



Juaben, Ghana

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Urban Design Lab
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GSAPP

Columbia University Graduate School of Architecture, Planning and Preservation



WEST AFRICAN HEALTH
FOUNDATION **SPECIALIST**
HOSPITAL



- The West African Health Foundation is a non-profit, non-governmental organization
- Formed in New York in February 2001
- Initiated by a group of physicians who were concerned with the health status of individuals in the West African sub-region

WAHF Board Members

- Dr. Prudence Osei-Tutu
 - ◆ Chairperson, Pediatrics
- Dr. Cynthia Boakye
 - ◆ Vice Chairperson, Pediatrics and Public Health
- Dr. Kwadwo Boakye
 - ◆ Treasurer, Obstetrics and Gynecology
- Dr. Bernard Osei-Tutu
 - ◆ Secretary, Plastic surgery
- Dr. William Boah
 - ◆ Pediatrics
- Dr. Margaret Safo
 - ◆ Pediatrics
- Dr. Oheneba Boachie Adjei
 - ◆ Orthopedic spine surgery
- Wesely Simpson
 - ◆ Law



Mission of the West African Health Foundation

ñ Health and Wellness Education

- ñ Maternal and/ reproductive and child health
- ñ Infectious disease (Malaria, HIV/AIDS, Tuberculosis, Hepatitis
- ñ Sexually transmitted disease
- ñ Sanitation/ environmental health, personal hygiene
- ñ Injury prevention
- ñ Tobacco/ alcohol/ substance abuse
- ñ Immunization
- ñ Nutrition
- ñ Potable water

ñ Medical Equipment / Surgical Supplies Donation

ñ Malaria Control Program/ / Medical Missions



*The Foundation's approach to the control of malaria
lives raising awareness, community support,
provision of healthcare and preventive
tools.*

Malaria Burden

~ 350-500 million cases/ year globally

~ 800,000 deaths/ year in Africa

~ PREGNANT WOMEN AND CHILDREN

~ Every 30 seconds an African child dies

~ 3.2 million cases/ year in Ghana

~ 38,000 deaths/ year

~ 16,000 deaths/year in age 0-5 yrs

~ 7,000 deaths/year in pregnant women

~ \$12 billion in economic loss



WAHF Malaria Control Program



- ~ WAHF has distributed over **8,000 mosquito bed-nets** in **11 rural villages** over the last **6 years**, at a cost of **\$80,000**
- ~ WAHF activities also include:
 - ~ Donation of sanitation equipment and tools
 - ~ Comprehensive public health education
 - ~ Periodic indoor and outdoor insecticide spraying
- ~ In Ghana, the use of mosquito bed-nets has proven to reduce child mortality by **18%** and miscarriages by **33%**



WAHF



Malaria Prevention and Control Program





The health of a nation is dependent on several factors including the state of the economy, the number of people in gainful employment, educational level and the poverty rate of its nationals.





HEATH CARE INDICATORS - GHANA



Health Statistics

GHANA vs. USA



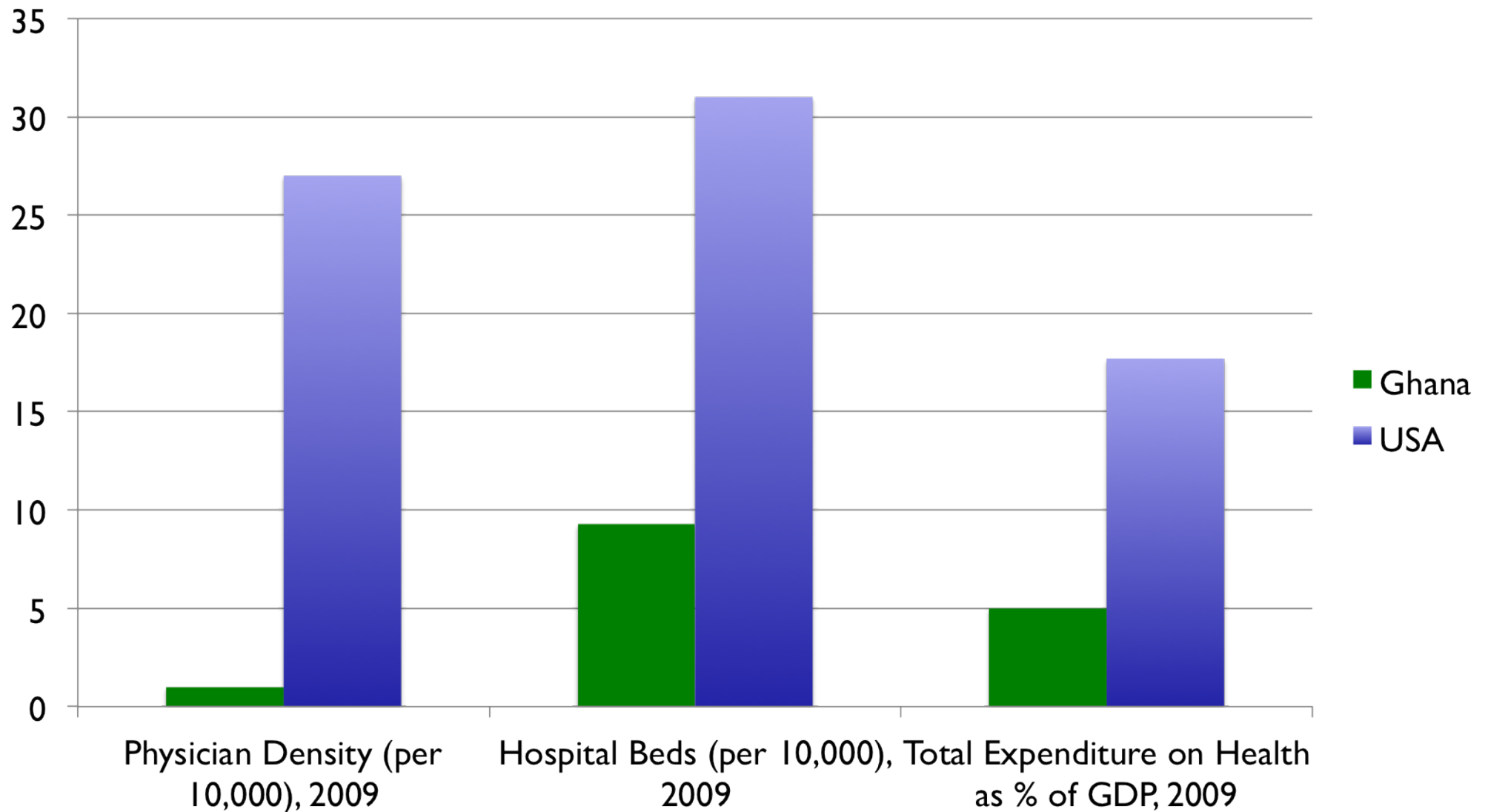
	Ghana 	USA 
Life expectancy at birth (yrs), 2012 <small>(www.cia.gov)</small>	M: 60.22 F: 62.73	M: 76.05 F: 81.05
Adult mortality (per 1000), 2009 <small>(WHO Country atastistics: www.who.int/whois)</small>	332	106
Under 5 mortality (per 1000), 2009 <small>(WHO Country atastistics: www.who.int/whois)</small>	69	8
Maternal mortality (per 100,000 live births), 2008 <small>www.cia.gov)</small>	350	24



