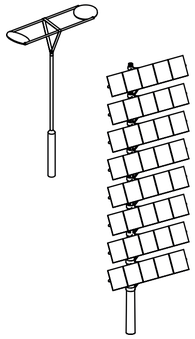
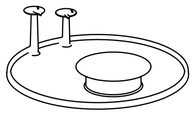
Multidirectional urban LED lighting: it can be adjusted in intensity and temperature to adapt to the city's needs and reduce light pollution.

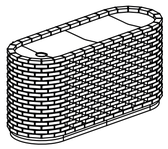


Vertical solar photovoltaic masts: they are an alternative to traditional photovoltaic panels where space is limited.

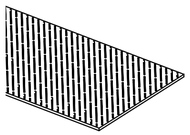
New Wallace fountains: located on power plant roofs, they provide a drinking water outlet for residents and are real works of art in recycled materials.



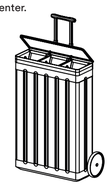
Urban air treatment unit: it analyses and traps, in real time, pathogenic agents and fine particles present in urban air.



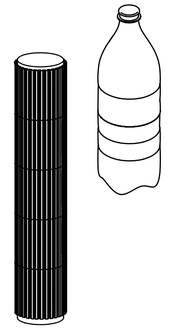
Humidification slabs: installed at ground level and supplied with water from below, their porous surface humidifies and freshens the urban atmosphere.



Municipal domestic waste bin: Using a deposit system, it has three different sorting containers, which, when full, can be exchanged against a clean container at the local district waste collection center.



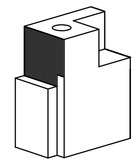
Deposit or returnable bottle: extremely strong, its remarkable opalescent appearance is due to its composition, which uses PET recycled more than 40 times.



Filtering towers: a sort of filter chamber system to treat wastewater. They are generally found in single dwelling areas on the outskirts of cities.

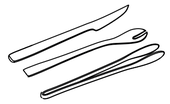
Tumuli: Farm product storage infrastructure. Their planted surface serves as a biodiversity unit.

Construction elements in recycled concrete: composed of gravel sourced from waste processing, it includes the service ducts specific to new construction methods.



Food freshness indicator: it measures the level of food freshness and so helps reduce food wastage.

Cutlery set: it includes a flexivore short-blade knife, a round fork and insect tweezers.



Voice-activated central domestic computer: it collects data and optimizes flows inside the home.

Pathway to tomorrow

Five windows open on 2040

Imagine the world in 2040, invent the solutions to the major challenges of tomorrow in the areas of food, energy and pollution. Veolia asked three young designers, all graduates of the Ecole Nationale Superieure de Creation Industrielle (French national institute for advanced studies in industrial design) - Thelonious Goupil, Quentin Didierjean and Guillaume Andre - to assist it with this forward-looking exercise.

After working together for four months, the result was an in-depth examination of our lifestyles and potential uses in the future. This then led to a vision that was both a personal and realistic view of water, energy and waste in the city of the future.

How to represent 2040, other than by fragments, by an association of images, focused on indications of change? Look closely at each of the windows open here on the world of tomorrow: in a future which may appear ordinary, look at the realistic fragments illustrating the innovations that could become reality in our everyday environment within a few decades.

Housing and food

The home interior reflects changes that have occurred over these decades within our society. New technology, new codes and new practices have appeared. As the value of energy, materials and water have entered the collective consciousness, the domestic space is entirely organized around these flows.

The most recent buildings are crisscrossed with technical ducts that serve as a structure and collect and store waste, heat dwellings, supply water and electricity and finally evacuate and recycle wastewater.

Often, these functional columns are installed across all the apartments to significantly reduce the losses caused by individual energy management. Other systems are designed to measure and improve air quality. Distributed across the entire building, they collect data which is centralized and used to make real-time adjustments.

The generalized use of digital technology has rendered a lot of equipment obsolete, even some that only appeared at the beginning of the century. It is now replaced by voice recognition with its minimalist design.

Products are sold without packaging and most waste is now only organic. A wheelie bin is made available to the residents so that they can easily transport their waste to the nearest collection point, thereby assisting with the complete phase-out of rubbish bags.

In the kitchen, tastes have changed. There is a great diversity of vegetables and local products, which are often presented in the form of single mouthfuls. They are highly nutritious and have excellent flavor retention. Diets have become more diverse and insects are part of the menu.

Credits

Project and scenography: Guillaume Andre, Quentin Didierjean, Thelonious Goupil.

Photos: Maxime Delvaux.

3D: Olivier Campagne and Eric Anton for ArtefactoryLab.

