

SANDBOX

creative ecological
programming for
problematic places

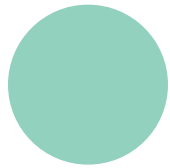


Sandbox: Creative ecological programming for problematic places

Version 0.2. CC BY-NC-SA 4.0 2014 wetland.io

Special thanks to Metabolic.nl and Whare Bike

Cover images courtesy of the authors, taken 2014 in the Boston Marine Industrial Park, NDSM, and De Ceutel.



wetland.io

<http://wetland.io>

[@wetlnd](#)

Boston, MA, USA

+1 978 494 0414

wetland.io believes in cities, people, and ecology. wetland.io developed the sandbox model to facilitate a discussion around transformative, temporary land uses.



Eline Bakker

eline@wetland.io

[linkedin.com/in/elinebakkerkruijne](https://www.linkedin.com/in/elinebakkerkruijne)

Eline is a social environmental technologist with a background in decentralised infrastructure and consulting experience with QUEST-Consult and IRC WASH.



Nels Nelson

nels@wetland.io

[@nelszpz](#)

[linkedin.com/in/nelszpz](https://www.linkedin.com/in/nelszpz)

Nels is a planner and designer who is passionate about the nexus of urban form, substance flow analysis, and ecology.



An aerial view of Christchurch's temporary mall housed in shipping containers in Oct 2011. Re:START enabled the establishment of retail several years before it would otherwise have taken place. It also was the cornerstone for the tourist industry and helped rocket Christchurch to number six in the Lonely Planet guide to the 'must visit' places in the world. Part of the mall is relocating to another part of the city to make way for a permanent new office and retail complex. Credit: Don Scott (Fairfax New Zealand), Sydney Morning Herald and Re:START.

Sandbox model

For idle properties losing economic and social value, sandbox is an approach to temporary, creative and ecological uses that activate a site until redevelopment.

In the context of software development, a sandbox is a self-contained testing environment for experimentation and new changes in code.

Similarly, an underused parcel in the inner city is a potential sandbox: an opportunity for temporary space activation in the most playful sense. A sandbox is a playground for ideas and technology.

The sandbox approach facilitates the activation of space, for example, by creating conditions for businesses and artists to build their own temporary structures on underused and potentially polluted inner-city sites.



South Boston's largely vacant industrial harbor awaits activation and vitalization. Credit: Google Earth, 2014

Vision

Sandbox is a proving ground for new technologies, approaches and ideas, where startups can test, monitor, benchmark, and prototype city making;

The opportunity to harness innovation and creativity doesn't always occur in typical office buildings. Sometimes, to enable a positive, restorative economy, extraordinary spaces are needed.

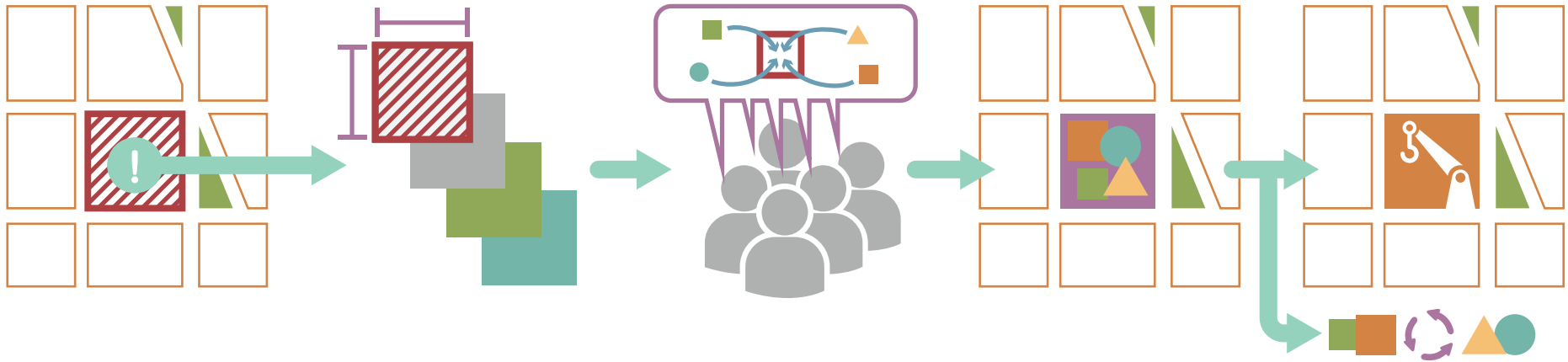
Cultural and societal transformation is encouraged by dynamic, creative spaces driven by sustainability and art. As a function of their impermanence, sandboxes are self-contained systems powered by clean technologies, striving for full recycling and recovery of resources.