Health Care Indicators Continued



GHANA vs USA





Causes of Death, All Ages

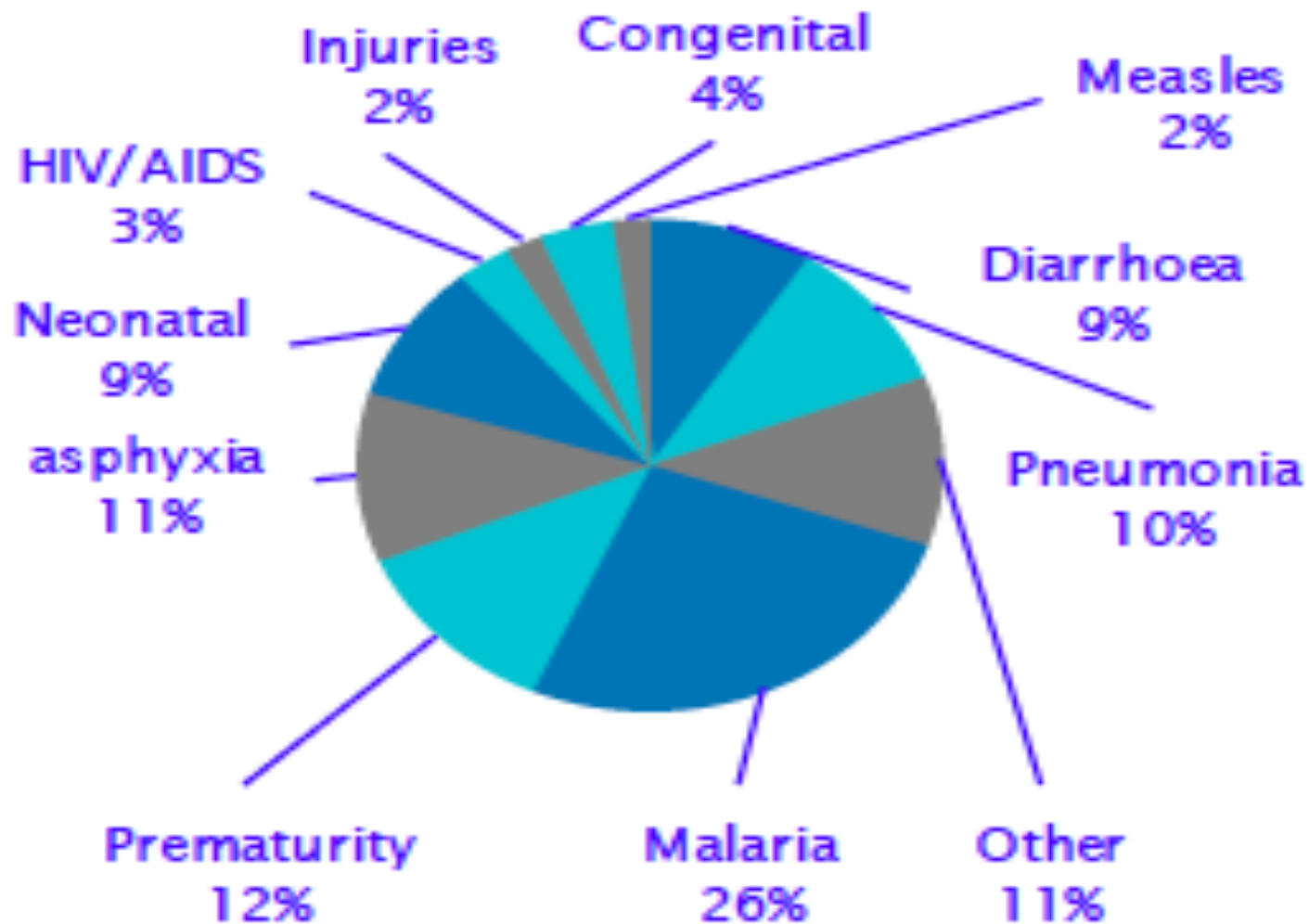
2002



Cause	Death	
	(0000)	(%)
All Causes	207	100
HIV/ AIDS	30	15
Malaria	23	11
Lower respiratory infections	16	8
Perinatal conditions	16	8
Cerebrovascular disease	11	6
Ischemic heart disease	10	5
Diarrheal diseases	9	5
Tuberculosis	8	4
Road traffic accidents	5	3
Chronic obstructive pulmonary disease	3	2

(2008)

**Distribution of causes of death among children
aged < 5 years (2008) ***





