

RICE UNIVERSITY

**RENEWABLE HOUSING-VN:
BAMBOO POTENTIALS**

by

Florence Tang

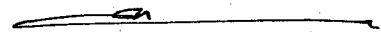
A THESIS SUBMITTED
IN PARTIAL FULFILLMENT OF THE
REQUIREMENT FOR THE DEGREE

Master of Architecture

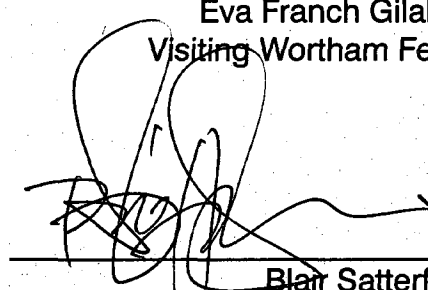
APPROVED, THESIS COMMITTEE:



Farès el-Dahdah,
Associate Professor (Chair)



Eva Franch Gilabert,
Visiting Wortham Fellow



Blair Satterfield,
Visiting Critic

HOUSTON, TEXAS
MAY 2009

UMI Number: 1466852

INFORMATION TO USERS

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleed-through, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

UMI[®]

UMI Microform 1466852
Copyright 2009 by ProQuest LLC
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

MAY 2009

ABSTRACT

**RENEWABLE HOUSING-VN:
Bamboo Potentials**

by

Florence Tang

Life at water's edge is idyllic when nature is calm. But how can shelter, a basic human need, adapt and respond in situations of natural disaster and post-disaster? The state of how we live with water – with various phases of stability, interference, and transition – repeat and intermingle and demonstrate nature's cyclical ways.

By studying a third world site that seasonally floods (the Mekong River Delta region in southern Viet Nam), this thesis proposal investigates the extra small scale of alluvial semi-permanent housing. Structural lightness, material flexibility, and renewability are key, hence the choice of bamboo as a construction material. Another consideration would be assemblage and construction for rapid deployment in post-disaster/emergency/temporary situations such as refugee housing, construction worker housing, etc.

Coupled with this investigation are the various implications of economic, environmental, geopolitical and cultural factors affecting those whose livelihoods are intricately tied to living at water's edge.

ACKNOWLEDGEMENTS

[in honor of my mother and to the memory of my father]

Gratitude to:

Blair Satterfield, Farès el-Dahdah, and Eva Franch Gilabert

Albert Pope and John Casbarian

Quyên Ma

Rosalynn Lu

All the RSA professors for sharing their passion for the profession

Kathleen Roberts

Thesis studiomates

Sunflower Mission

K+T

WSNJY

My family

H

+ Austin Peilin Hainam Tang for seeing the world in a grain of sand.

TABLE OF CONTENTS

[0] INTRODUCTION	V
[1] BACKGROUND	1
[2] DESIGN	21
[3] BIBLIOGRAPHY	29

INTRODUCTION

This thesis project emerged from reflections and deep impressions made after a trip to Southern Vietnam with Sunflower Mission to build schools in the economically impoverished Mekong Delta region in summer 2006 after my first year of architecture school.

Visiting this part of the world intrigued and undoubtedly provoked my initial interest in the way a war-torn country has rebuilt itself, but not just any country -- the country where my parents and family fled after the fall of Saigon in 1975.

After further investigation, the many layers of factors affecting the built environment gave way to a focus on flooding and how this constant cycle of stability, interference, and then transition back to stability resonates in this delta region. Through this initial trip, the seed for this project was planted to delve into interdisciplinary research about this site, as well as probing through design experimentation for a new way to see what means architecture has to respond to such conditions. Examining a site "off-the-grid" with such cyclical fluctuations is challenging because limitations are inherent, yet also revealing. As Samuel Mockbee, the founder of Rural Studio at Auburn University, once said:

"In creating architecture, and ultimately community, it should make no difference which economic or social type is served, as long as the status quo of the actual world is transformed by an imagination that creates a proper harmony

for both the affluent and the disadvantaged...Also, the most valuable thing I have learned in working with these extremes, both the very rich and very poor, is that what appears to be a disparity disappears into an honesty of spirit. It is their honest lifestyle that raises their status above the ordinary.”¹

¹Dean, Andrea Oppenheimer and Timothy Hursley. **Rural Studio: Samuel Mockbee and an Architecture of Decency.** New York: Princeton Architectural Press, 2002.

BACKGROUND

After Hurricane Ike, Hardship and Hope in Galveston (3-09)

Texas Leaders Blast FEMA for Hurricane Ike Response (10-08)

Texas Leaders Blast FEMA for Hurricane Ike Response (10-08)

300 Advisers Shape Obama's Foreign Policy (Washington, D.C.) (7-08)

Mexican Floods Push Families to Last Islands of Home (11-07)

Obama: 'Change Has Come to America' (11-08)

Myanmar Death Toll Reported at Nearly 4,000 (5-08)

weather

Cities Deal with a Surge in Shanty Towns (California) (3-09)

UN Says Wealthy Failing the Poor (New York) (9-08)

Homeless Families in NY Lose a Loophole (12-07)

economics

Tata Unveils World's Cheapest Car (India) (1-08)

A Boy Living in a Car (Haiti) (4-09)

The Devil Wears Hermes (He Bought It at the Caesar's Palace Mall in Las Vegas) (6-07)

UN Says Wealthy Failing the Poor (New York) (9-08)

A Boy Living in a Car (Haiti) (4-09)

Pope Lauds Americans' Faith (4-08)

international

Bosnia Grave Had More Than 600 Victims (11-07)

Young Israelis Resist Challenges to Settlements (12-07)

New York Manhole Covers Forged in India (11-07)

Instant Houses then and Now (New York) (7-08)

Homeless Struggle to Cope in Italy Quake Zone (04-09)

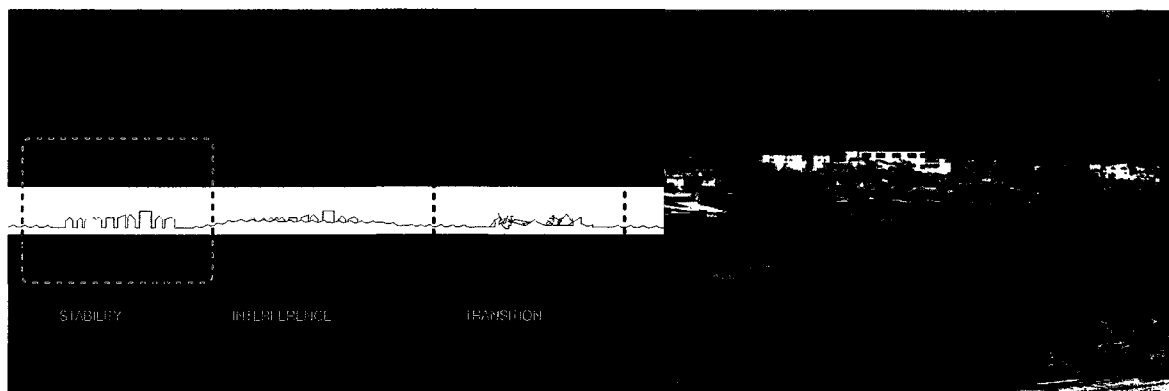
Inflation Delivers Blow to Vietnam's Spirits (8-08)