Cleantech playground

Sandboxes, as experimental innovation micro-districts, are a city's pitch to the modern workforce. Innovation districts are potential engines for sustainable development; living labs to test cutting edge sustainable projects in concert with technology firms and entrepreneurs. These districts have the potential to spur productive, inclusive, and sustainable economic development post-recession.

Innovation districts aim to grow thriving ecosystems of creative work spaces that are exciting places to hang out. Sandboxes answer that demand by creating activated, unconventional spaces on vacant properties, polluted brownfields, and blighted areas.

Framework



Site identification

Identify a **problematic place**, publicly or privately owned. Problematic places can be:

- Polluted land (brownfields)
- Post-industrial terrain
- Abandoned buildings
- Neglected space within neighborhoods
- Consider the potential term length of a temporary use lease.

Site condition analysis

Prepare a **design brief** consisting of relevant site history and properties:

- Environmental conditions
- Community and stakeholders
- Potential partners
- Local activities and needs
- Lease and institutional framework
- Harvest map of local salvagable materials for construction

Programming

Work with partners and stakeholders, discuss and develop conceptual **programming** alternatives.

- Define partners and resources
- Define site uses
- Labor requirements
- Lease agreements
- Cost estimation

Develop a concept into the **final site program**. Use the document to create a business and development plan, secure financing, and acquire permits.

Operations

Build temporary measures with salvaged, repurposed materials, allowing for ease of deconstruction.

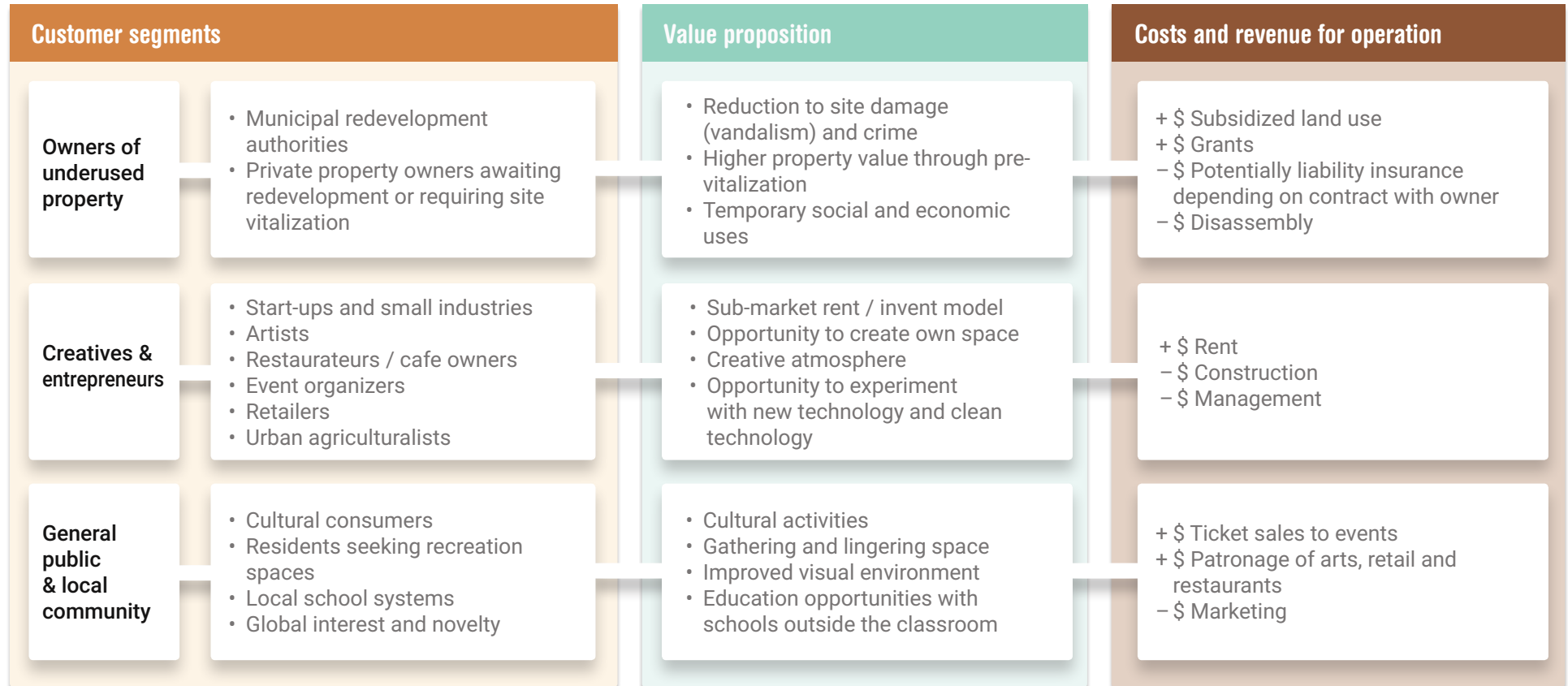
Operate **active and productive uses** on site, maintaining an open dialogue with municipal and interested partners on troubles and successes with site program.