Vision of the West African Health Foundation

PROVIDE

support, education
and faculty to clinics
and rural
communities

CONDUCT

epidemiological and
disease prevention
research

ESTABLISH

a Specialty Hospital
for the West African
region

West African Health Foundation

Future Directions

Establishing a Tertiary Medical Center of Excellence





A need for private healthcare in Ghana

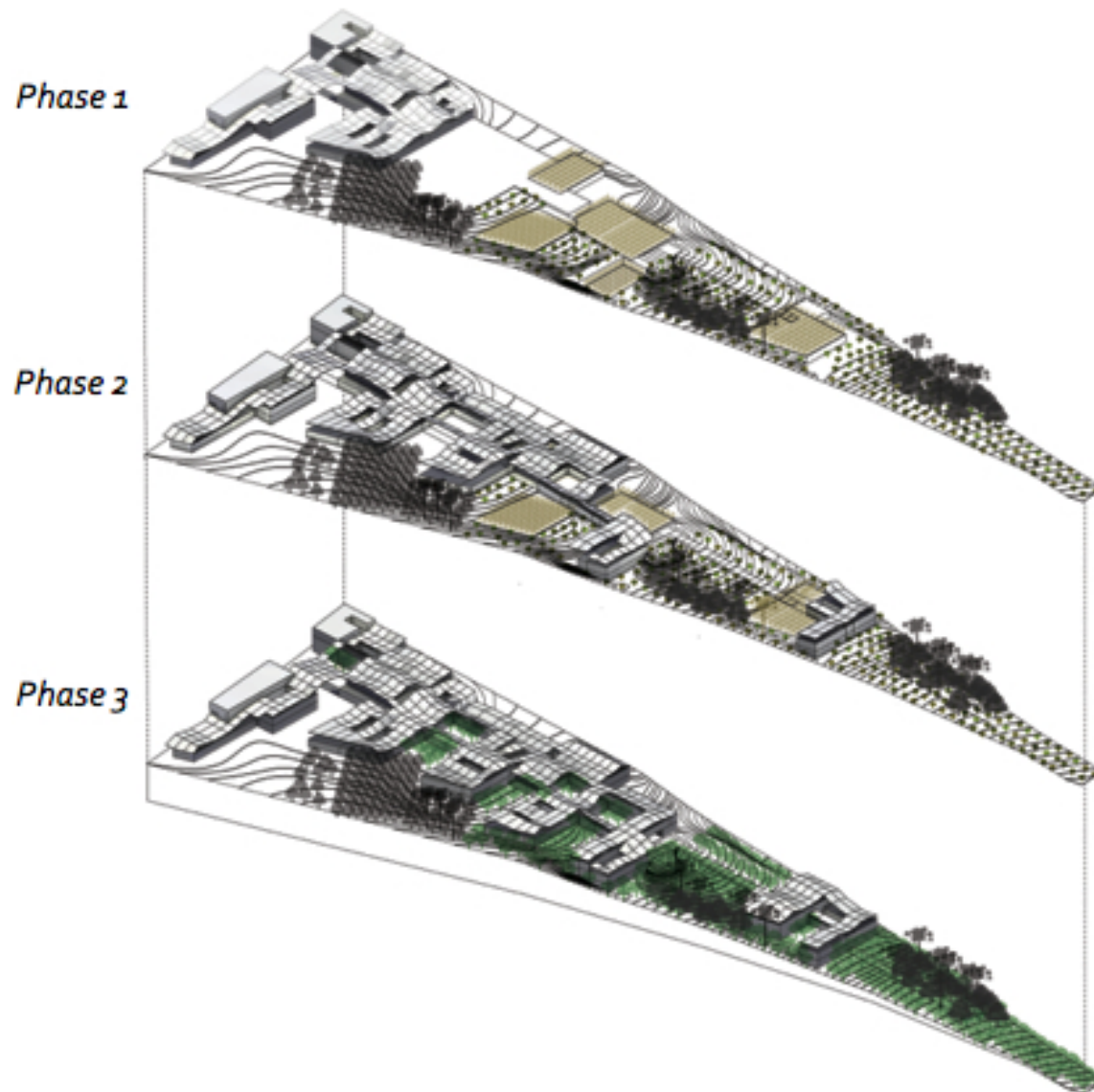




WAHF envisions a Specialty Hospital that will provide:

