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PHARM_STAD
Fieldworks for Somkhele

by

Quyen Luong

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ABSTRACT

PHARM_STAD
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Quyen Luong

PHARM_STAD proposes a comprehensive planning strategy for the Somkhele community in KwaZulu Natal, South Africa as it grapples with volatile patterns of migration, HIV/AIDS infection, and economics. Synchronously and diachronically, PHARM_STAD harnesses the responsive and generative mechanisms of field cultures as a means of choreographing agricultural production, healthcare services and soccer schedules. These three forms of land occupation enable the site to evolve into a productive pharmaceutical farm and community stadium.
ACKNOWLEDGEMENTS

DEDICATED TO

MY AMAZING COMMITTEE

THE WEDGE

PAUL, GRAHAM, NUIKO, ZEYNEP

5116 CHENEVERT & CO.
In 2004, South Africa celebrated its first decade of democracy with a big win: the 2010 World Cup Soccer bid. To the victor goes, not only the spoils of increased tourism and prestige, but an estimated R21.4 billion boost to the economy and around 159,000 jobs for the construction of roads, stadiums and hotels to cope with the onslaught. As mega-events such as World Cups, World Expositions, and Olympics drive urban transformation in the developing world, we must re-examine the place of stadia in society. How can an architecture of stadia engage in the complex geo-political, social, and formal matrix that contributes to sustainable development practices?

For contemporary architectural practices, stadium is the new museum. In 2000, the Netherlands Architecture Institute mounted a flashy thirty-meter billboard of a crowd scene populated by star stadium architects for its exhibition on stadium architecture. The exhibit trumpets innovations in building technology as well as advancements in areas of comfort, infrastructure, and commerce. It also highlights the exigency of commercialism and latent violence on the field. The discrepancy between stadia as formal telos and social aberration is exacerbated in the context of South Africa and other developing countries. Resources devoted to the spectacle of stadia fail to grapple with volatile patterns of migration, HIV/AIDS infection, and economics that shape its populations.

**PHARM_STAD** stems from the initiative of a group of medical professionals from the Africa Center for Health and Population Studies in Kwa-Zulu Natal, South Africa. They hope to curb soaring HIV/AIDS rates with help of the 2010 World Cup. They are asking for a perfect ‘pitch’: a gathering place for youth between the ages of 9 and 14, that will serve as the home for the first-ever girls football league in the area. The pitch will also act as a place to disseminate information on HIV/AIDS prevention and treatment. Synchronically and diachronically, **PHARM_STAD** harnesses the responsive and generative mechanisms of field cultures as a means of choreographing agricultural production, healthcare services and soccer schedules. These three forms of land occupation enable the site to evolve into a productive pharmaceutical farm and community stadium.
STADIUM COUNT

3706 EUROPE
1729 NORTH AMERICA
1019 SOUTH AMERICA
688 ASIA
370 AFRICA
337 MIDDLE EAST
213 OCEANIA
209 MIDDLE AMERICA

100 stadiums
It seems we all know the same things these days. All news is worldwide: philosophy, economics, and science have been democratized. We all have the same experiences, all have access to the same information, and everything new is immediately disseminated so widely that there are no surprises left for anyone. The following trends approach individual consciousness like a plow, pushing it away. No one is left unscathed. The pursuit of fascination that marks the postmodern position has intimated in consciousness itself becoming a subject of reflection.

The point of departure for this work on the diagram is the observation that the repetitive process of verifying knowledge deeply inhibits the practice of architecture. In order to avoid total disillusionment and exhaustion, architecture must continue to evolve in internal discourse, as adapting specific ways to new material and technological innovations, and to engage in conscious self-analysis. A dimensionless world is not necessarily one of disinterest. Connectivity does not imply the loss of topological difference. The ends of the linear narrative does not mean that architecture no longer draws from its own dreams, different from anyone else’s.