Unprepared Gov't Strands Returning Iraqi Refugees (12-07)

Thousands Cross Gaza Wall to Egypt (1-08)

politics

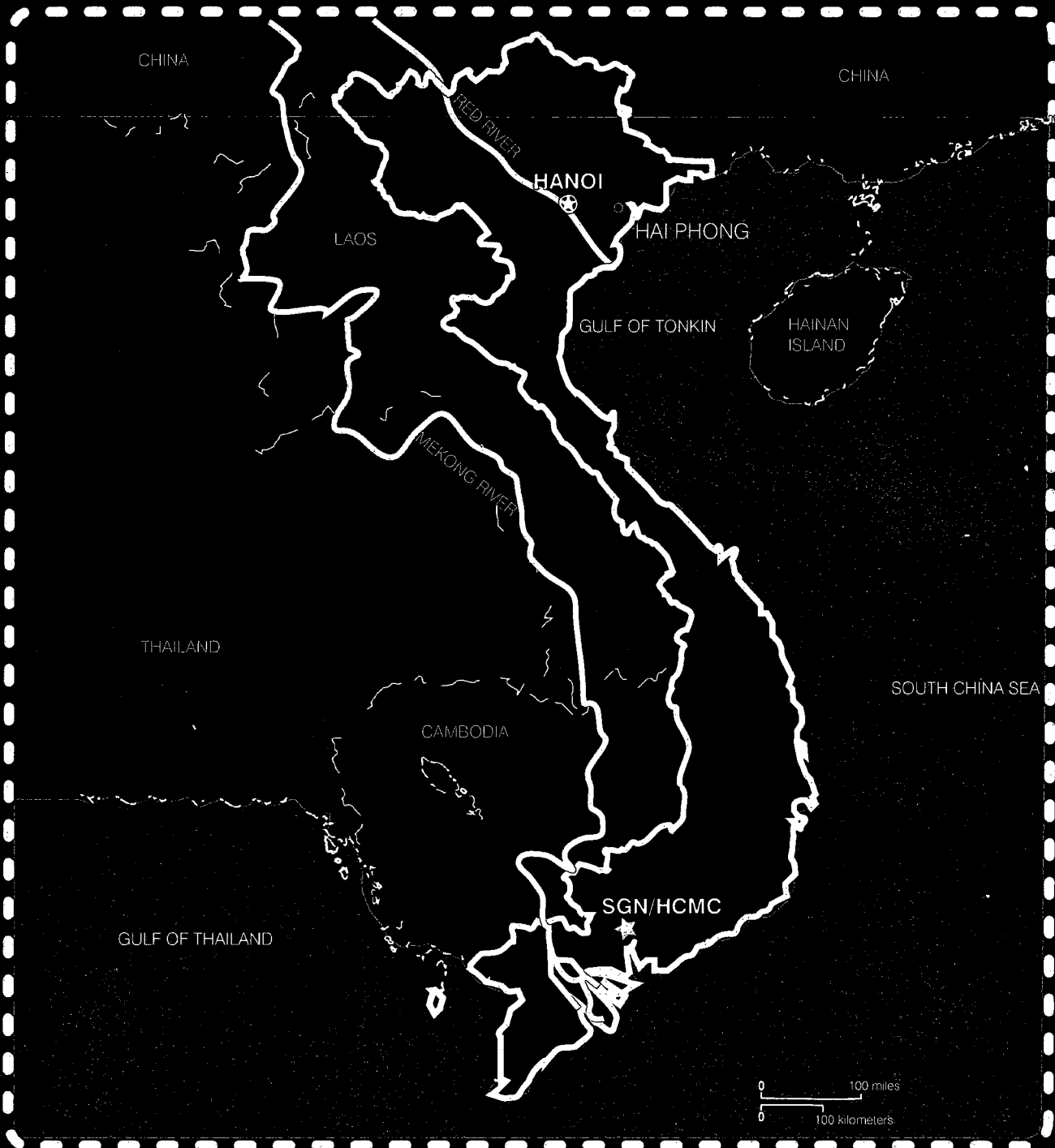


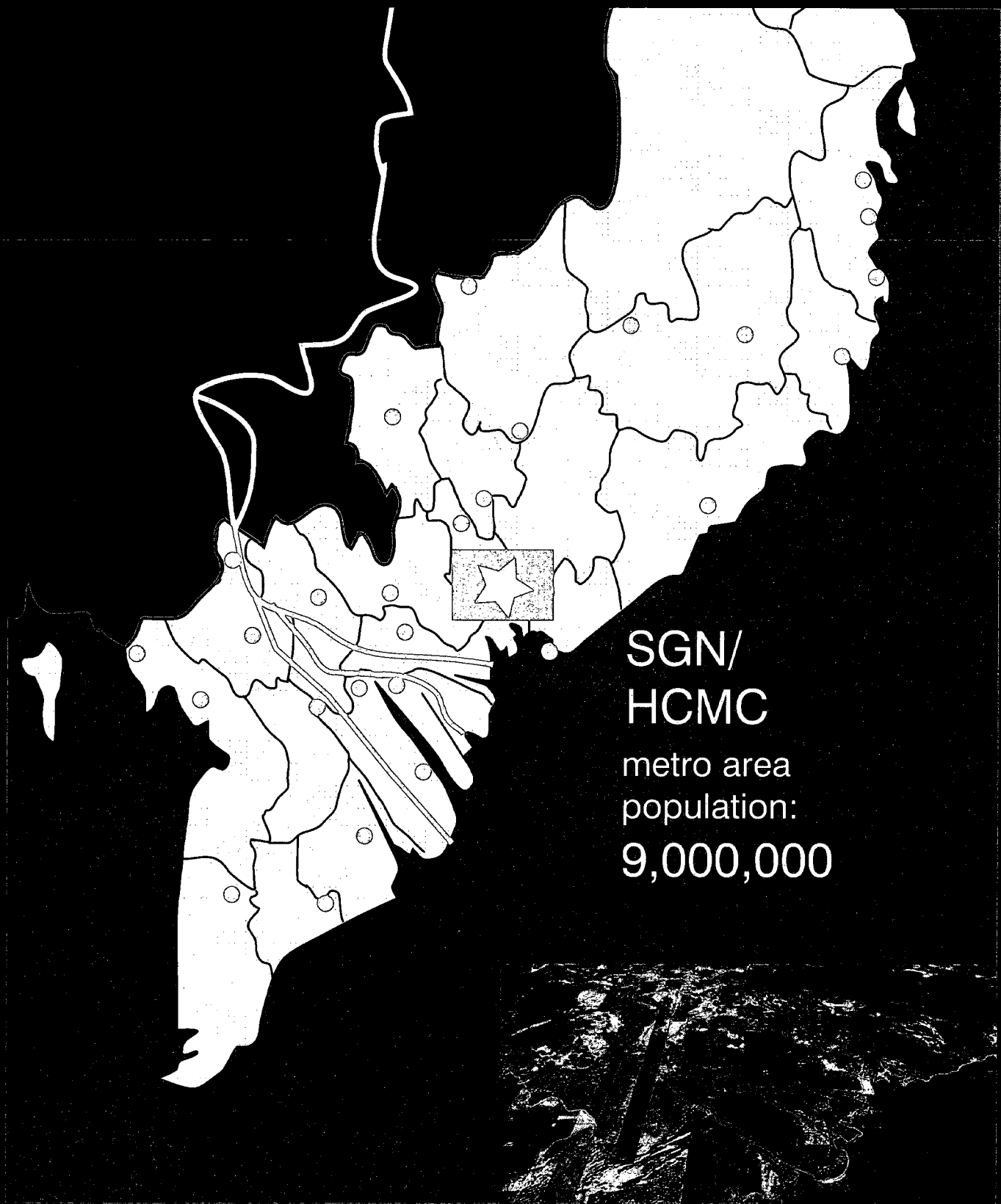


CREDIT: SUNFLOWER MISSION
traveling along the mekong

Vietnam is a country in Southeast Asia located along the eastern margin of the Indochina peninsula bounded by Cambodia, Laos, China and the South China Sea. Its climate is warm, humid, and tropical with two monsoon seasons: the northeastern winter monsoon and the southwestern summer monsoon. In the Mekong Delta, the summer monsoon brings 5-6 months of rainfall above 100 mm/mo. October is the wettest month of the year.

The International Rice Research Institute accounts for 80% of the population as rural and concentrated in the two rice-growing deltas: the Red River Delta in the north and the Mekong River Delta in the south. Not only is the Mekong Delta the country's rice bowl, it could arguably be considered