- ñ Tertiary care for the entire sub-region
- ñ Post-graduate training for the healthcare providers of the sub-region
- ñ Teleconference and Distance Learning Center Facilities to conduct forums, workshops, conferences and other educational programs
- ñ Research facilities for epidemiology, disease prevention, medicinal plants and food/nutrition

Phasing of Hospital



Phase

1

- ñ 50 Bed Hospital
- ñ Multispecialty
- ñ Ancillary services
- ñ Ambulatory
- ñ ICU
- ñ Telemedicine

Phase

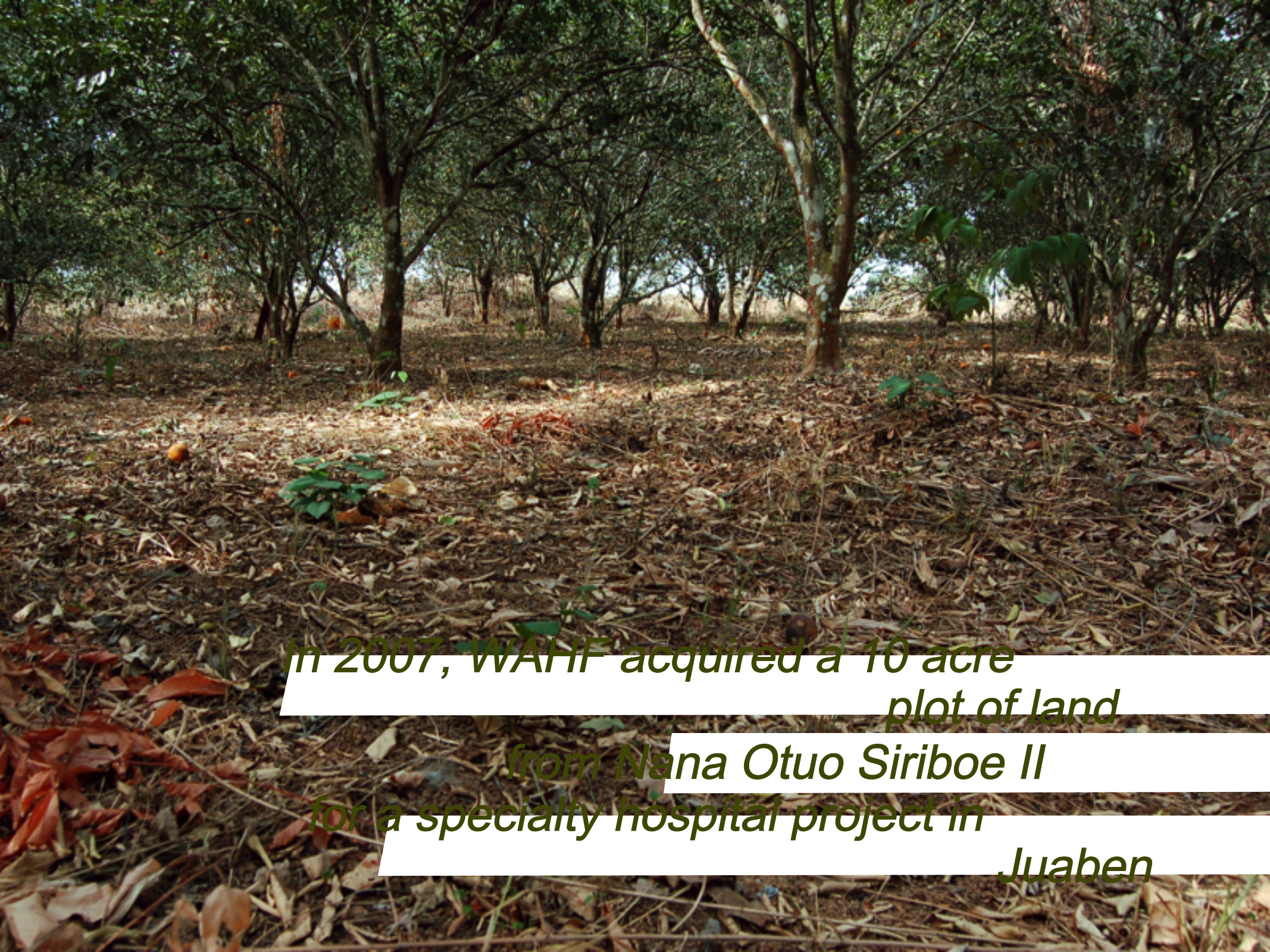
2

- ñ 100 Bed Hospital
- ñ Expansion of services in phase 1
- ñ Research

Phase

3

- ñ 250 Bed Hospital
- ñ Tertiary Care Center of Excellence with expansion of phase 1 and 2
- ñ Plant and herbal medicine center
- ñ Patient guest facility
- ñ Helipad
- ñ Fitness center



*In 2007, WAHF acquired a 10 acre
plot of land
from Nana Otuo Siriboe II
for a specialty hospital project in
Juaben*



Columbia University As Urban Design students and faculty visit to Juaben, 2013.

