Palmsest
Derelict Mines and an Architecture of Archeology One Hundred Years from Now

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PALIMPSEST
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Abstract

The realities of the built past and the palimpsest-ic nature of activities on the African mining landscape is under critique. On a site where nature gives way to the man-made activity of platinum ore excavation and mineral extraction, the activity of mining essentially creates infrastructures of dust and filthy landscapes. Inserting a new architecture within this obliterated savannah landscape allows for a process of reclamation to take place. This project uses an abandoned mine site in Southern Africa and focuses on the environmental mitigation and civic development of the site adjacent to the existing mining town of 40,000 inhabitants. The derelict mineshafts serve as infrastructure for a new civic space of scenic agrarian routes and programmed enclosures: auction floors, warehouses, residential short-stay rooms, water purification systems, mineral baths, crop rotational schemes, research labs and a museum space.

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You gave me courage to finish strong.

PALIMPSEST
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1999 - 2049
2050 - 2100
2101 - 2192
Cold War Politics
During the Cold War, China, like the Soviet Union, invested heavily in newly-independent African countries, building up infrastructure and providing aid in the hopes of counterbalancing Western influence on the continent. Citing shared experience with colonialism and Western imperialism, the Chinese regarded themselves as an older brother to the Third World.
After the Cold War and China's opening up to the world economy, investment scaled back considerably.
The criticism on working conditions in mines have been that the workers are systematically subjected to sub-humane standards where work, life, health and safety are constantly jeopardized by capitalistic impositions made by mining corporations on employee workforces. The stubborn denial and cynical ways that corporations have historically repressed the lived reality of conditions in mining compounds has been repeated and effective in allowing the clandestine and sub-humane planning strategies to remain incontestable.

Empirically, conditions experienced in mining compounds have been shown to be worse than those of people living in incarceration systems: a case in point is the comparison of working conditions at Tsumeb (a diamond mine in Namibia) with a totalitarian incarceration system at Robben Island where anti-apartheid political prisoners were incarcerated.

Labor shifts have fluctuated over the century between migrant labor and indigenous work-forces, and still the standards of most living and working conditions have remained indiscriminately sub-humane. Foreign illegal labor has been directed strictly to the unsafest mines. A tension has always existed between foreign labor and domestic labor recruitment.
CHINA
the new panopticon
platinum mining rights
RSA
ZIM
new company
mine compound
platinum mining rights
humanizing the
mining experience
security / paternalism
v. the unionist debate
labor - capital relations
the new panopticon
v. the unionist debate
the new panopticon
humanizing the
mining experience
new company
mine compound
history of indentured labor camps

company mining town / mining compound

Early 80's Chinese policy SEZ development under Deng Xiaoping: e.g. Shenzhen

architect as social engineer labor-capital relationship
development 'selling the image of a project'

architectural criticism: contextual v. non-contextual
development

Post-Cold War Sino-Africa trade investments

catalytic converters automobile Industry

CHINA

ZIM

RSA
The thesis site is a projected future post-industrial mining landscape in the Hartley Platinum mining town of Chegutu, situated in the savannah bushveld region of Zimbabwe. This project engages a critical aspect of a very particular socio-economic phenomenon. Rapid Chinese investment in infrastructural development across Africa gives the project an opportunity to propose ways to develop derelict mine shafts as an investment strategy in Zimbabwe's post-colonial and post-industrial future.
The proposal for this part of the project engages an 'architecture of archeology' and the 'mining landscape as artifact' where a new infrastructure is designed on top of the derelict mine-shaft landscape. A corollary part of the project deals with the history and legacy of migrant worker social dynamics and the paternalism of mining corporations that has traditionally tended towards the production and spectacle of panoptical company mine labor camps. The aim of the thesis is to subvert the organizational structures that exist through injecting new types of programming within this architecture of surveillance, archeology and power.
This thesis assumes that as China's automobile manufacturing industry increases production exponentially, the demand for platinum group metals will rise concurrently. Chinese manufacturer's use platinum in catalytic convertors and several SoE's have already started negotiations with the South African and Zimbabwean governments. These two countries collectively hold the largest mineral deposit reserves for platinum behind Russia. From a profitability standpoint, unlike the Russian platinum mining industry, the on-site infrastructure and rate of production in both South Africa and Zimbabwe could benefit from an aggressive strategy to upgrade tremendously. The thesis proposes an investment and infrastructural development timeline that would occur in the next 20 years. This timeline involves fine-print that states that in order to access the mineral resources in Southern Africa, a caveat for investment maintains that pre and post industrial development initiatives made by the Chinese is bound under certain building and infrastructural definitions and codes. This situates the project very much in the realm of architecture and urbanism. The project derives its impetus from the site of a platinum mining town as a contested space of migrant labor systems and paternalistic infrastructures.
ECOLOGY 1: FARMLANDS

