

+ - ●●

15 SANDWICH CITY

[m + f]

building residents, landlords, pigeon tower owners

As a result of the dense urban environment and confined apartments, residents have created a parallel world to the street on their rooftops to accommodate their needs. Incomplete structures, light-weight extensions, pigeon towers and satellite dishes are the typical infrastructure found on rooftops, and dominate the skyline of [in]formal areas. Activities on rooftops range from micro-economies and animal breeding, to dwelling and storing unused items. During the day, rooftops are programmed by women hanging laundry, feeding animals, socializing or making bread. Children use rooftops as 'free-of-charge' playgrounds, and as an escape from densely populated streets. Men occupy rooftops in the evening to train their pigeons, and during the night for socializing.

larger patterns

building heights, shared walls

smaller patterns

connected rooftops, vertical extensions, residential shacks, micro-economies on rooftops, rooftop as an extension of the home, rooftop as a playground, rooftop as a garbage dump and storage, breeding animals on rooftops, pigeon towers, small roof gardens, satellite dishes, laundry theory.

- 01 user behavior and activities
- 02 self-generated interventions
- 06 economic forces
- 07 response to immediate needs
- 08 value engineering
- 10 ownership

Figure 4.24 Sandwich City, ©Jesse Sharratt

[m + f]

15

M E P S N
G

POTENTIAL / PROBLEM

Every building has a rooftop. Adding all the rooftop space within a community offers unlimited opportunities for improvement. Optimizing rooftops can therefore become an alternative option to ground-up development. Attached buildings open up the possibility to connect rooftops and multiply shared areas while dividing costs. Unclaimed areas on rooftops are subjected to dumping of garbage, leftover construction material and old furniture, which is an enormous waste of space in such a dense built environment. Not separating animals from spaces for laundry and micro-economies causes poor hygiene.

Therefore:

Optimize rooftops by creating hybridized systems merging existing program with urban farming.