*The Urban Design students of Columbia
University
were asked to design the WAHF
specialty hospital
in rural Juaben, 30 minutes from
Kumasi.*



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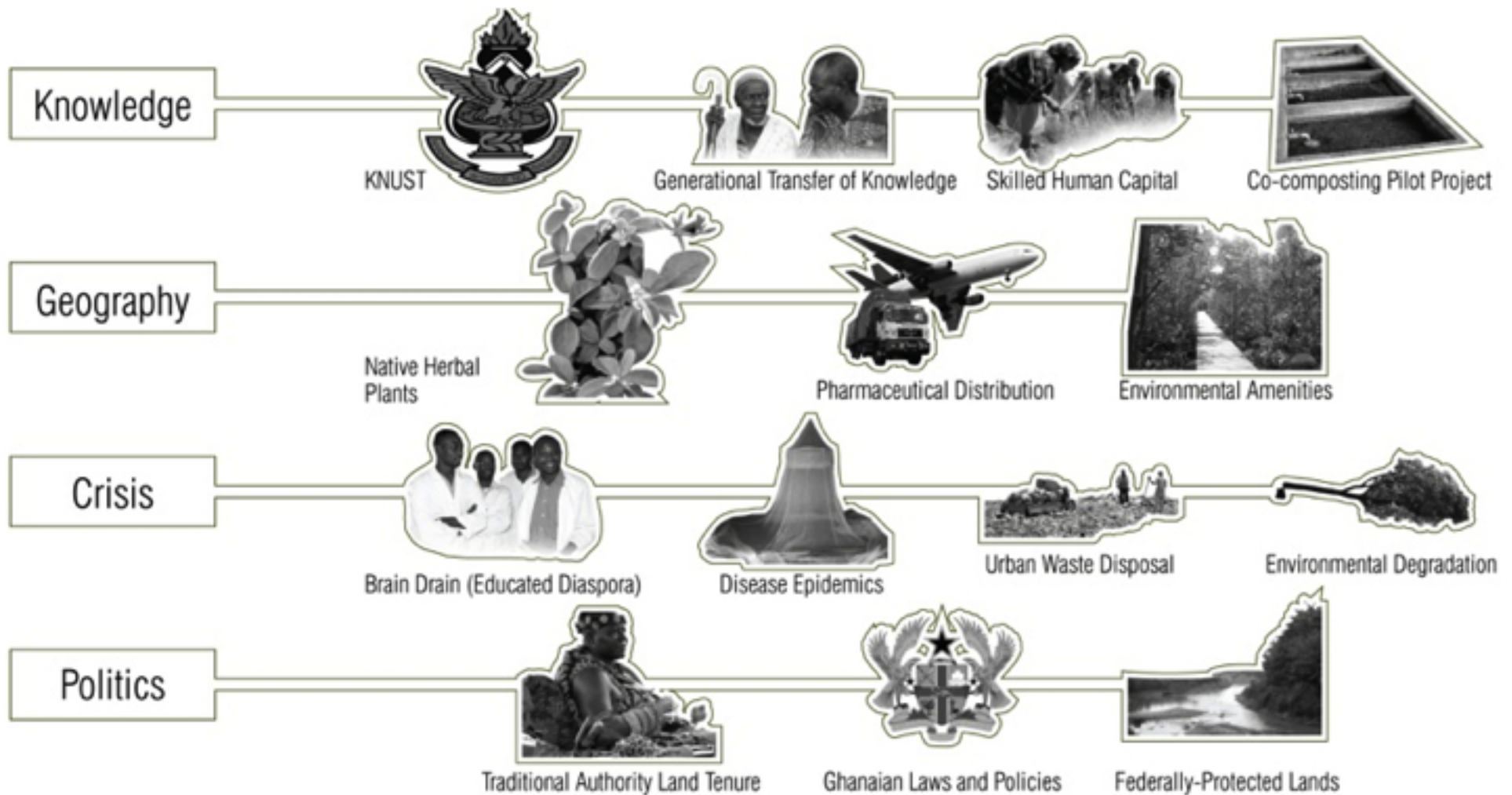
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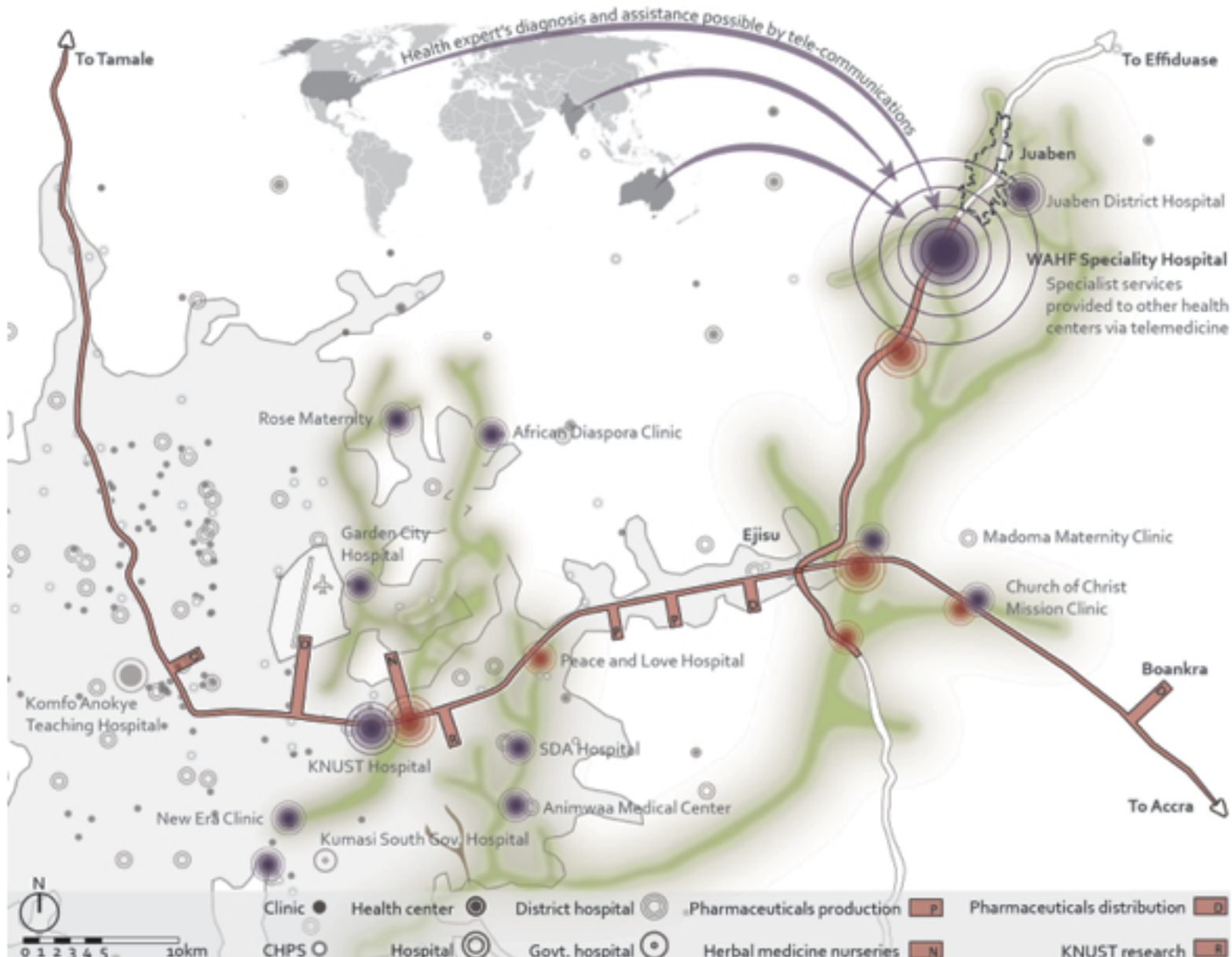
WEST AFRICAN HEALTH FOUNDATION **HOSPITAL** **DESIGN**