one of the world's rice bowl since Vietnam is the second largest exporter of rice globally after Thailand. The IRRI also states Vietnam is home to 7.7 million hectares of rice fields with the Mekong region producing more than 50% of the country's most important crop. The region does have flood control measures, drainage and short duration rice varieties, hence it is an irrigated ecosystem.



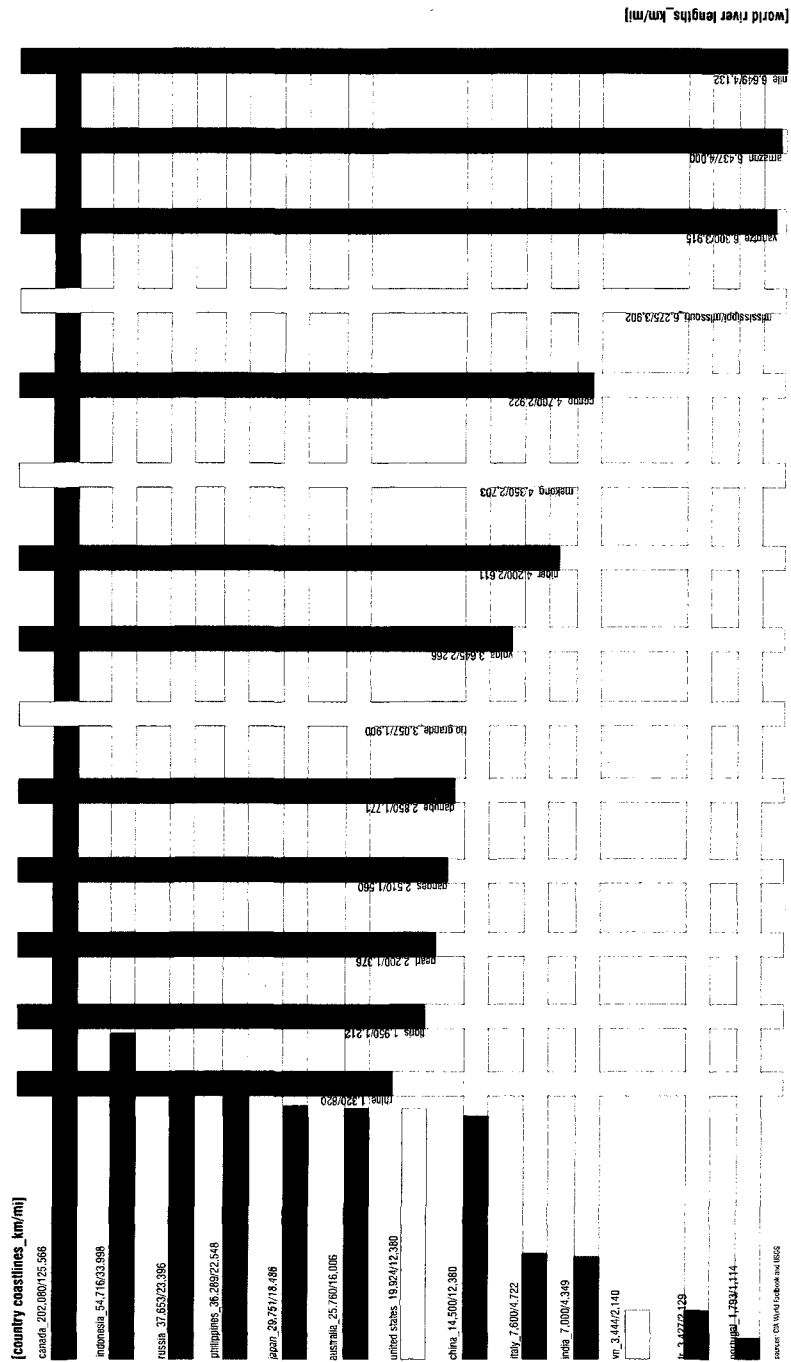


**SGN/
HCMC**
metro area
population:
9,000,000

The Mekong is the 12th biggest longest river in the world and is the biggest river in Southeast Asia. Its physical geography is described as a “low gradient large river flowing through a basin filled with alluvium ... In the highlands of China, Laos, Myanmar and Thailand, the slopes are generally either in forests or under shifting cultivation. Wet rice is grown in the alluvial plains of the lower Mekong Delta in Cambodia and Viet Nam, the delta being the most fertile region.”²