To keep users' rent as low as possible and encourage cultural, innovative, and experimental uses, use a **rent-invest model**, wherein tenants receive rock bottom rent prices but build out their own spaces for the lease term.

Demount and rebuild

Demount structures for redevelopment. At this stage, the expected outcome of the sandbox process is that the physical site has increased in economic, social and environmental value through the community's interest, activities on site, and concurrent remediation.

Business plan



Key activities

- Connect with land owners
- Build institutional partnerships
- Community outreach for interest, needs assessment, and planning and design
- Design and construction of demountable structure infrastructure
- Manage, market and schedule operations during project lifetime
- Demount project at end of lease

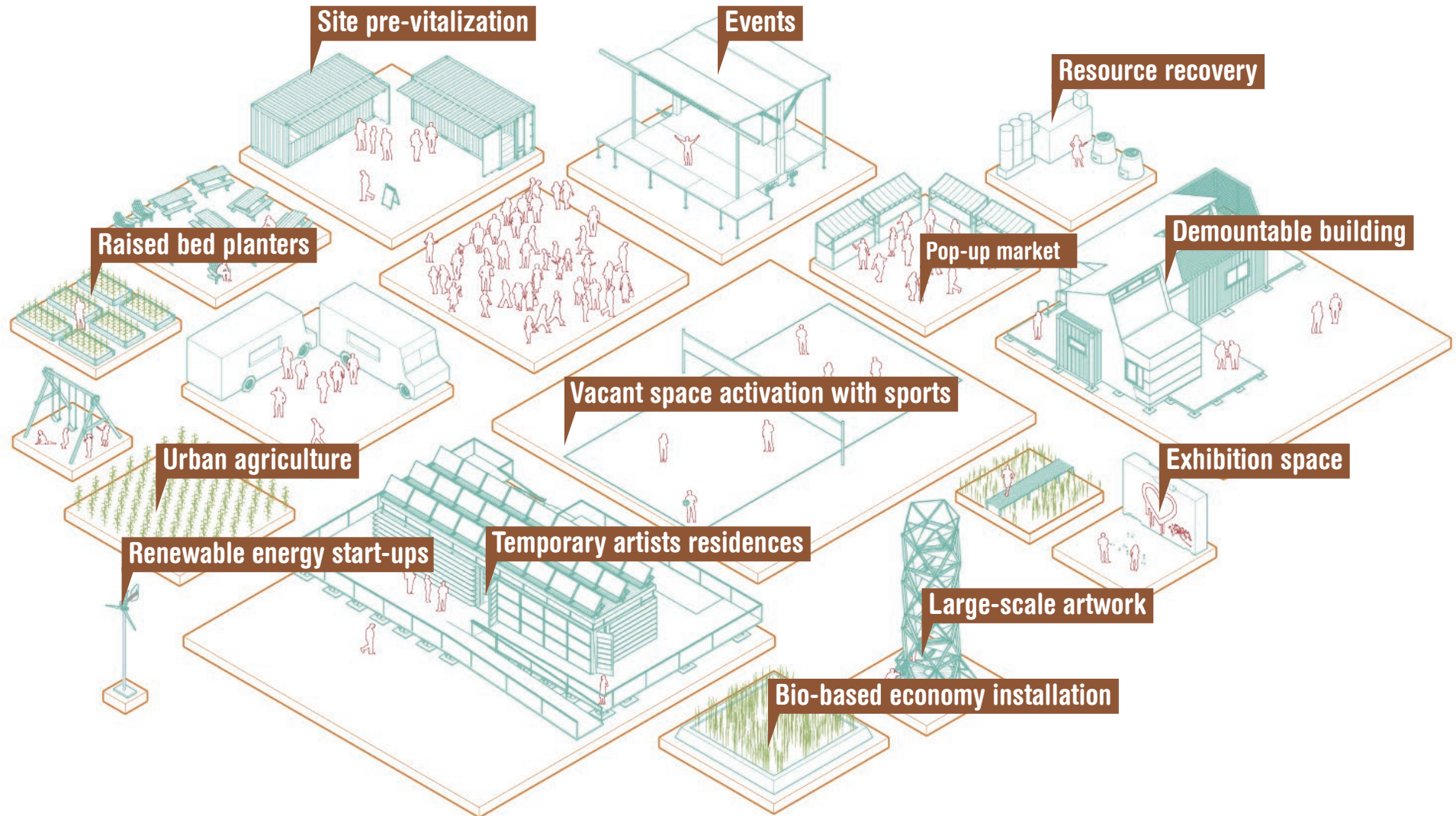
Key partners

- Municipalities
- Foundations focused on urban quality of life
- Government agencies
- Remediation knowledge partners
- Cleantech providers and start-ups
- Universities
- Public land trusts

Communication channels

- Awareness
 - Referrals
 - Personal interactions
 - Website
 - Video, images
- Contractual
 - Lease for land use with land owner
 - Rent-invest structure for users of space
- Reporting
 - Periodical reports on status and milestones

Programming



Experimental places require diverse and innovative programming to create economic activity and community cohesion.

Sandboxes in action are examined in the following section to inspire the program sculpting process.

The sandbox concept emphasizes **clean technologies**, as temporary, off-grid developments are an opportunity outside of grey infrastructure's