The UD Global Studio conceived a design strategy which questions the very definition of Whospitalw in the 21st century.

Competitive Advantages of Kumasi



Advanced practices, WAHF Hospital



R&D of
herbal
medicine



Cultivation
and
sustainable
harvesting

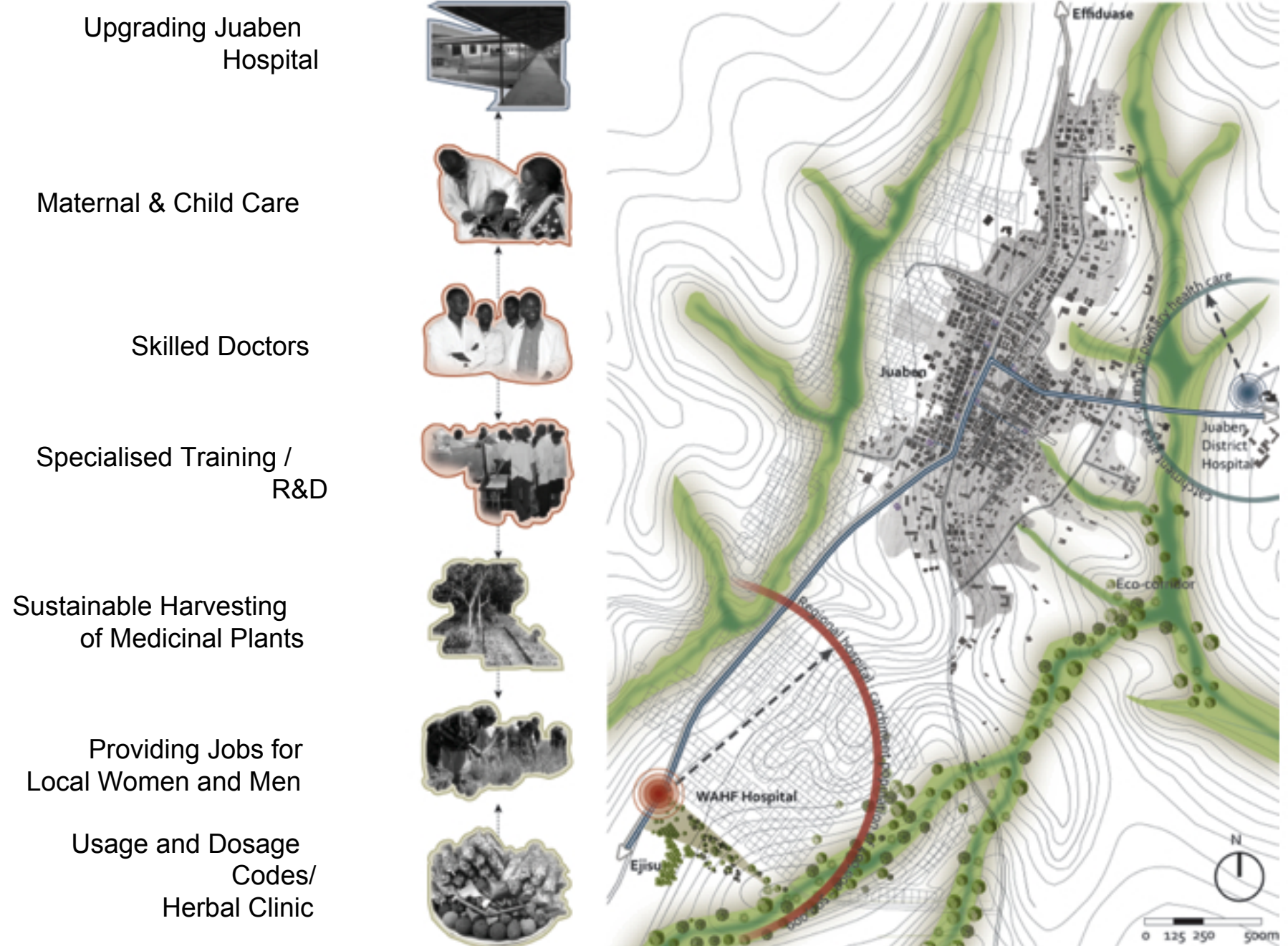


Production
and
distribution of