EXISTING DIAGRAM / MAP / LAYOUT

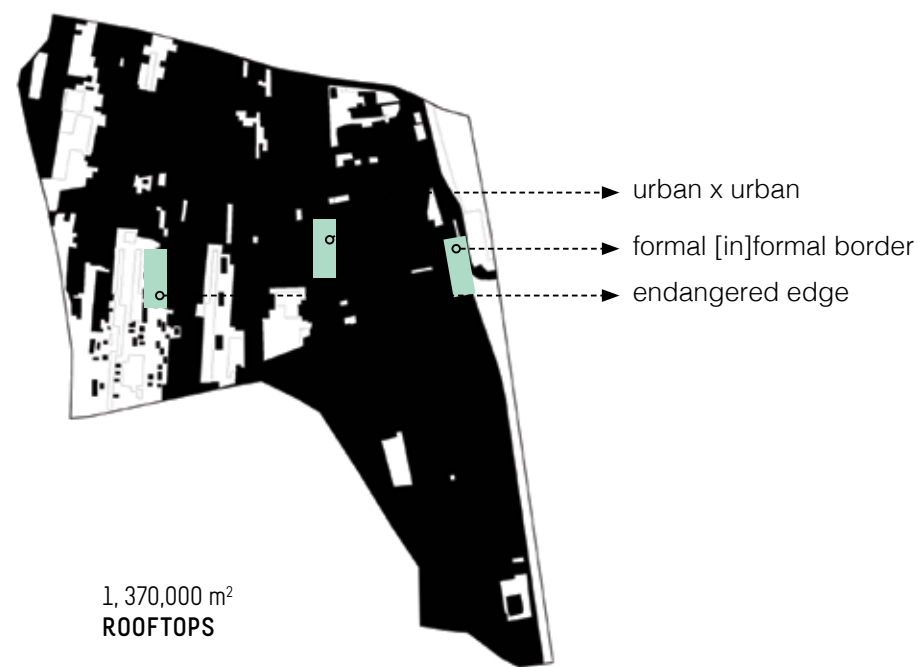


Figure 4.25 Occurrence of rooftops in Ard El Lewa

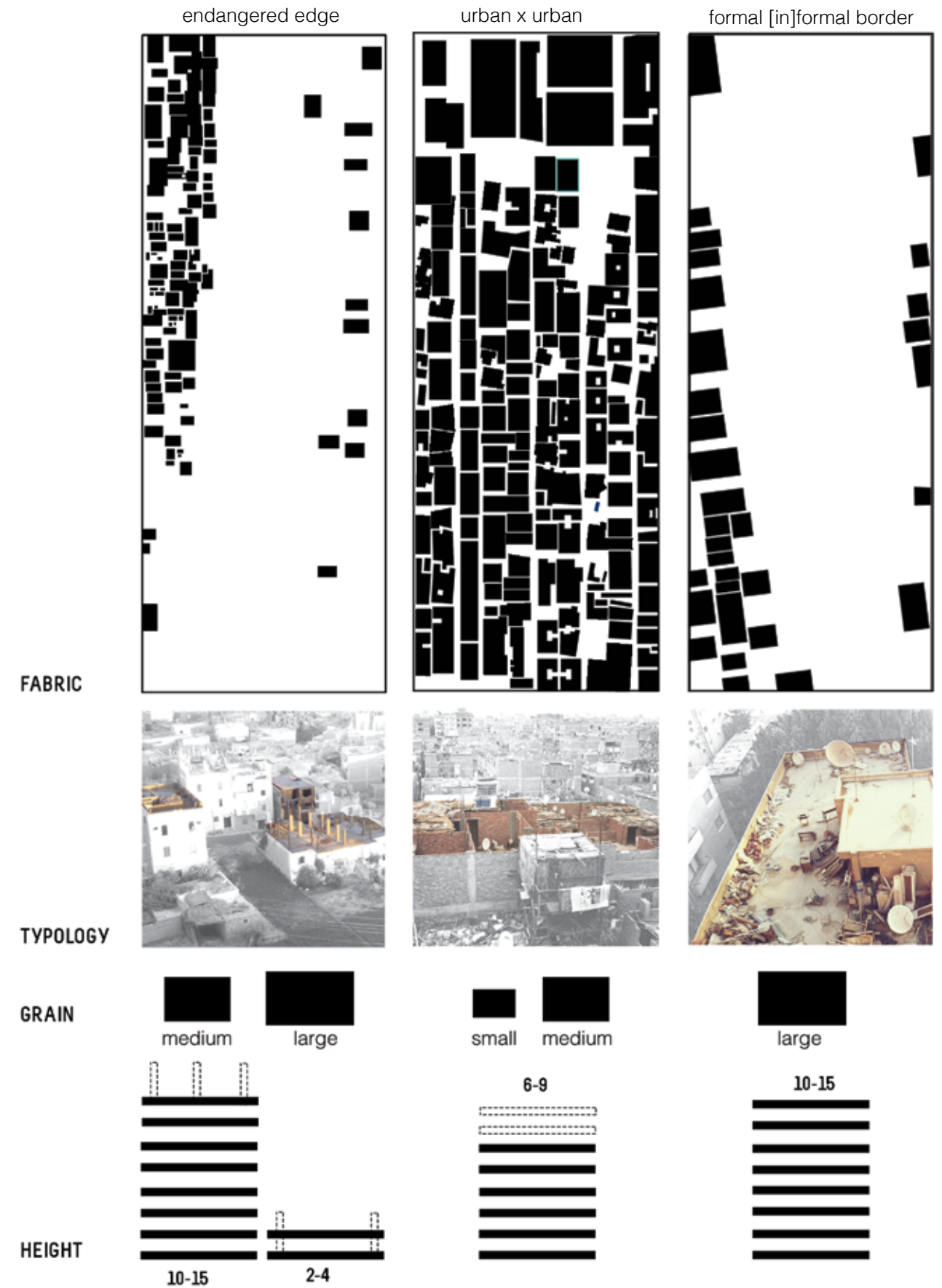


Figure 4.26 Analysis of rooftop typology in relation to urban condition

DESIGN OBJECTIVES + OPTIMIZATION LAYER

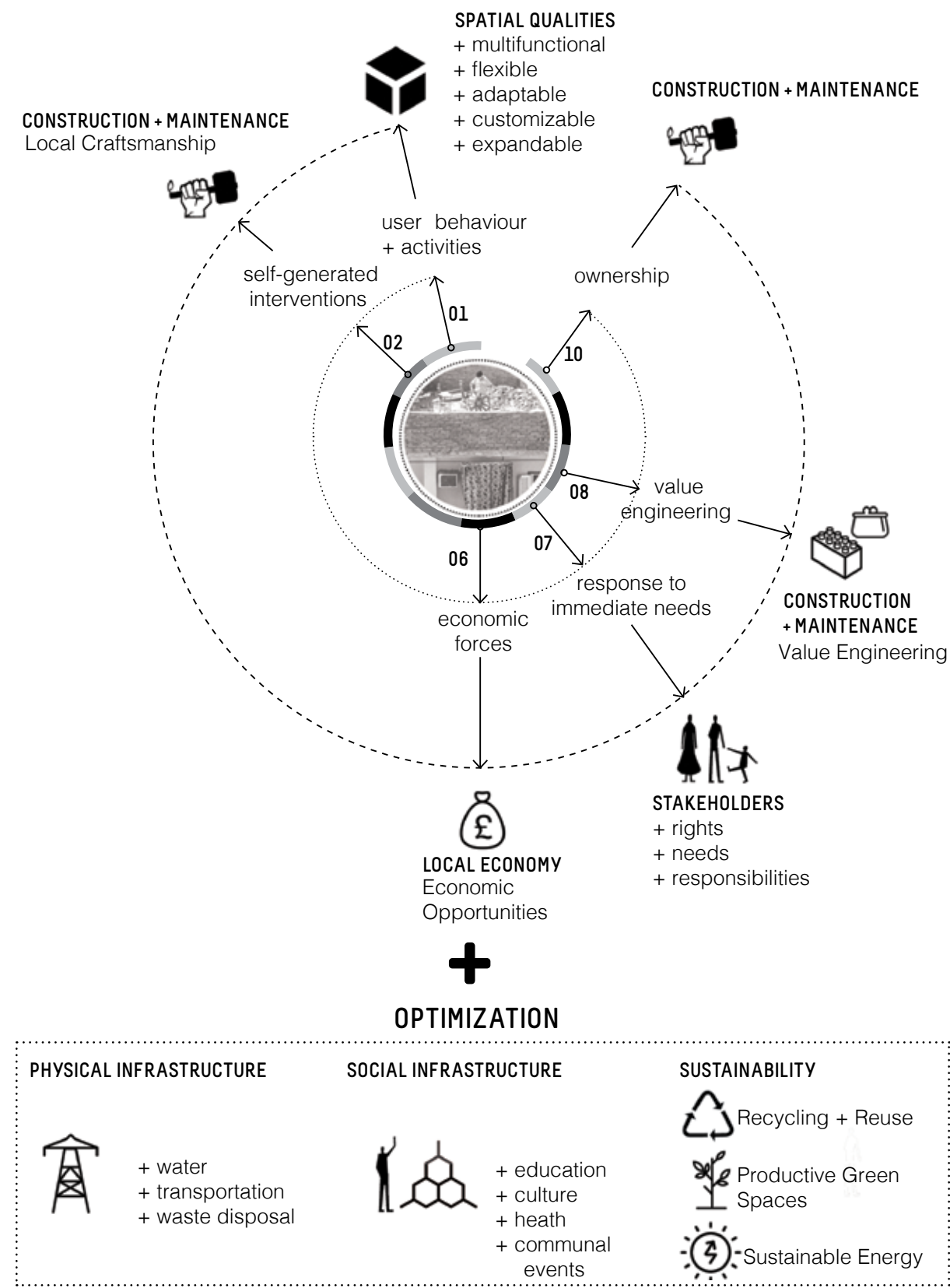


Figure 4.27 Pattern-Forces-Objectives Chart for sandwich city



Figure 4.28 Sitting corner in a pigeon tower



