban planning, engineering, economic feasibility and designers come together to create a innovative approach to the challenges the development site poses. We do this on account of private and public parties. The ultimate goal is to create a design approach to the development plan that is sensible, socially supported and provides a qualitative living area with added economic value.



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Vermeulen Philippe D,LTA

Wolterslaan 14
B-9000 GENT
Belgium

Phone : +32 474 98 31 26

Email : philippe.vermeulen@avalonl-e.be

website : www.avalonl-e/en