pharmaceutic
als

The hospital will subsidize its low-income patients and provide funding for the upgrading of Juaben's health infrastructure



Hospital's relationship to Juaben



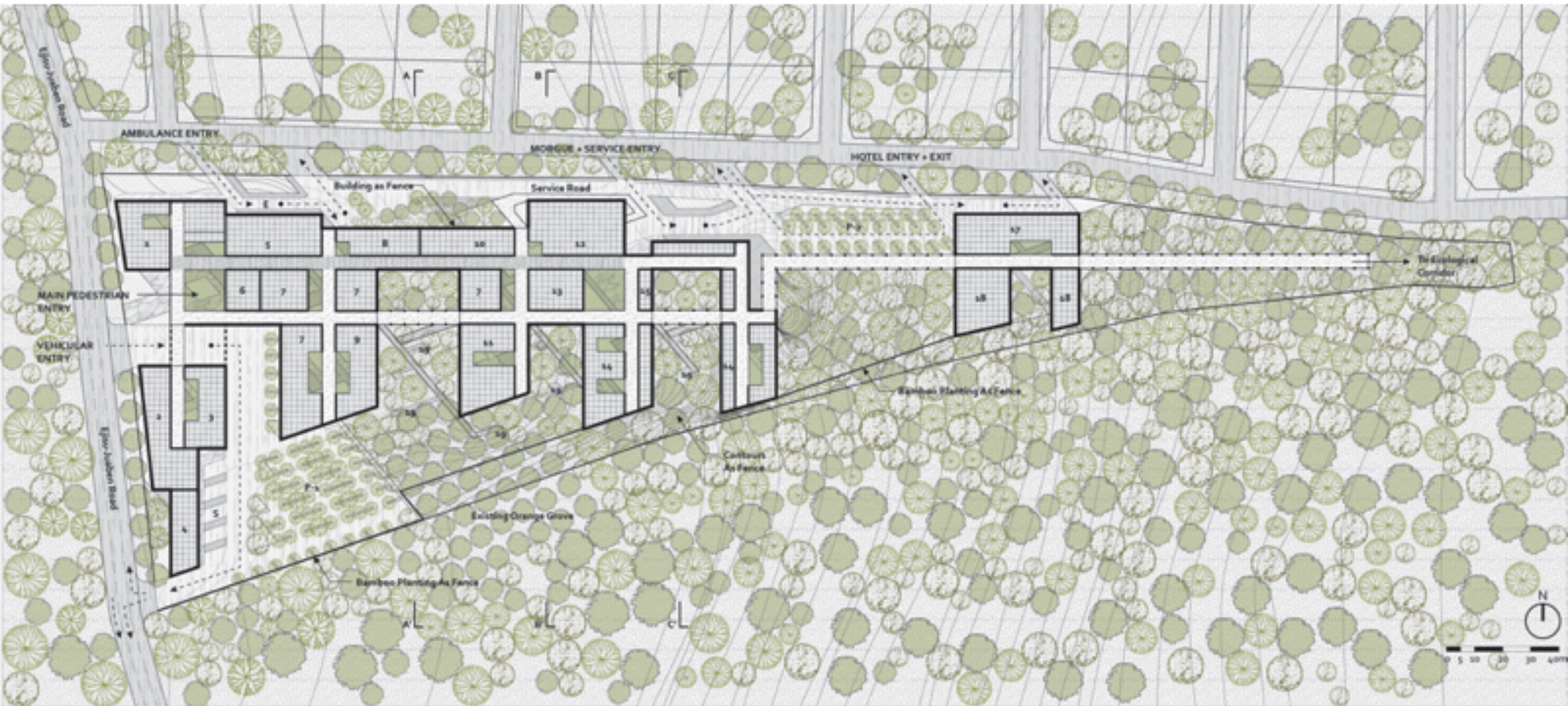
Holistic and passive design



View of private corridor



Hospital site plan



Site Area ~ 10 Acres (4.03 ha)