long-term turnover for on-the-ground testing. Organizations or direct consumers can learn about the way cleantech works, looks, and feels to increase comfort and acceptability.

Sandboxes accelerate the development of clean technologies by providing rapid feedback from a living lab testing environment that offers insights for improvement and market positioning.

The sandbox concept also emphasizes **social, cultural, and community** uses that may be pushed out of conventional real estate development through comparatively high rent rates and standardized building typologies.

Under a rest-invest model, start-ups, artists, and other creatives can apply human capital to developing imaginative places.

Sandbox in action

Brownfield remediation and transformation

Pre existing condition

A former ship maintenance wharf, the 5 acre (2 hectare) site in North Amsterdam is a heavily polluted brownfield. The land was secured for a 10-year lease from the Municipality of Amsterdam after a group of initiators won a tender to turn the site into a regenerative urban oasis.

Purpose

The industrial plot is turned into unique and sustainable urban development. It features imaginatively retrofitted houseboats placed around a winding elevated boardwalk and surrounded by an undulating landscape of soil-cleaning plants. Each of the upgraded boats house offices, ateliers, or workshops for creative and social enterprises.

The site for experimentation, known as the Cleantech Playground, serves as a new blueprint for urban development. Urban areas import energy and material and export waste. The site applies a model ecosystem to human neighborhoods, where production and recycling of energy, water, and food are distributed to make urban neighborhoods more resilient and empowered.