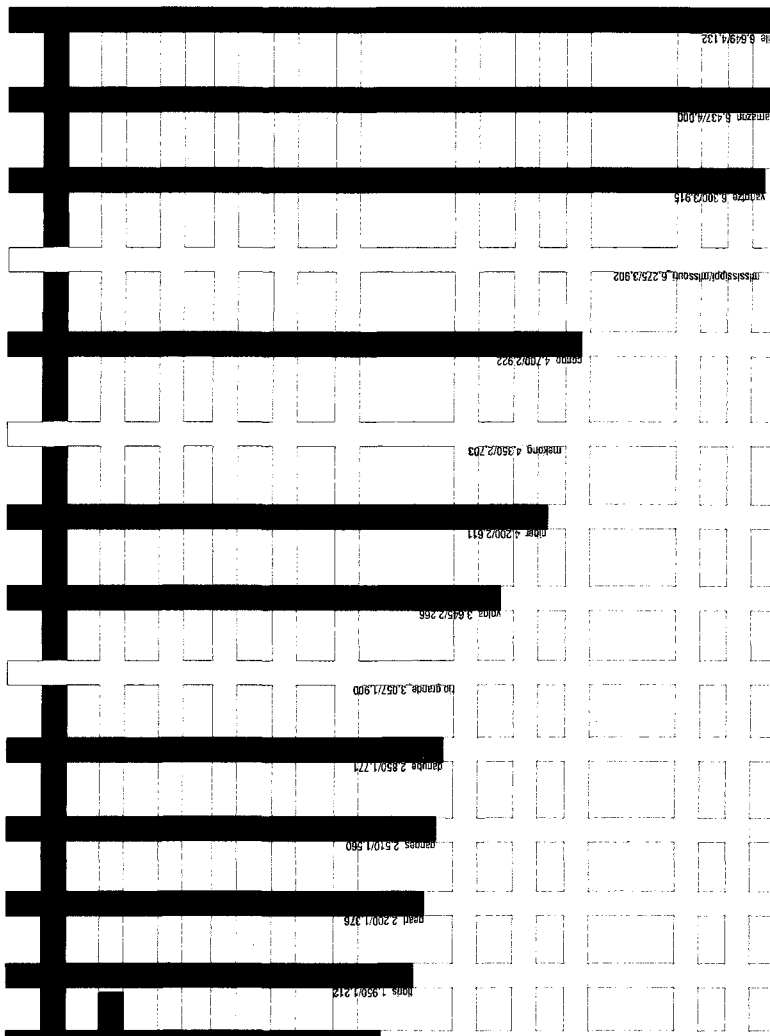
While this deltaic region is richly fertile naturally and able to sustain the production of the country’s cash crop, it is an extremely economically impoverished area where farmers make a couple of dollars per day and infrastructure is minimal. The main means of transportation is by boat through the river and its smaller arteries. Among the many issues facing the country and region are: environmental concerns about slash and burn agricultural practices; deforestation; soil degradation; water pollution; overfishing; urban densities degrading the environment in Hanoi and Saigon/HCMC; high risks of food and water-borne diseases; and a growing chasm between the economic classes of the rich and poor living on less than \$1 a day.

² Gupta, Avijit. **The Physical Geography of Southeast Asia**. New York: Oxford University Press, 2005.



[the united states coastline including alaska and hawaii (19,924 km /12,380 mi) is about 6 times longer than vietnam (3,444 km/2,140 mi).]

[world river lengths_km/mi]





CREDIT: FIYANG
a rice paddy in an giang
province in southern vietnam

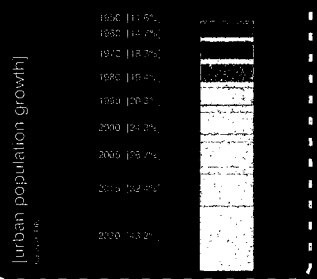


CREDIT: F.TANG
 typical street condition in SGN

(PRESENT)

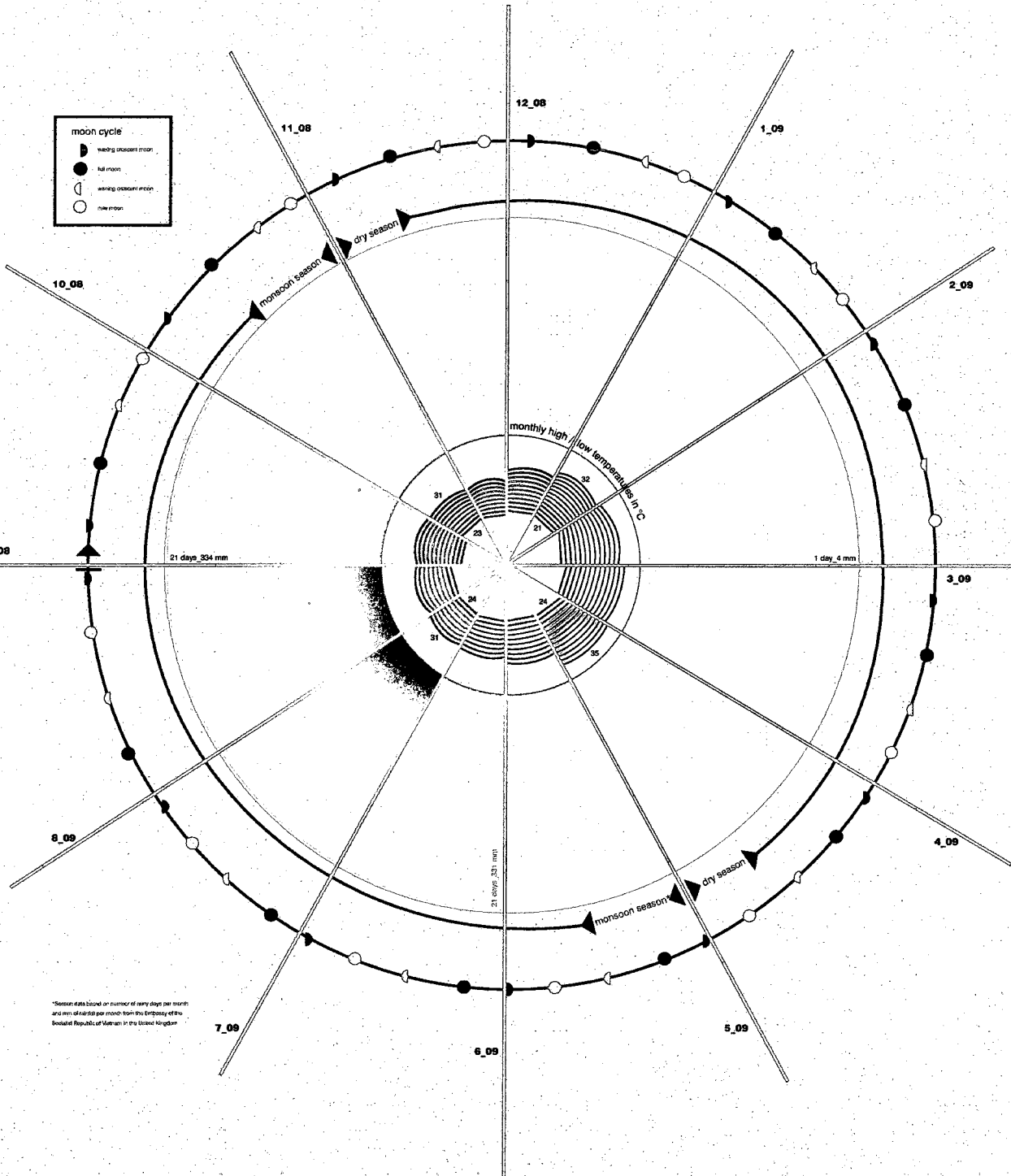
"Vietnam is a densely populated developing country that in the last 30 years has had to recover from the ravages of war, the loss of financial support from the old Soviet Bloc, and the rigidities of a centrally-planned economy."
 - CIA.gov