Total build-out area of the hospital ~ 9,000 square meters

Total number of beds ~ 250

Phase 1 ~ 4000 sq.m ~ 50 beds ~ Estimated \$6-10 million

View of hospital rooms



Main entrance of the hospital



Medicinal plant cultivation





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WEST AFRICAN HEALTH FOUNDATION **HOSPITAL FINANCING**

Hospital Project Capital Cost Per Bed

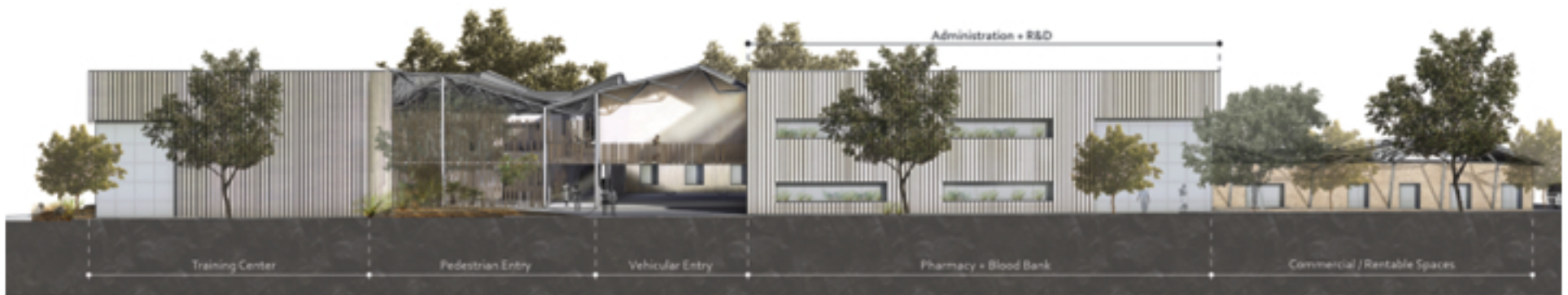
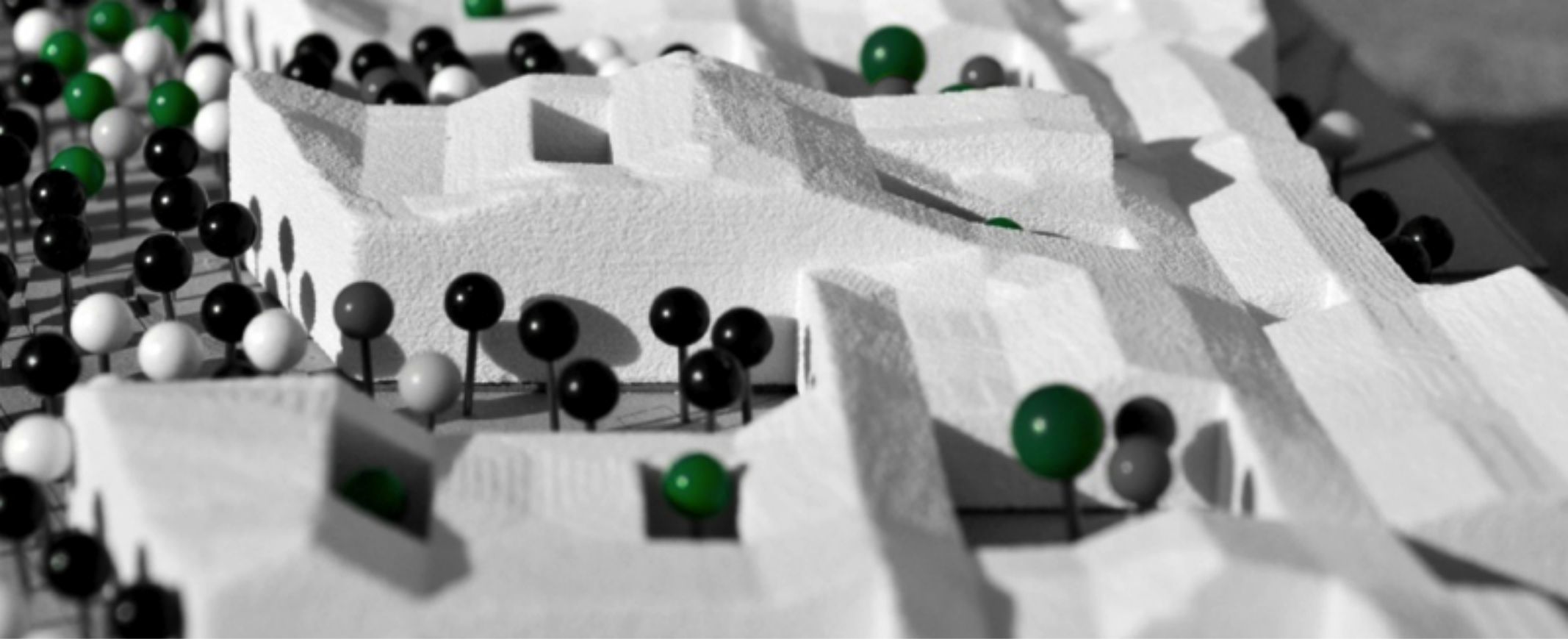
\$120-200,000 per bed*

Phase	
1 (50 bed)	\$6-10 million
2 (100 bed)	\$12-20 million
3 (250 bed)	\$30-50 million

These are estimated costs based on FOCOS Hospital

Hospital Project Cost Components

Component	%of Capital Cost
Land	5-10%
Building	30-40%
Medical equipment	30-40%
Preoperative and preliminary expenses	10-15%
Margin money (start up expenses, cash, losses,	10%
Contingency	5-10%



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THANK YOU

Acknowledgements

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Juaben hospital, staff, and community

Columbia University Urban Design Lab, The Earth
Institute

Columbia University Urban Design Program,
GSAPP

Millennium Cities Initiative, The Earth Institute

Nana from Nana Otuo Siriboe II