Partners

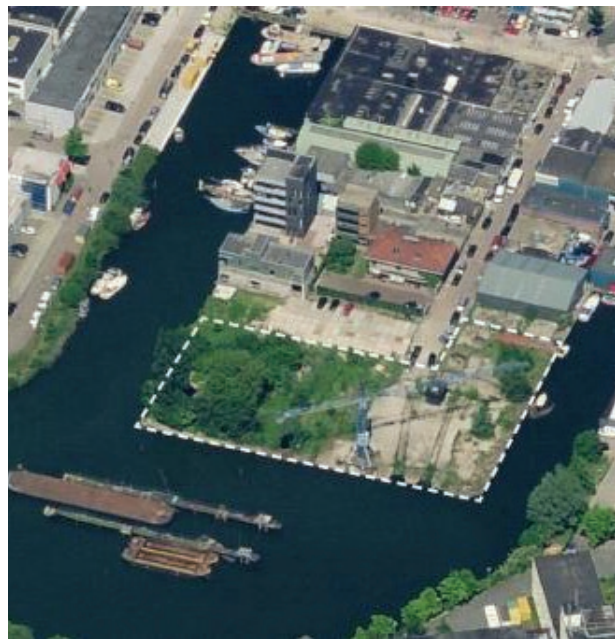
- Municipality of Amsterdam North
- Metabolic
- Space & Matter
- Waternet (local water utility company)
- Various universities

Outcomes

Benchmarking new technologies, showcase and demonstration ground. Creative economy generation.



Boardwalk between studios whilst brownfield is undergoing remediation. Credit: Authors.



Polluted brownfield site, before intervention. Credit: deceuvel.nl



Self-built cafe made from retrieved materials. Credit: bysam.nl

Sandbox in action

Seaport re-imagination

Pre-existing condition

NDSM Wharf was a well-known shipyard in North Amsterdam, where famous ships and supertankers slid off-ramp in the 20th century. It was decaying for several decades until new life was breathed into it.

Purpose

NDSM retains its productive history as it is still very much a workplace. Its massive hangar has been transformed into offices that host top architects and growing businesses making local products.

NDSM operates at the intersection of art, new technology and sustainability. It inspires not only through its raw industrial character, but “because there is just something in the air that everyone feels.”

It is creative and positive, experimental, and entrepreneurial of spirit. In this space, ideas flow freely, blurring lines between live and work; culture and commerce; water and land; old and new.

Spaces are rented out for a monthly fee, but it is up to the inhabitant to construct their own vision within a provided framework (see bottom left image), which has led to the creation of a vibrant internal street network (see top image). The vast outside terrain attracts visitors to regular events such as theater performances, fashion shows, concerts, and festivals.

Partners

- Beheer NDSM Wharf East Foundation
- Municipality of North Amsterdam

Outcome

NDSM is a place and a community that invites and inspires the entire city. As such, the old wharf has become an important breeding ground for business development and societal transformation.



Self-built offices inside former shipyard warehouse. Credit: Authors.



Large scale brownfield re-imagination. Credit: ndsm.nl



Studio under construction. Credit: Authors

Sandbox in action

Brownfield to aquaculture

Pre-existing condition

Once home to the international fruit exchange in Rotterdam's maritime harbor, the site was also a parking lot for refrigerated food trucks that distributed imported fruits all over Europe. As a result, the site is contaminated. The trading office was for several decades a squat until a group approached the city and received a ten year low-cost lease to give the site a better, more interactive purpose in a neighborhood undergoing rapid redevelopment.

Purpose

The site is now home to the practice of urban aquaculture and agriculture - the practice of cultivating, processing, and distributing fish and vegetables in or around a village, town, or city. "Out of Your Own City" in Rotterdam involves poultry, aquaculture, and horticulture.

Before food production was permitted on-site, the entire plot was remediated through excavation of contaminated soils and replacement of fresh soil (with plastic geomembrane). Meanwhile, aquaponics is practiced in raised bed inside the greenhouse.

Partners

- Edible Rotterdam
- Municipality of Rotterdam

Outcome

The restaurant has become a cultural icon for local sustainable food production systems and the previously problematic site has been transformed into a vibrant, green beacon until eventual redevelopment.



'Uit eigen stad' means 'Out of Your Own City'. Credit: Uiteigenstad.nl



Credit: cityfarmer.info



Vacant plot. Credit: aquaponics.co.uk

Sandbox in action

Vacant space activation with sports

Pre-existing condition

The Berlin Wall constructed by the German Democratic Republic completely cut off West Berlin from surrounding East Germany and from East Berlin. When in 1989 the concrete divide fell, remnants of the Wall remained as historical reminders woven into Berlin's urban fabric. Along the wall, there are many 'dead' zones, bare of economic activity. The City of Berlin strives to creatively rebuilt these empty spaces along the wall.