Figure 4.29 Pigeon tower



Figure 4.30 Rooftops in Ard El Lewa



Figure 4.31 Installing a satellite dish



Figure 4.32 Garbage dumps



Figure 4.33 Lightweight structures



Figure 4.34 An extension of the home



Figure 4.35 A small roof garden



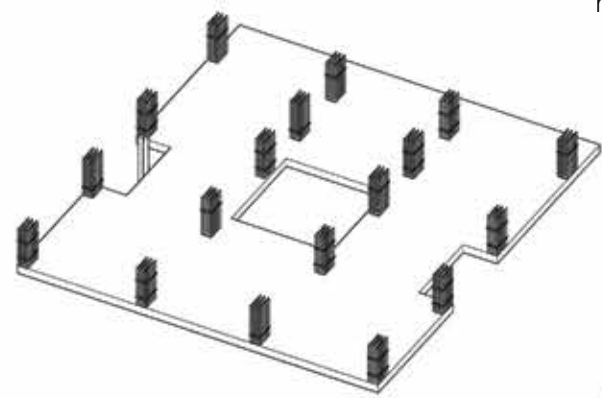
Figure 4.36 Breadmaking on rooftops



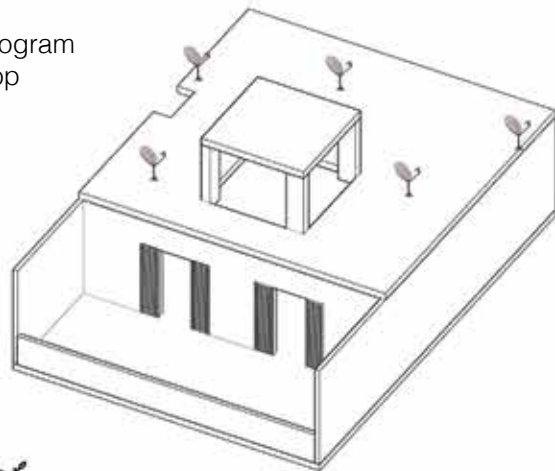
Figure 4.37 A rooftop garden, ©Hanaa Gad