- GDP \$53.61 billion
- Per capita income \$2,600
- Country pop: 85 million



moon cycle

- ☾ waxing crescent moon
- full moon
- ☾ waning crescent moon
- new moon



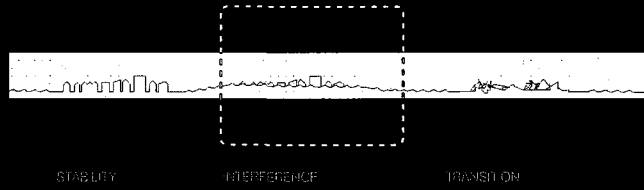
*Season data based on number of rainy days per month and mm of rainfall per month from the Embassy of the Socialist Republic of Vietnam in the United Kingdom

CREDIT: FTANG
 transporting bags of harvested
 rice by boat along the mekong



The map on page 4 shows the locations of various hamlets/towns the the southern part of the country with the former capital, Saigon, boasting a population of more than 9 million people. Many of the country's citizens were born after 1975, after the fall of Saigon, and thus do not have memories of the war. Life has returned to normal daily routines, although evidence of war-scarred buildings do remain in the city. In the Mekong Delta region, it is a pastoral and peaceful existence without glaring reminders of warfare. And for the hundreds of thousands who fled the country as refugees, they have been absorbed into adoptive countries. The diagram on page 12 shows the journey of the Bui family, who escaped the country shortly after the fall of Saigon, and their encounters and experiences with Thai pirates, living in a refugee camp, moving to Canada, the death of the family patriarch, fall from wealth to poverty, and their eventual resettlement into normal daily life.

Just as this family has readjusted to life post the interference of war, the country's present condition could also be described as being in the stability phase with some residue of the transition phase.



STABILITY

INTERFERENCE

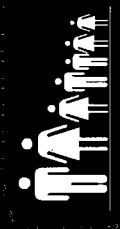
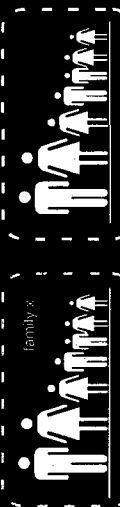
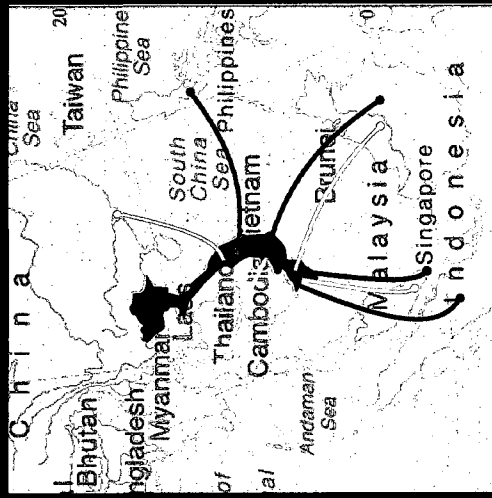
TRANSITION

CREDIT: pupius.co.uk
rice farmers working in vietnam

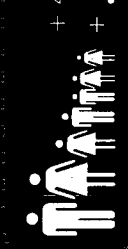


CREDIT: bbc.com
flooding victims in southern
Viet Nam are forced
to abandon their homes

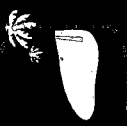
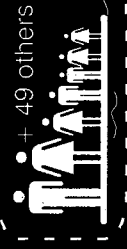
[REFUGEE FAMILY X: VN_MALAYSIA_CANADA_US]



+ 49 others

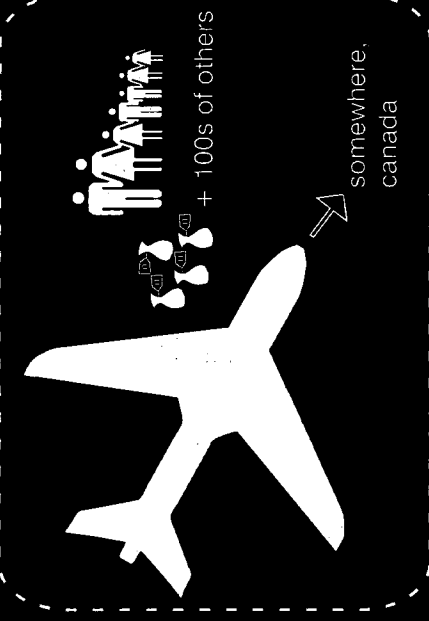


+ 49 others

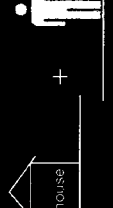
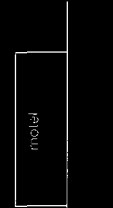