Purpose

One of Berlin's most successful previously dead zone activation interventions is the transformation of an interstitial space into 59 outdoor beach volleyball courts. These sand outdoor courts, available day and night in cooperation with a beach bar, are a dynamic element that hosts events, including Salsa dancing nights, stage performances, sand sculpture competitions, and sporting events.

Partners

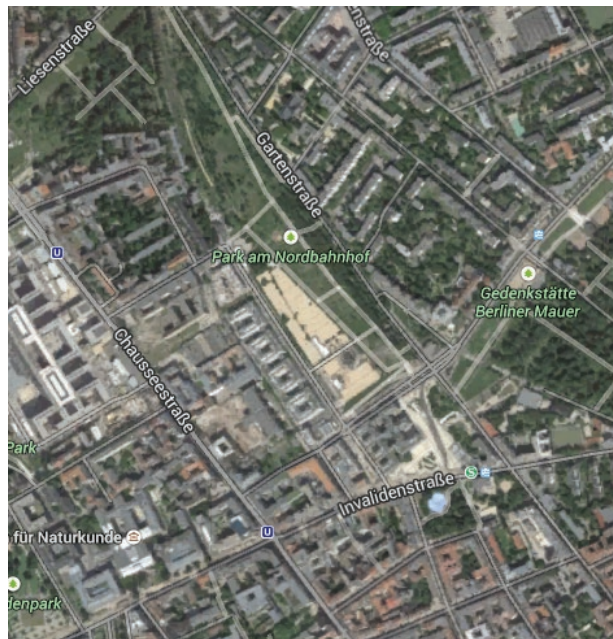
- City of Berlin
- Berlin Wall Memorial

Outcome

As a result of the creative activation, Berlin is now host to the world re-nowned Berlin Beach Volley Grand Slam that attracts many visitors to an otherwise idle part of the city.



Dead space activation along the Berlin Wall. Credit: Beach Mitte



Area designated for urban beach.



Berlin Wall as it fell in 1989. Credit: Dimitri Hegemann

Sandbox in action

Temporary exhibition and event space

Pre-existing condition

Barlett Yard once upon a time served the MBTA bus yard in Roxbury. Abandoned in 2006, the 8.6 acre brownfield would be left to crumble without activity until redevelopment as Bartlett Place for housing, retail and restaurants planned in 2014. That was, until an event planning group negotiated with property owners to turn half of bus yard into a temporary community art space.

Purpose

From May to September 2013, the site was host to a variety of community events, from R&B and hiphop shows to African dance performances and street art. In fact, Bartlett Yard became Boston's largest temporary collection of street art, as the garage facades became canvases for local artists.

Partners

- Roxbury Historical Society
- YouthBuild Boston
- YouthBuild Boston's designery
- HarborArt, Inc.
- AlligerArts
- Bartlett Place

Outcome

For five months, the space was not dead, but alive, bringing together a community of performance artists and creatives.



Bartlett Yard an image of urban decay. Credit: Jason Turgeon



Area designated for public art. Credit: bartlettevents.org



Original murals with additional art. Credit: Jason Turgeon

Sandbox in action

Temporary site pre-vitalisation

Pre-existing condition

After hurricane Sandy flooded many parts of New York City, businesses and restaurants closed down for renovation. But even those businesses that managed to remain afloat eventually lost their customer base and had to close down. Pop-up retail and events are mechanisms to revitalize consumer activity in neighborhoods affected by Hurricane Sandy while renovations continue.

Purpose

"We saw the opportunity to create temporary attractions to revitalize the streetscape along Water Street post-Sandy," said Alejandro Baquero-Cifuentes, Vice President of Development at NYC Economic Development Corporation (EDC). EDC worked with the Mayor's Office and Department of City Planning to create a temporary amendment to zoning resolutions that allowed small retailers and artisans to occupy privately-owned public spaces in an effort to draw locals and tourists to the area.