PROPOSED OPTIMIZATION / NEW DESIGN

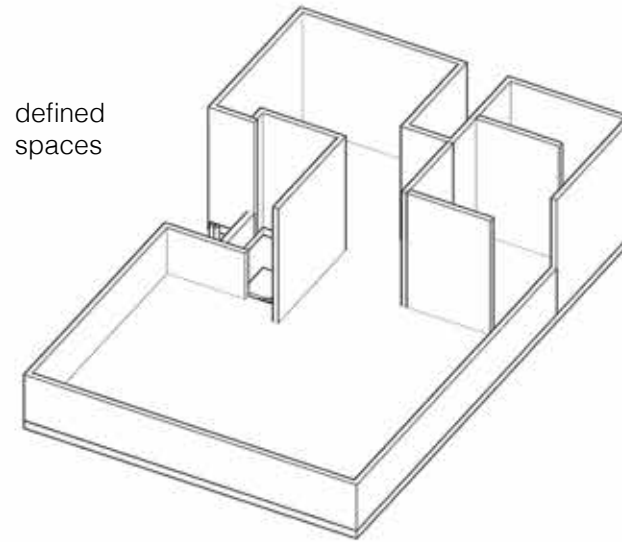
incomplete rooftops



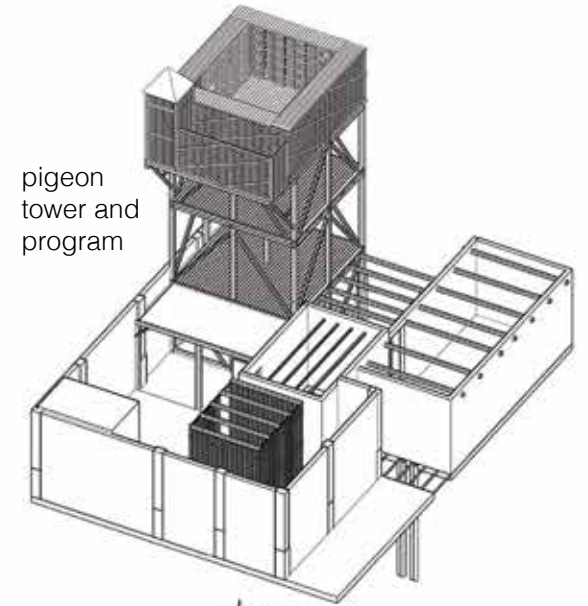
no program rooftop



defined spaces

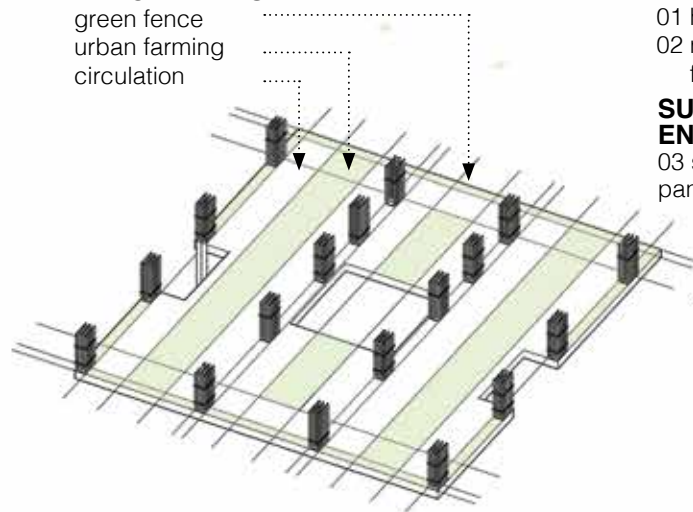


pigeon tower and program



PARCELIZATION

green fence
urban farming
circulation

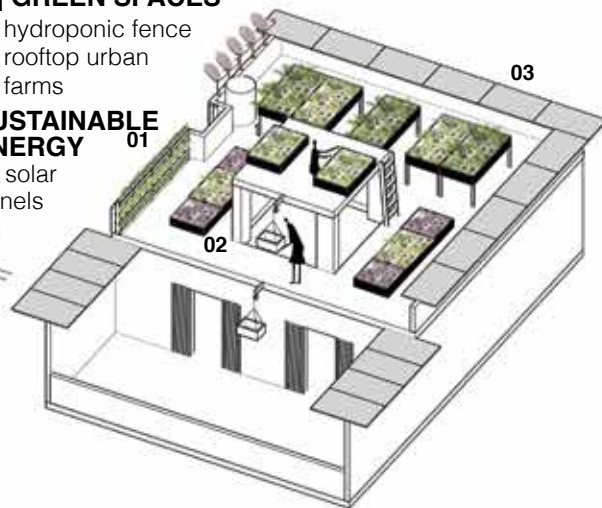


[+] GREEN SPACES

01 hydroponic fence
02 rooftop urban farms

SUSTAINABLE ENERGY

03 solar panels

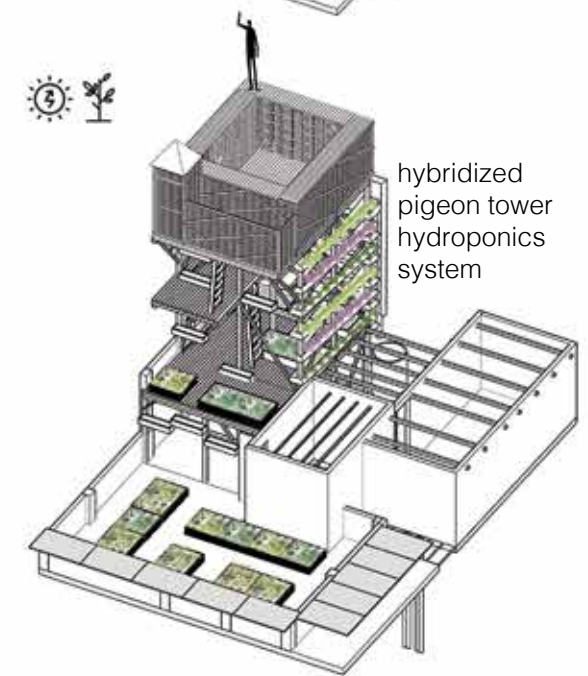


03

02

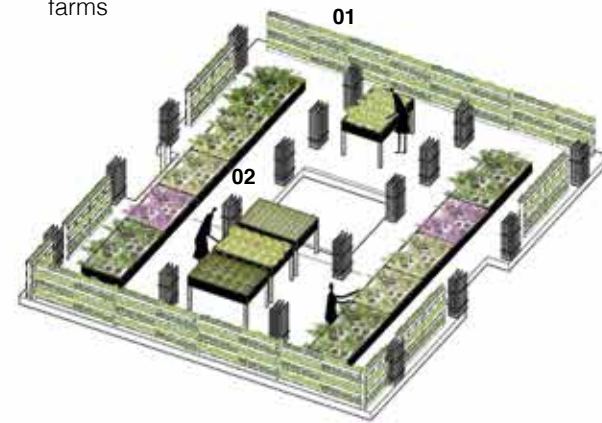


hybridized pigeon tower hydroponics system



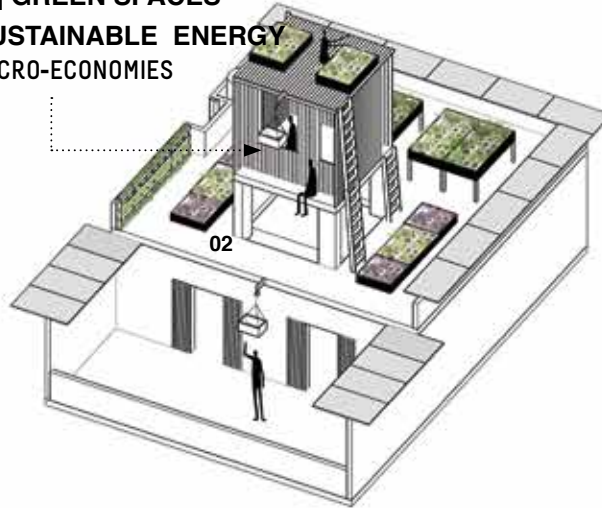
[+] GREEN SPACES

01 hydroponic fence
02 rooftop urban farms



[+] GREEN SPACES

SUSTAINABLE ENERGY
MICRO-ECONOMIES



03

02

Figure 4.38 Proposed optimization in relation to rooftop typology