The ways collected time, tension, and repulsion as they, offer relief from the mediated world condition by enabling and stimulating the imagination through the use of diagrams. They speak of individual fascinations that are deliberately outside the well-ordained limits of global instruction. In a professional strategy engaging with the age of mechanical reproduction, the diagramlike a valve connecting one system to another. The diagram is a blueprint for global information, space, that allows the arbitrary expansion, transformation, and liberation of the information.

From the idea of the functional city, Cornelis van Eesteren, 1928

Diagram work, data mechanism for a typological age, Ben van Berkel & carolien bos, 1998
en field commented

1200 battlefield

1300 c. 1300: the wattle fence

1331-1375: Soccer outlawed throughout the British Isles

1400 c. 1490: ha-ha consisting of a trench, the inner side of which is perpendicular and faced with stone, the outer sloping and turfed, not to interrupt the view from within, and not to be seen till closely approached

1401: Tres riches heures, Duc de Berry

1500 c. 1500: Colico, Florence
1851: Invention of Photography

1875: First baseball field

1900: Olympic Games in Paris

1950: Maracana Stadium, Rio de Janeiro, 200,000 seating capacity

1960: Liberty Stadium, 1st in Africa

1965: Monsanto Industries patents Asbturf

1965: Selk Institute for Biological Studies

1985: Paul Mats' photos of stadiums in Japan

2001: Three river stadium implosion

1827: Joseph Niepce produces first photograph

1896: Crowd psychology by Gustave Le Bon

1912: First airfield

1923: Invention of television

1936: Reichsparteitag, Berlin, Albert Speer

1942: First nuclear chain reaction took place, under the grandstands at the Stagg Field Stadium at University of Chicago.

1969: Movement of lioness stalking gazelles by G. Schaller & G. Lowther

1969: Abram & Corvine define field as a character of data as a meaningful unit

1972: Olympiastadion in Munich, Frei Otto

1970's: Large gravel pit in the Inwindale area, known as Raider Crafer when the professional football team called the Raiders entered into a deal with the city of Inwindale to build a stadium inside the pit.
LABOR TO LAND: SOCIO-ECONOMIC DYNAMICS OF PANDEMIC
Carletonville: 7hrs. away, 4 visits per year
Durban: 3hrs. away, 12 visits per year
Richards Bay: 2hrs. away, 12 visits per year

Circular migration of labour

At any moment more than 5

60,000 women age 15 to 49 years
predominantly Zulu-speaking people
Population: 215,000

Somkhele Municipality
3,000 square kilometres
Subsistence farming based-economy
Secondary income from migrant labour & pensions

4.2% prevalence
6.9% women (20-35 yrs.)

14% prevalence
21% women (20-35 yrs.)

30% prevalence
39% women (20-35 yrs.)

Simplified transect of land
more than 50% of adult men and up to 15% of adult women participate in this labour system.

4. 1,000,000 children will probably be orphaned by AIDS.
MODES OF DELIVERY: HEALTHCARE IN THE FIELD

MOBILE CLINIC SERVICE

Duration of occupation: regular cycles of visitation, weekly, monthly, etc.
Site requirements: unit should be entirely self-sufficient

FOREIGN FIELD HOSPITAL 1.0: emergency / disaster relief

Duration of occupation: from 2 to 15 days
Site requirements: unit should be entirely self-sufficient

FOREIGN FIELD HOSPITAL 2.0: temporary facility

Duration of occupation: from 2 months to several years
Substitutes or supports an existing facility
Site requirements: needs support from local community for infrastructural hook-ups

REGIONAL FACILITIES
(1) 430-bed hospital
(13) fixed health care clinics
FENCING: TYPICAL CLINIC COMPLEX
686 sq.m.  MACHIBINI CLINIC