Partners

- NYC Economic Development Corporation
- NYC Mayor's Office
- NYC Department of City Planning
- Howard Hughes Corporation

Outcome

Over the summer, the Water Street program attracted thousands of visitors and economic activity and will continue to operate with a holiday market and winter festival planned for later this year.



Neighborhood affected by Hurricane Sandy. Credit: Jon Ramos.



Tactical urbanism revitalizes the area. Credit: Jon Ramos



Pop-up yoga. Credit: yellowbrickagency.net

Sandbox in action

Temporary artists residences

Pre-existing condition

A small vacant lot was leased from the local municipality to a performance artists collective to further pump life into a problematic neighborhood.

Purpose

The new venue, called Treehouse, provides affordable workspaces for artists with plenty of in- and outdoor possibilities to exhibit, with the aim to free artists from their pressures and distractions of daily life. The Artists in Residence program has fostered intercultural exchange and continues to promote dialogue between international and local artists and art centers.

A number of conventional mobile site office units and shipping containers form a cozy courtyard. The courtyard is a welcoming space, shaded by reclaimed sails, an artificial sand beach underfoot, and do-it-yourself furniture.

Partners

- Municipality of North Amsterdam
- Fine arts and performing arts college

Outcomes

Treehouse artists have organized events since 2010 and it has provided a platform for up and coming performance artists to create a name for themselves.



Community inspiration - artists residences in containers. Credit: Authors.



One of many events organised. Credit: indebomen.nl



Interactive performances for all ages. Credit: indebomen.nl

Sandbox in action

Community workshop in vacant warehouse

Pre-existing condition

After the downturn of the economy, many warehouses are vacant. One of these unused warehouses in Whangerei, New Zealand has been revitalized to an open workshop and social space.

Purpose

Whare Bike workshop was born from the idea that bicycles will help make this a better world for all.

Having inspired and activated the community, Whare Bike quickly expanded to house performing arts, a whole food hub, a cinema, workshops, growing library, small businesses, and a community garden.

Partners

- Warehouse Property Owners
- Bicycle Advocacy Community

Outcome

Whare Bike initially operated under a space-loan from the building owner, and flourished into a self-sustaining business model that now pays rent.

It is a space in the city where one can come to service, fix, build and ride bikes, all for free. Whare Bike organizes local cycling events such as bike breakfasts and sunset cruises.



Neighborhood community centre. Credit: Ashley Howell.



Whare Bike holds community events and helps people fix bikes or build bikes from donated spare parts. Credit: Whare Bike



Raised planter beds in front of workshop. Credit: Ashley Howell.

Sandbox in action

Large-scale art exhibition

Pre existing condition

An underused parcel of 30 acres along an interstate highway was rejuvenated through the creation of a refuge for large scale artworks that had no homes after their show was over.

Purpose

At the Vebeke Foundation, art is transported and stored free of charge for the artists, displayed for the public on the property under terms agreed with the artist.

Verbeke Foundation also operates as a Bed and Breakfast where visitors spend the night in art works, including inside reclaimed windturbine wings and a camping flat.

“Our exhibition space does not aim to be an oasis. Our presentation is unfinished, in motion, unpolished, contradictory, untidy, complex, inharmonious, living and unmonumental, like the world outside of the museum walls. You will find no flamboyant sensational buildings here, but rather, a refreshing, unpretentious place to look at art and a subtle criticism of the art world,” explains Geert Verbeke, who started the organism.

Partners

- Verbeke Foundation
- Local and international artists

Outcomes

At Verbeke Foundation, culture, nature and ecology go hand-in-hand. The outdoor artspace resembles a living organism and so it looks different one day to another.



Dynamic wind sculptures. Credit: bettyschoice.blogspot.com



Strange and wonderful large sculptures entice visitors to the previously vacant terrain. Credit: wildplukker.nl



Armchair dinosaur housed in large greenhouse. Credit: bettyschoice.blogspot.com

Sandbox in action

Bio-based economy installation

Pre-existing condition

The maritime district of West Oakland has several polluted brownfield sites and struggles with high rates of asthma and cancer correlated to local air pollution from a ring of eight lane highways around the Port of Oakland. There is also surprisingly high unemployment near the Port, which ranks among the 20 busiest ports in the world.