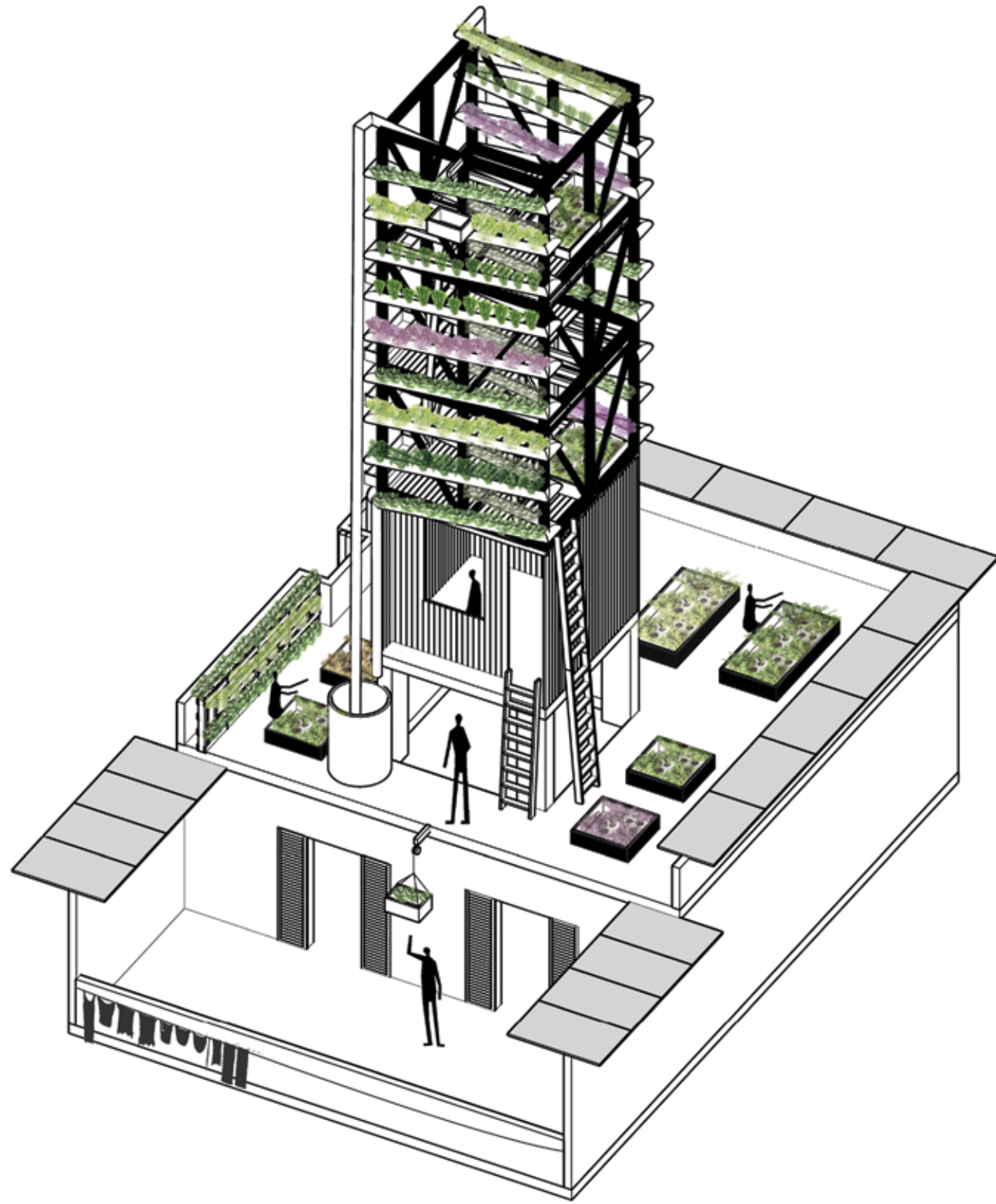


Figure 4.39 Proposed hybrid system combining micro-economies and urban farming

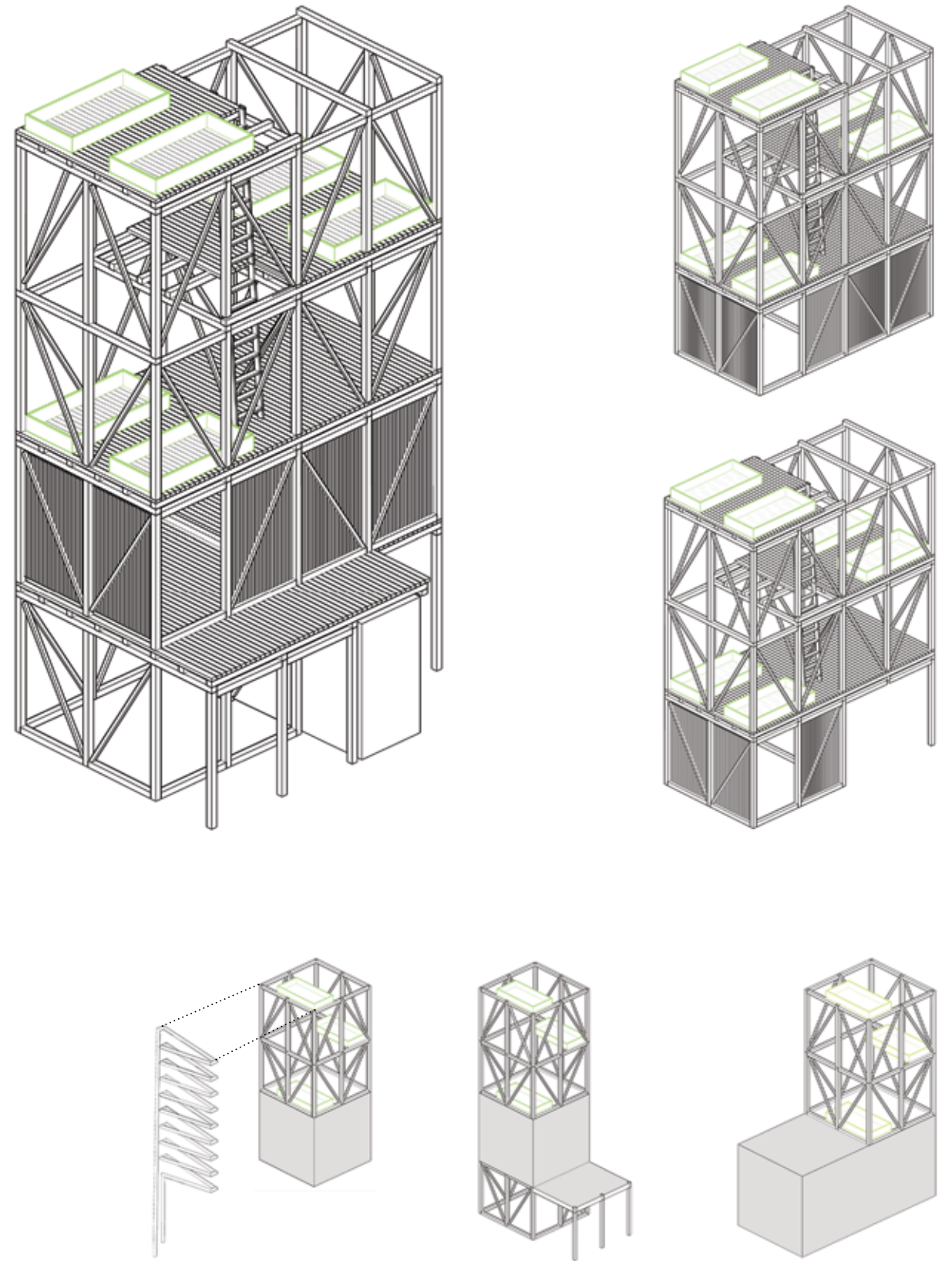


Figure 4.40 Optimized Prototypes

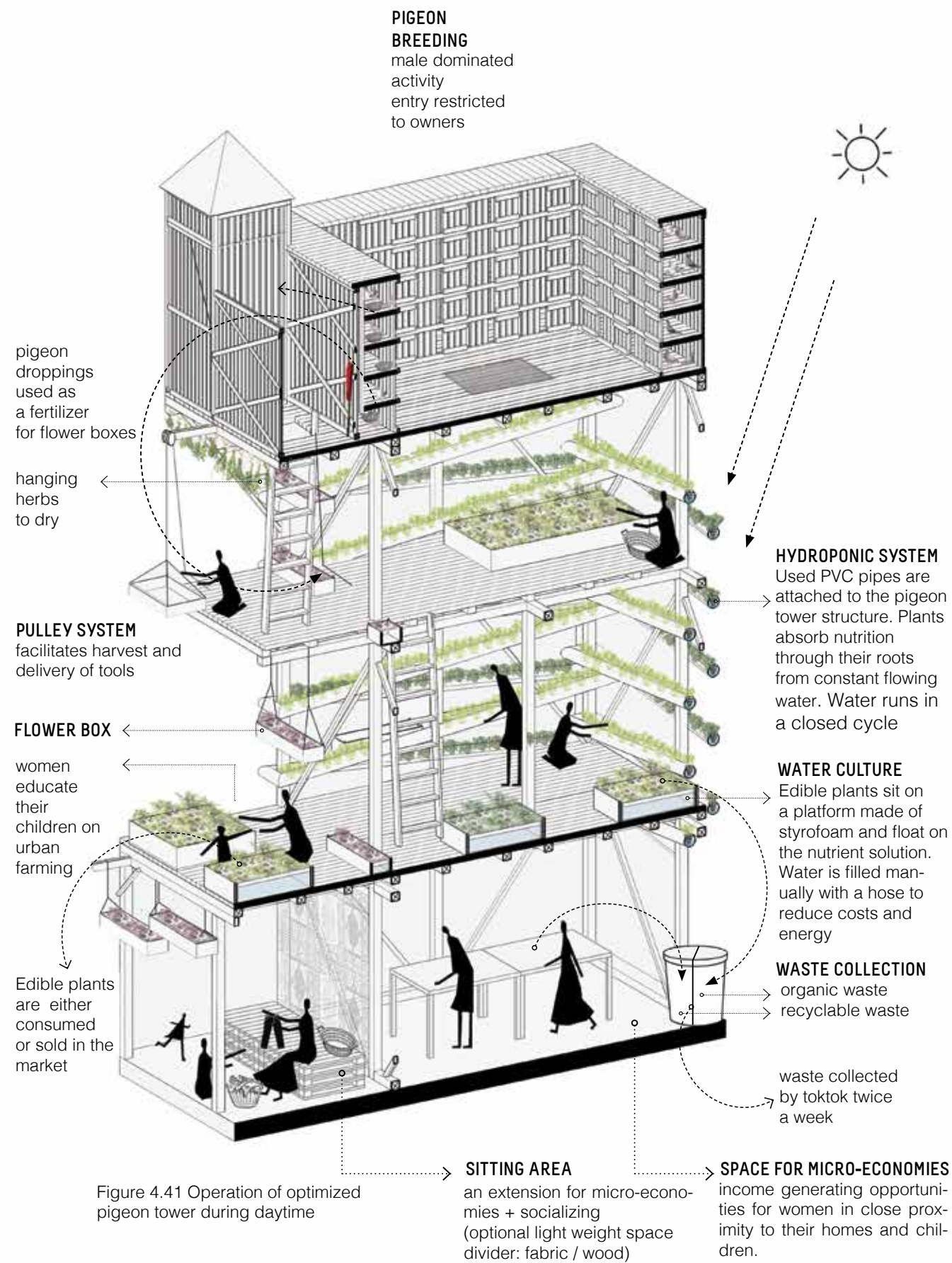


Figure 4.41 Operation of optimized pigeon tower during daytime

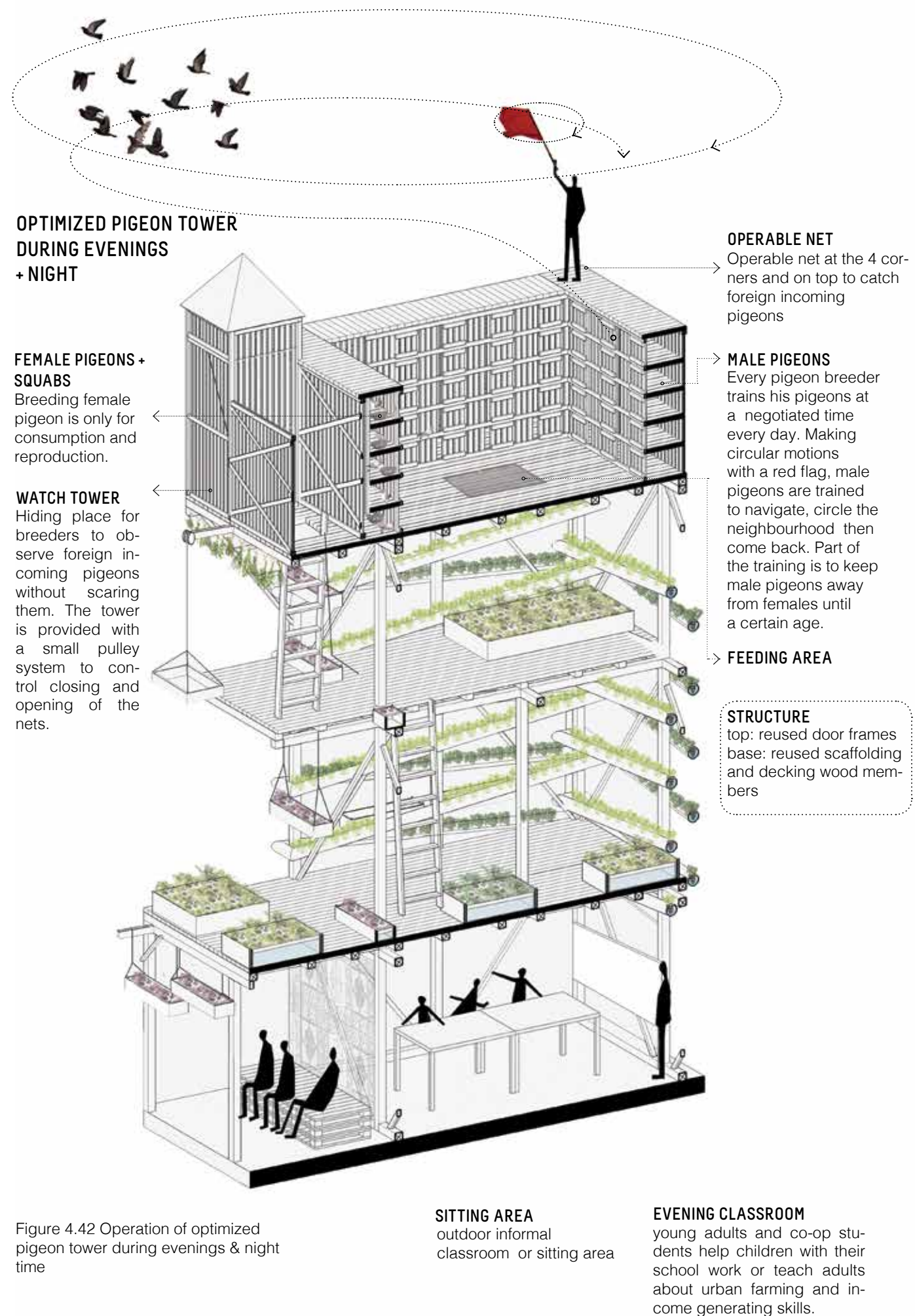


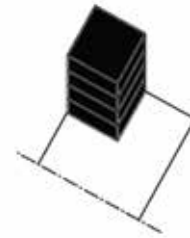
Figure 4.42 Operation of optimized pigeon tower during evenings & night



Figure 4.43 Pigeon breeder in Ard EL Lewa

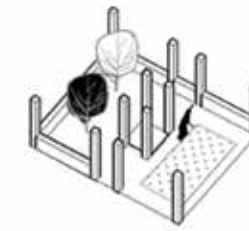
IMPROVITECTURE TOOLS

LEGALIZE + SECURE



1.4
secure an open space ratio

*building residents
agents of change committee
designers*



1.5
green roofs by law

*officials
landowners + building owners
agents of change committee*