2324 sq.m.  SOMKHELE CLINIC

3372 sq.m.  MACABUSELA CLINIC

1608 sq.m.  GUNJANA CLINIC

2459 sq.m.  KWAMSANE CLINIC

3865 sq.m.  NKUNDUSI CLINIC

15,070 sq.m.  MADWALENI CLINIC

**enclosure**
limits defined by regulatory entity
segregation of patient for crowd control

**partitioning**
embankments
surveillance
specialized land use

CLINIC ENCLAVES WITH SINGLE-POINT OF ACCESS
www.kznhealth.gov.za/facilitiesaudit.htm
Market Structures
- hawkers, informal traders
- weekly markets, regular initiative
- spazaas, permanent structure

Healthcare Infrastructure
- mobile clinics
- foreign field hospital
- traditional healers, muthi markets

Migration
CYCLE A: 12 visits/year
35% of adult men migrate to the greater Durban metropolis

CYCLE B: 4 visits/year
20% of adult men migrate to the greater Jo'burg metropolis
Source: South Africa Migration Project, with Southern African Research Center
RE-CALIBRATION 02
influx during a winning soccer season
spring-fall professional soccer season
increase in visitation to cheer the home team
displacement of mobile clinics with team trainers
informal market moves to outer edges of stands
upgrade of soccer field to int'l standards

RE-CALIBRATION 01
influx during times of ill health
traditional medical treatment sought out
family become primary caretakers
intensive treatment center is set up
displacement of market
soccer practice moves to surrounding field

RE-CALIBRATION 03
influx during times of economic insecurities
lack of work elsewhere drives workers home
increase in alternative income generation
mobile clinics with a 4-week rotation
expansion of market structure
soccer program for school age kids
Relative economic value

Sources: Food and Agriculture Organization of the United Nations, www.fao.org

Subsistence farming is essential to food security. Variety and flexibility make subsistence farming particularly important to low-income farmers because it provides reasonable yields on marginal soils, even under drought conditions. However, it is traditionally viewed as a low-value production due to poor stability and inadequate markets leading to surplus production.

Cash crop production offers market opportunities for people’s livelihoods in low-income countries. The material for post-harvest industries. The flour, oil, syrup, industrial feed and bulk...
on offers market opportunities that contribute significantly to livelihoods in two ways: as a foodstuff and a raw harvest industry. These markets include high-quality industrial feed, and building material.

The cultivation of alternative sources of medicinal plants correlates strongly with increased family income and with a shift from subsistence to a more stable production system. Due to the intensive cultivation requirements and market demand, the cultivation of these indigenous plants promotes sustainable development by taking pressure off wild stocks and will support the local practices of holistic medicine.
SEQUENTIAL CROPPING

A time-dependent form of multiple cropping, that allows for two or more crops to grow sequentially on the same field per year. Crop intensification is only in the time dimension. There is no intercrop competition. Farmers manage only one crop at a time in the same field.

Sources: Bungala Ridge Permaculture Gardens. www.bungala.beaumontsail.com
INTERCROPPING
Growing two or more crops simultaneously on the same field. Crop intensification is in both time and space dimensions. There is intercropping or competition during all or part of crop growth. Farmers manage more than one crop at a time in the same field.

strip intercropping
Growing two or more crops simultaneously in different strips wide enough to permit independent cultivation but narrow enough for the crops to interact agronomically. This form of intercropping is more common in highly modernized systems, especially where the intensive use of machinery is desired.

row intercropping
Growing two or more crops simultaneously where one or more crops are planted in rows. This is the pattern usually encountered in intensive agriculture, where the plow has replaced the machete and fire as the main tool of land preparation.

mixed intercropping
Growing two or more crops simultaneously with no distinct row arrangement. This is frequently the form taken in indigenous slash-and-burn or fallow agriculture.
SLOW PACE CULTIVATION

Crop intensification is in both time and space dimensions. With longer periods for fruition, medicinal plants remain in continual cultivation and stabilizes land management.
CRITICAL FORCES IN CALIBRATING LAND SHIFTS
PLAN 01: INITIAL TREATMENT
Two 45m x 64m soccer pitches are laid out for the girls soccer league, as a cholera epidemic threatens the already ailing community.

The Africa Center in co-operation with the KZN Dept. of Agriculture set up two nurseries, one dedicated to micronutrient studies for boosting immune systems at the level of nutrition and the other to cultivation of threatened medicinal plant culture.