+ 49 others

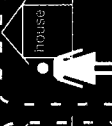
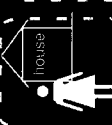
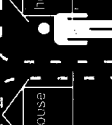
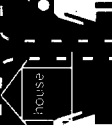
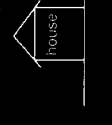
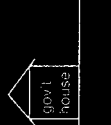
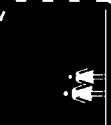
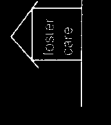
+ 1000s of others



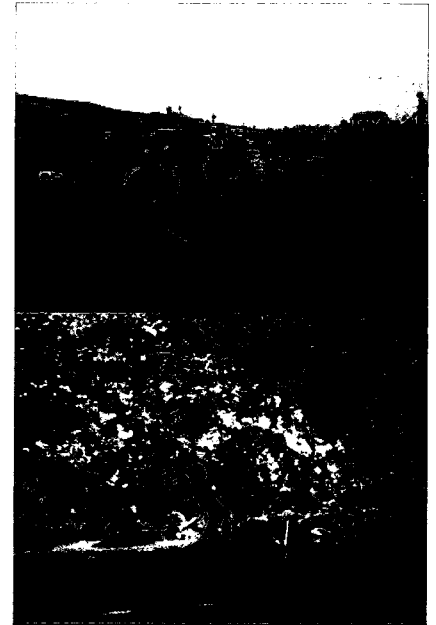
somewhere,
canada



motel



CREDIT: SUNFLOWER MISSION
a floating market in Can Tho
where produce is sold; below:
water buffalo are herded into the
river to bathe

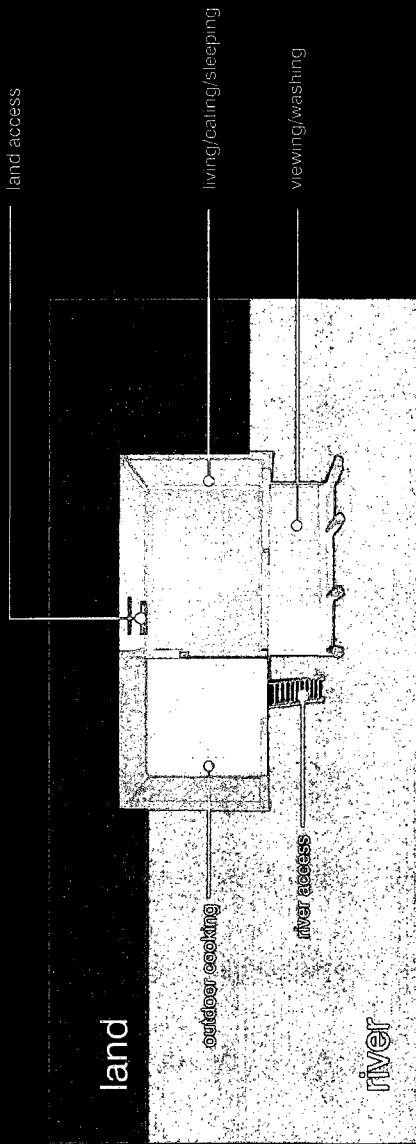


As war is historical interference, flooding is cyclical interference that is naturally induced and brings with it a host of positive and negative issues. According to the Department on Environmental and Water Resources Engineering School at Can Tho University in Viet Nam and the United Nations University Institute for Environment and Human Security, some of the favorable outcomes are sediment supplementation, flushing of toxicity from the acid sulphate soils, reduction of salinity intrusion, termination of rodents and insects from the rice fields, and addition to the groundwater storage/water table. Some of the negative consequences are: death, disease, infrastructural damage and loss of homes. This flooding, while cyclical and necessary, affects more than the rice industry and human population sustained in the region. The delta area also supplies more than 60% of the country's fish and shrimp production and 80% of the country's fruit production. This interference stage disrupts the balance yet is essential for life.

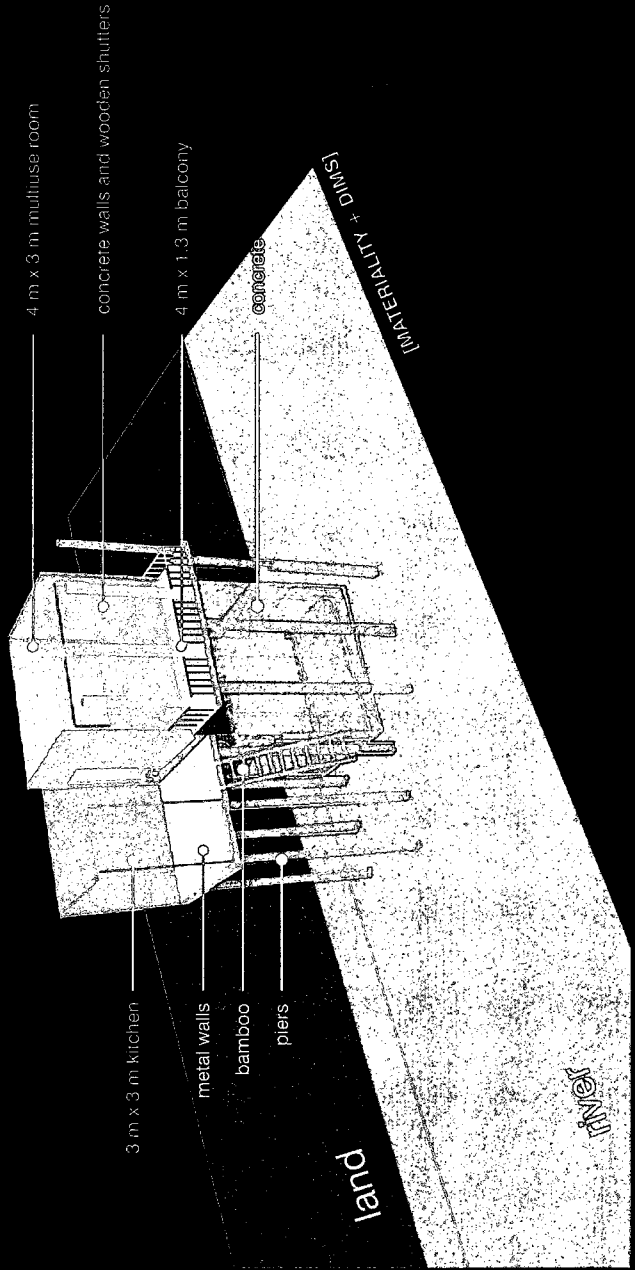
CREDIT: SUNFLOWER MISSION
 various river housing
 in the delta region