Purpose

Bioremediation of brownfields using bamboo forests is tested on small and large scale parcels. The bamboo forests are also to reduce air pollution. The urban biofilter (basically potted bamboo forests) try to mediate dialogue between residents, port officials and the trucking industry that are in struggle.

Partners

- Earth Island Institute
- Urban biofilter
- City of West Oakland

Outcome

Harvested bamboo generates income in areas that are otherwise neglected through sustainable bamboo harvesting and timber production. Moreover, bamboo is a crafts product.



West Oakland Remediation by Bamboo. Credit: inhabitat.com



Credit: Urbanbiofilter.org



Small scale greywater treatment with bamboo filter. Credit: urbanbiofilter.org

Sandbox in action

Temporary sustainable buildings

Pre-existing condition

The U.S. Department of Energy Solar Decathlon challenges collegiate teams to design, build, and operate solar-powered houses that are temporary, demountable, as well as cost-effective, energy-efficient, and attractive.

Purpose

Student teams design, build, test and optimize free-standing, demountable houses for energy production and efficiency. The competition is an opportunity to change traditional building codes.

The competition is a reminder that high-quality buildings can be constructed free of traditional infrastructure in such a way as to be removed in time for redevelopment, by students none-the-less.

Partners

- U.S. Department of Energy
- Universities

Outcome

Tomorrow's engineers, architects, scientists, entrepreneurs and homeowners will take up positions in the country's new energy economy. These creators are looking for spaces and places within innovation districts in inner-city areas to enact their vision. Solar Decathlon demonstrates that this case is a working model for demountable, ecological construction.

It also demonstrates to the public and decision makers the opportunities presented by affordable homes that combine energy-efficient construction and appliances with renewable energy systems that are available today.



Temporary sustainable buildings. Credit: ecoeficientes.com.br



Credit: Decathlon Solar 2014



Vacant plot. Credit: Decathlon Solar 2014

Implementation

Having introduced the sandbox framework and walked through the business plan and case studies, the following section describes implementation concerns of idle spaces into temporary, creative and ecological uses.

For potential sandbox sites, the following steps may help formalize an approach.

Prepare a design brief by collecting relevant information on the properties of the site:

- Environmental conditions and physical properties
- Community and other stakeholders
- Reliable partners
- Local activities
- Lease and institutional framework
- Reusable and salvaged materials (see infobox)

For community stakeholders and potential partners, consider an array from the following list:

- Citizen groups and neighborhood organizations
- High schools and technical schools
- Environmental and bioremediation consultants
- Clean technology and recycling companies
- Start-ups
- Event organizers
- Local redevelopment authority, environmental, and economic affairs offices
- Local, State and Federal government

Connect with relevant stakeholders to collect information and build relationships. Use the design brief to delve deeper into practical concerns and stimulate discussion about the site and its opportunities. **Create program options** with input from community, stakeholder, and prospective partner design workshops.

To move forward with development, settle on site uses, attract investors, and receive permits, the next step is to **finalize the program** with stakeholders, partners, and technology suppliers.

In the tool box: Harvest Map



Harvest Mapping is an approach to the design process that considers the reuse of local materials. Materials in the proximity of planned construction are researched and mapped to indicate location, amount, dimensions, and availability.

Maintaining an open dialogue with partners, translate the program into a **business and development plan**. Issues to address include:

- Site program and design
- Partners and resources
- Labor requirements for construction, maintenance, and management
- Lease agreements with vendors, tenants, and others
- Permitting and licensing
- Costs for development, construction, maintenance, and deconstruction
- Income streams and estimated amounts

The lifetime of the project is important to consider from the very beginning. While **site operations** varies from site to site, many of these issues can come into play:

- **Scheduling:** A site manager may be responsible for identifying and selecting content providers and programming the space in a way that conforms to vision. There may be complementary uses and activities that rotate on a short-term bases.
- **Marketing:** Advertising on a variety of platforms may increase the number of visitors and populate leasable spaces with content creators.
- **Management:** As needed, a manager may collect rent, oversee upkeep, handle emergencies and complaints, and hold meetings.
- **Reporting:** Accounting for relevant statistics such as energy generation, sales, and visitors will establish the efficacy of the project. Results can be shared with stakeholders in quarterly reports.