Styling: Marine Armandin.

Sound: Yoan Corchia.

Production: Philippe Alix.

Voiceover: Julien Gorias and Marie Fournier.

Thanks

Veolia Communication team: Nathalie Cottard, Feryel Gadhoum, and Claire Billon Galland.

For their expert advice: Patrick Labat, Claude Laruelle, Eric Lesueur, Loic Couttelle, Mathieu Tolian and Benjamin Laulan.

The extras:

Marc and Marie-Laure Andre, Ludemila Armandin, Marie-Mam Sai Bellier, Sabine Courtalon, Raphael Daufresne, Nicolas Lallemand, Charlotte Marabelle, Kevin Pinsembert, Hadrien Moret and Anne Spiess

The street as open space

The changes introduced by the carbon tax law in 2023 are evident across the city. As a result, significant adaptions to urban development policies have had to be made in terms of infrastructure, transportation and services.
The urban population is increasing and town planning is finding some interesting solutions to city sprawl.

On the roofs, you can see micro-units producing biogas from the neighborhood's organic waste, which is then used to generate heat and electricity for living and working spaces. They are fitted with systems to adjust consumption and to interconnect different buildings. There are also water filtration units, hydroponic glasshouses and solar panels. People walk to work or use low-emission personal transportation or mass transit that uses its own road space. Paved pedestrian walkways are wider; they follow cycleways and light rail routes. Electric vehicles and electro-rickshaws are everywhere.

A new type of urban furniture has appeared, it improves sensory comfort in the urban area. Sources of white noise, variable intensity light sources, wave reducers, heating surfaces, air purifiers and urban cooling systems have all become part of the urban ecosystem. These new objects are managed individually and locally by a "municipal employee," whose job it is to make sure they are adapted to specific local needs and uses. Reducing noise and light pollution has led to the return of a more diverse fauna, making cities the preferred shelter for some species.

The new neighborhoods

Population growth, urbanization and increasingly efficient transportation and a taste for less concentrated environments have increased the attraction of outer-urban areas.

This phenomenon has led to the transformation of the landscape in these areas that had formerly been abandoned. The density of housing and building heights have increased, and former industrial wasteland has now been regenerated. These new neighborhoods are home to an increasing range of activities. There are many office spaces. Service activities sit alongside industrial sites. Vertical aquaculture has colonized the available space to produce fruit and vegetables in all seasons thanks to hydroponics.

All around, an ecosystem has been created between houses, offices and factories, all of which produce and consume energy.

In the same day, it is possible to work in your zero-carbon office, eat at the foot of one of the glasshouses in a restaurant that cooks the fresh vegetables of the day, and take swimming lessons in water that has been heated from the calories extracted from wastewater: all within a radius of less than one kilometer.

The "central waste plant" in the city

In addition to traditional facilities to treat waste and wastewater still required on the urban fringe, a network of micro-plants has been installed in the city center to create shorter recovery loops. They have been called "central waste plants" because they are located in the very center of cities.

The biggest change is in the way waste is transported. This relocation has reduced carbon emissions from trucks and it is now the residents themselves who take their waste to the "center" or the many relay collection points scattered across the city.

The voluntary delivery of waste is significantly aided by the many services that citizens find at the "plants." Play areas for children and planted areas have been created on the roofs of these micro-plants, thereby contributing to their integration in the urban landscape.

There are collection points for waste sorting, information offices regarding the neighborhood's sorting quality, sales outlets for everyday products produced from recycling or reconditioning. Visits, conferences and screenings are held here. The plant has become a sort of community center.

Attracted by this activity, a range of food and other stores are located here and also use the heat and electricity produced by the micro-plant.

The city's new boundaries

On the outskirts of the city, small fields are used to produce a variety of fruit and vegetables for the nearby city.
Unlike the extensive farming of the early century, the landscape is now broken up into small lots that are organized around artificial watercourses, a new type of irrigation created using the city's recycled wastewater.

Farm sheds have been replaced by tumuli. These urban mounds, new agricultural produce storage spaces, use the soil as an insulator, and also protect the landscape. These tumuli protect their content from the weather. Their planted surface acts as a biodiversity unit.

Houses are built using recycled and local materials and new industrial techniques. Energy is decentralized and produced locally. Small renewable energy production units are installed in gardens.

Not far from the houses, there are one or several micro-plants to treat their wastewater. They use phyto-depollution processes, and are steered by the filtering towers that have sprung up across the landscape. In front of the single dwellings, you will see autonomous robot mowers that cut the lawn even in bad weather.