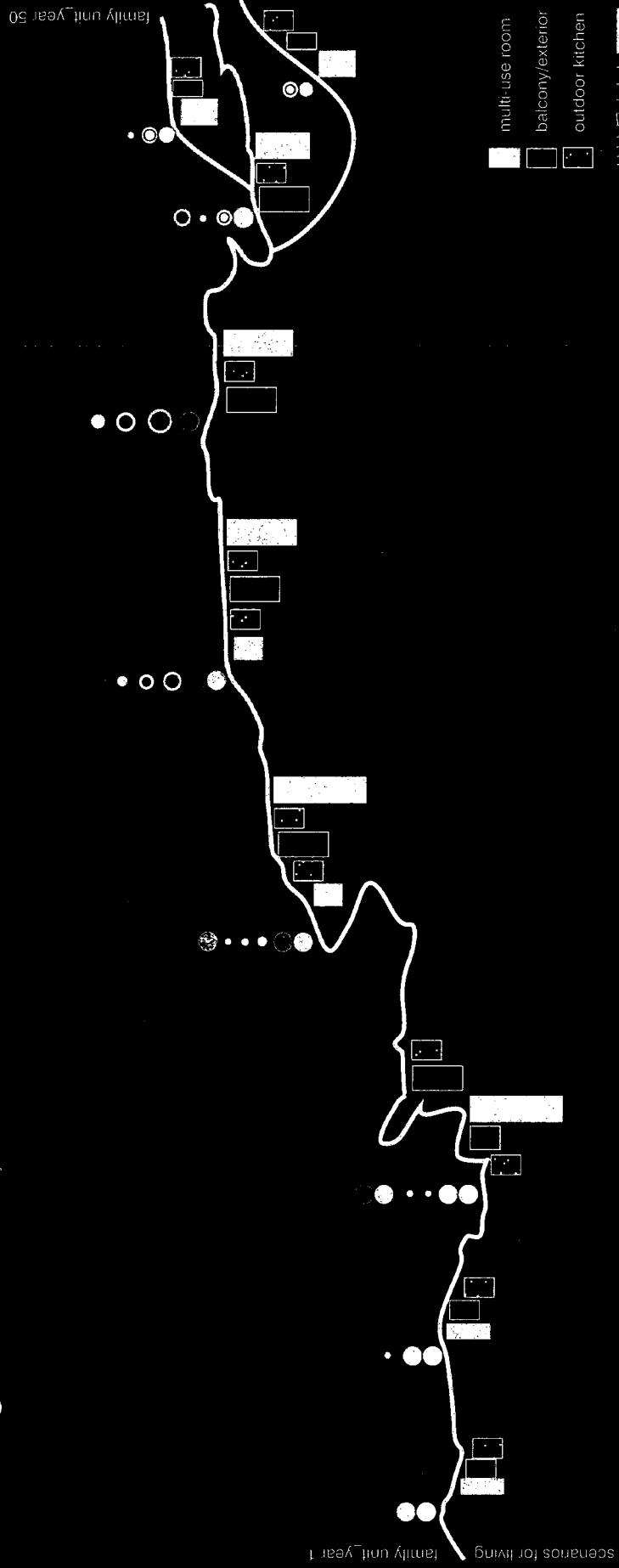
[DOMESTIC LIFE: MEKONG RIVER DELTA REGION]



[USE]

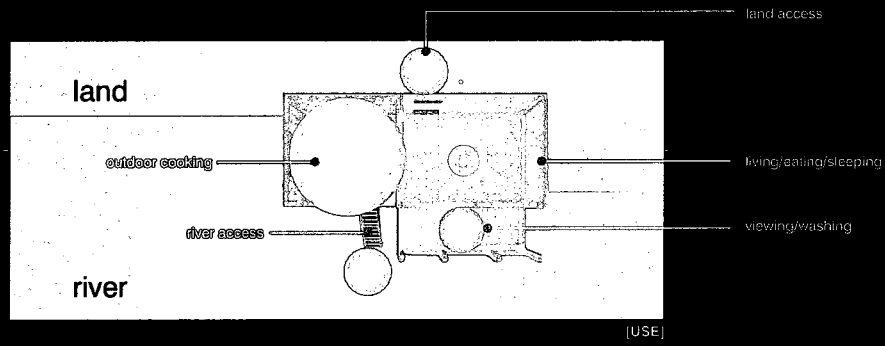


- female child
- male child
- adult female
- adult male
- elderly female
- elderly male

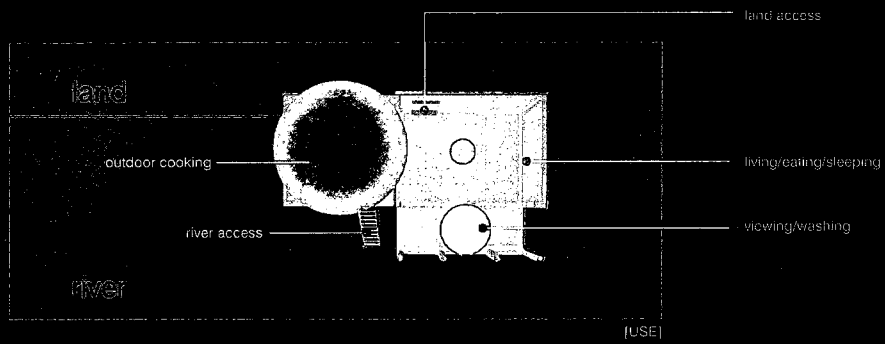


CREDIT: SUNFLOWER MISSION
 aspects of daily life for those living in the mekong delta region

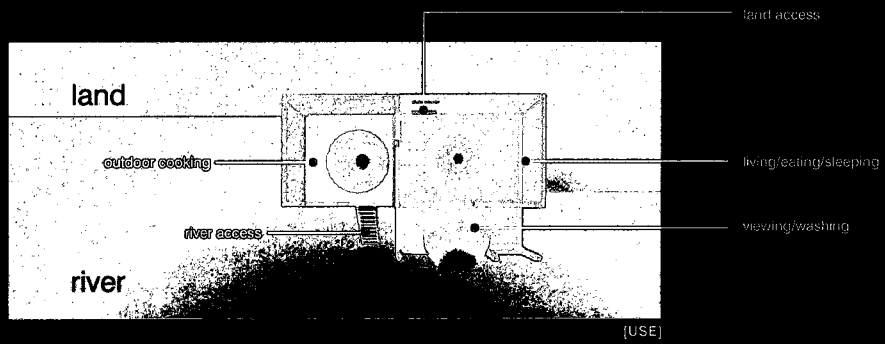
[DOMESTIC LIFE: TEMPERATURE_STUDY]



[DOMESTIC LIFE: SMELLS_STUDY]



[DOMESTIC LIFE: HUMIDITY_STUDY]



After examining the region's conditions, it became clear that a housing solution for this area would need to have an adaptive response to its fluctuating environment, be constructed of lightweight material that could easily be transported thru the region's waterways, and be able to be disassembled/ assembled and deployed with rapidity in the event of flooding disaster. Since Vietnam is one of the most "disaster prone countries in the world"³ this housing prototype, one refined, could be adapted and applied to locations with similar conditions and needs in regards to flooding, tropical storms, storm surges, and flash floods.