PLAN 02: PANDEMIC SETTLEMENT
ART & AZT treatments are slow in getting to the people who need it most.

WHO & UNAIDS have donated a fully operational field hospital to relieve the over-burdened clinic system. Their two-year stay displaces the soccer pitches to smaller pitches around the site as street soccer crops up in between break outs.

The Medicinal Flora Co-op thrives as more plants are ready for cultivation in open fields, where they need less attention the longer they are established.

Subsistence farming appears to supplement the diets of the ill as well as the workers of the field hospital.

PLAN 03: SOCCER FEVER
The World Cup construction and service industries drive more people to Durban and Johannesburg.

As more kids come down with dreams of soccer eminence, the program expands to accommodate their demand.

PLAN 04: PHARM_STAD
The World Cup has propagated a influx of tourists shuttling between the Hluhluwe-Umfolozi Game Reserve and the Greater St. Lucia Wetland World Heritage Site.

The MFC begins to generate surplus harvest to sell to nurseries in Durban, as all seedlings are now in open field cultivation and all harvesting is strictly monitored to insure sustainability.

Women’s soccer program has developed as scouts are looking from the next Veronica Phewa soccer phenomenon.

Market is formally established as weekly event.

Completion of highway opens migration between Swaziland and Mhlabatuba and increases the availability of seasonal labor, and capacity of cash crop production.

Mobile healthcare service will continue to visit on a bi-weekly rotational basis.
ASSEMBLAGE OF PROGRAMS
**PLAN 01: INITIAL TREATMENT**
summer / fall
Establish principle network for accessibility for potential vehicle and pedestrian cultures.

**PLAN 02: PANDEMIC SETTLEMENT**
fall / winter
Establish principle grid for successive for agricultural productons.

**PLAN 03: SOCCER FEVER**
winter / spring
Application of more permanent programmatic fixtures.

**PLAN 04: PHARM_STAD**
spring / summer
At maximum capacity, 50% or more of the land is under passive management initiatives, such as water collection or fallow rotation. Further development requires additional land acquisition or adoption of other water distribution technology.
FOR(U)M: SCACLES OF INTERVENTION
WATER HARVESTING

1 year  2 year  3 year  4 year

TERRAFORMING

contour bunds profile development

CIRCULATING

SCALING WALLS
DEFENCE MECHANISMS: SCALING WALLS
WATER HARVESTING
Run-off water collects in lower basons and percolates deep into the soil, giving the crops an pre-planting advantage.

TERRAFORMING
Progressive stages of terrace development levels the land profile as cultivation and erosion build up lower terraces.

CIRCULATING
Increased access to the site, allowing vehicular and pedestrian culture to thrive.

SCALING WALLS
principle road connects to district road R618
diversion drain to planting fields
nursery for micronutrient studies conducted by the Africa Center
nursery for the burgeoning Medical Flora Co-op
2 recreational soccer fields with sideline benches and viewing stands
  clubhouse with changing facility
  meeting canopy for the mobile healthcare service
  roof collection of rainwater with underground water tank and hand pump

INITIAL TREATMENT
foreign field hospitals settle on soccer field to support fixed clinics, coping with more victims of AIDS crisis
former terraced stands and surrounding area are co-oped by hospital staff as subsistence garden
shade structures serve as waiting area for visitors
recreational soccer fields migrate to flatten land, with terraces stands and light shade structure
expansion of nursery for Medical Flora Co-op with seeding structures
microcatchments for open field plantings

PANDEMIC SETTLEMENT
recreational soccer fields crop up
an additional field is left fallow for the growth of grass
warehouses process pharmaceutical plantings

SOCCER FEVER
open field cultivation of medicinal plants

club house

women's international standard soccer field

recreational practice soccer field

muthi medicinal market

traditional & urban healthcare interface

6-year fallow rotation

post-harvest processing & storage warehouses

propagation units for cropping experiments
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