Platinum Reserves

ECOLOGY 2: INDUSTRIAL LANDSCAPE

ECOLOGY 3: 100 YR OLD DERELICT MINESHAFT

130m average shaft depth
200m steeply mine declined shaft

1905

1999

ZIMPLATS mining activity stops

2082

WATER INFRASTRUCTURE

substantial mineral resource in 1200m depth

aquifer_1

aquifer_2

aquifer_3

aquifer_4

URBAN INFRASTRUCTURE LIFECYCLE

100 YR LIFETIME
The labor-compound system emerged in the early years of the diamond and gold mining industries in the Southern African region and served as a prototype for the hostel system on the Rand (South Africa’s gold mining reef where Johannesburg is built on top of) in subsequent years. The labor compound was quadrangular with military-like barracks and its perimeter was bound by a twelve-foot fence and a single large gate enclosing the living quarters. A few provisional stores ensured insularity and self-sufficiency. Mamdani writes that “with workers communally quartered in prisonlike barracks constructed on mine premises, this system spread so fast to other labor-intensive enterprises on the Rand and to mines in Rhodesia (now Zimbabwe).”
Unpacking the density of uses on the Hartley Platinum site, its benign nature is seen in its legibility as a residential enclave. The larger scale reference to urbanity is clearly missing and so the problem of the project becomes the apparatus of the mining town. The challenge is how the project locates the functionality of a centuries old typology that has systematically exploited indentured labor systems through establishing a relatively high infrastructural investment in the beginning, but with a relatively low or non-existent projected civic-spatial function in its future. The programmatic ambitions of this project will be to define an architecture of archaeology that could exist on the site. The archaeological reference will be the residual infrastructure of the box and pillar excavation method used on platinum mines sites. The relationship of new building to archaeological remnants becomes an important one and a project to reference for this kind of conceptual strategy is Bernard Tschumi’s New Acropolis Museum project in Athens where the building mediates a relationship between enclosure and ruin.
EXISTING CIVIC PROGRAM

- MINE BARRACKS
- PROCESSING PLANT
- TEXTILE MILL
- HOTEL
- MOTEL
- SCHOOL
- DISTRICT ATTORNEY
- POLICE
- POST OFFICE
- HOSPITAL
- HOUSING
- CEMETARY
SITE FOOTPRINT = 3.8 KM x 1.78 KM

90% UNCONTAMINATED
10% CONTAMINATED
EXISTING SITE CONDITIONS
SITE FOOTPRINT = 3.8 KM x 1.78 KM
90% UNCONTAMINATED
10% CONTAMINATED

landscape cropping phase 1
water treatment
botanical mine shafts
buildings phase 1
museum
short-stay housing
workshop studios
landscape cropping phase 2

dam

buildings phase 2
  warehouses
  open air markets
  closed markets
  research labs

buildings phase 3

connection to existing mine town

multi-purpose units
SITE FOOTPRINT = 3.8 KM x 1.78 KM
90% UNCONTAMINATED
10% CONTAMINATED
drip irrigation soils

Intercropping system:

- aloe
- cotton
ALOES (A. VERA)
medicinal / cosmetics
biofuel
drip irrigation soils
intercropping system:

1999 - 2049
flood irrigation soils
intercropping system:
grasses and reeds
NATIVE REED / GRASS PRODUCTION
absorbs impurities from waste water
furrow irrigation soils
intercropping system:
sunflowers
jatropha
JATROPHA TREES
seeds for high quality biodiesel
needs processing plant for oil esterification
Scenter pivot irrigation soils intercropping system: maize pomegranates oranges
intercropping system:
- maize
- pomegranates
- oranges
Scenter pivot irrigation soils
intercropping system:
maize
pomegranates
oranges
POMEGRANATE
used for food / organic medicine / pharmaceuticals
grown on marginal soils
soils of tailings facilities
furrow irrigation soils
intercropping system:
sunflowers
jatropha
MUSEUM
SHORT-STAY HOUSING
STUDIOS / WORKSHOPS
STUDIOS
- sewing studio
- textile studio
- tapestry studio
- dyeing studio

HEALTH BAR
- 1 bedroom apartments
- communal lounges

MINE MUSEUM
- gallery 3
- gallery 4
- mine artifacts

UNDERGROUND LEVEL -45ft
MUSEUM

SHORT-STAY HOUSING

STUDIOS / WORKSHOPS

A - B

C - D

E - F

2050 - 2100
STUDIOS
- fablabs
- fab gallery spaces

HEALTH BAR
- thermal baths
- mineral baths
- change rooms
- massage stations
- wellness center

MINE MUSEUM
- restaurant / cafe / bar
- ramp to garden level
- boardwalk to derelict shafts

UNDERGROUND LEVEL - 20ft
MUSEUM

SHORT-STAY HOUSING

STUDIOS / WORKSHOPS
conclusion
This thesis grapples with a regional phenomenon of the post-industrial derelict mine along the Southern African platinum mining industrial artery.

The proposal takes into account the progression of the landscape from an agrarian state, to an industrial state, to an abandoned and toxic state. The project initiates a discourse on what could be, and how governments should think about rehabilitating and reclaiming these barren landscapes.

The architecture has, in this case, function as a post-production palimpsest of sorts that addresses what becomes of the company mining “town center” as a programmed artifact of the future. This artifact exists as a botanical garden of mineshafts and a series of public and civic spaces.