CULTIVATE



2.1
cultivate curiosity in the young first

*designers
agents of change committee
young adults + children*



2.2
reclaim vacant spaces with neighbours' needs

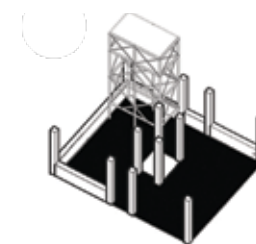
*designers
building owners
building residents*



2.3
cultivate partnerships first

*designers
building owners
building residents
agents of change committee*

[RE]APPROPRIATE + [RE]USE



3.1
cleaning creates space

*building residents
building owner*



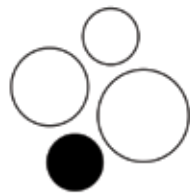
3.2
combine pigeon towers with urban farming

*designers
pigeon breeders
agents of change committee*



3.4
vertical distribution of activities

*building residents
building owner
agents of change committee
designers*



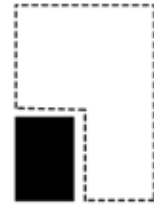
3.5
reshuffling program helps

*building residents
building owners
designers
agents of change committee*



3.11
respect existing
multi-functionality

*designers
agents of change committee*



3.14
negotiate air rights

*building owners
land owners
agents of change committee
designers*



3.28
reduce, reuse, recycle

*building residents
agents of change committee
toktok drivers
waste management*



3.31
eco farms on rooftops

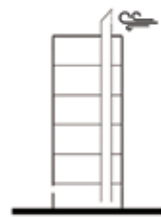
*building owners
agents of change committee
government officials
funding agencies
designers*



3.32
toktok for waste collection

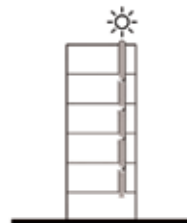
*building residents
agents of change committee
toktok drivers
waste management*

CELEBRATE + MAINTAIN



3.15
windcatchers

*designers
builders
building owners
agents of change committee*



3.16
light tubes

*designers
builders
building owners
agents of change committee*



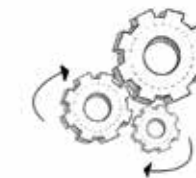
3.19
share + connect rooftops

*designers
landowners
building owners
agents of change committee*



4.1
handmade increases owner-
ship + collaboration

*designers
agents of change committee
building residents
building owners*



4.2
building ceremony

*agents of change committee
designers
building residents
vendors*



4.4
micro-economies as a tool for
social responsibility

*building residents
agents of change committee*



3.21
satellite dishes on the edge

*building owners
residents
satellite dish technicians*



3.25
equal distribution of nodes

*designers
agents of change committee*



3.27
[+] waiting areas

*landowners
designers
residents*