Bamboo, a grass indigenous to tropical zones of the world, is a light-weight rod historically used in the vernacular for home and bridge construction, as well as skyscraper scaffolding throughout Asia. It is a highly versatile vegetal rod and has high resistance to tension, compression and deflection.⁴ Furthermore, it is relatively inexpensive, can reach cane maturity in 20-30 days (within a year at the latest), is abundant and accessible, and is easily processed and ecological.⁵

As more awareness of sustainable and renewable building practices comes to the forefront for housing, bamboo as a construction material will surely surface and gain mass popularity as a traditional option with an historic track record that can be applied with modern architectural sensibilities.

³ Nguyen, Huu Ninh. (2007.) "Flooding in Mekong River Delta, Vietnam." Retrieved 25 Jan. 2009 from Climatic Research Unit of University of East Anglia, UK Web site: <http://www.cru.uea.ac.uk/tiempo/annex/cered/HDR07.pdf>

⁴ Dunkelberg, Klaus. **IL 31 Bambus – Bamboo: Bamboo as a Building Material**. Stuttgart: Institute for Lightweight Structures, 1985.

⁵ Ibid.



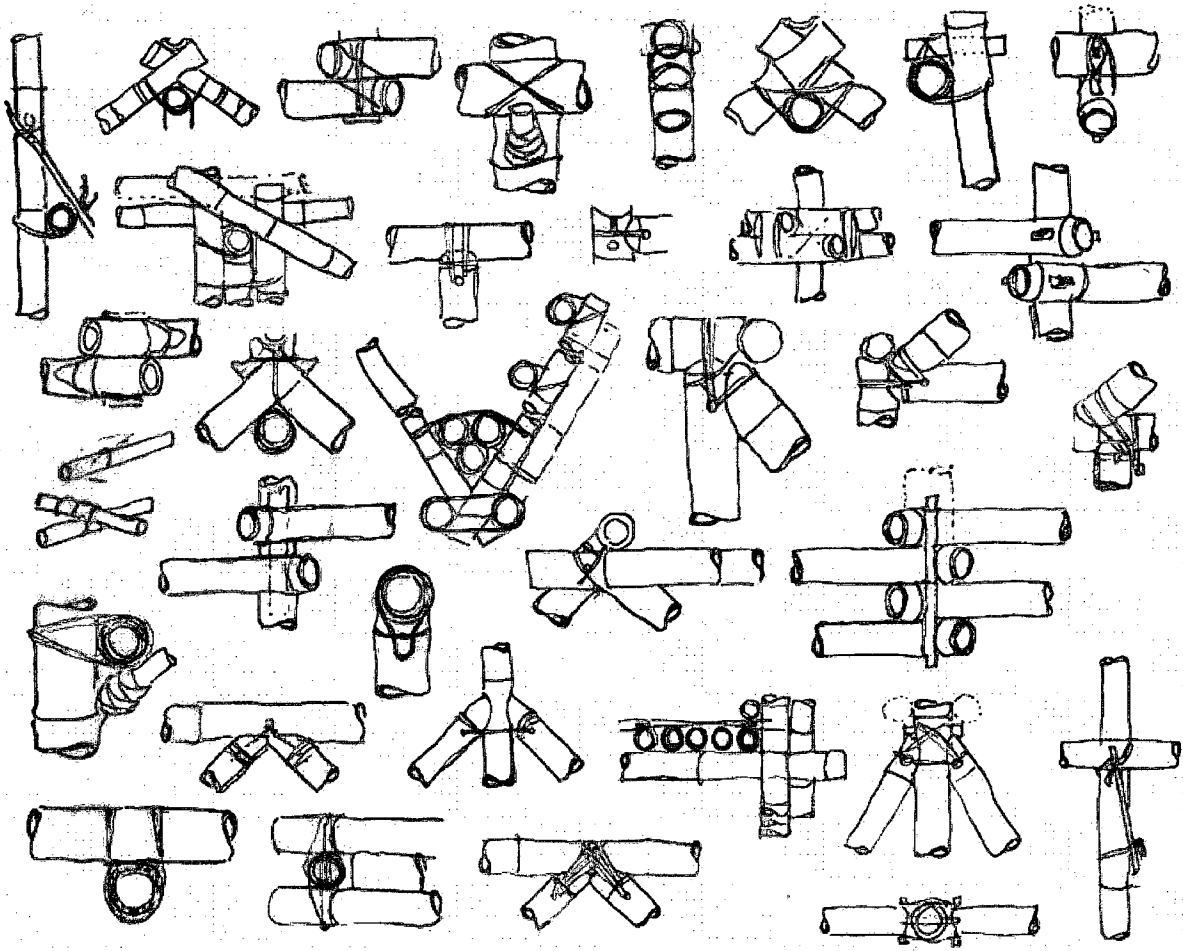
SOURCE: DUNKELBERG'S IL 31-BAMBUS BAMBOO

where bamboo typically flourishes

SOURCE: FARRELLY'S THE BOOK OF BAMBOO
bamboo uses

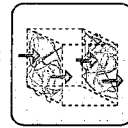
A-Framehouses_acupuncture needles_anchors_a rows_awnings_bagpipes_barrels_baskets_beads_beds_beehives
 b i k e s _ b l i n d s _ b o a r d s
 _boats_bolts_bookcases_books_bottles_bowls_bows_boxes_bracelets_bridges_brooms_brushes_buckets_buttons
 cables_cages_candlesticks_canes_canteens_carts_castanets_caulking_chairs_charcoal_chicken coops (double letter
 s c o r e !) _ c h i s e l s _ c h o p s t i c k s _ c i g a r e t t e
 holders_clothesracks_colanders_combs_cradles_crates_cribs_crosses_crutches_cups_curtains_
 dams_deodorizers_desks_diapers_dikes_dirigible_dolls_domes_dowelpins_dustpans_eggcups_engineered
 flooring_fans_fences_fenders for ships/docks_fertilizer_firearms_firewood_fishnets_fishing_poles_flagpoles_flooring_
 f l u t e s _ f o o d
 _forms for concrete_frames for photos_furniture_gates_greenhouses_guns_gutters_hairpins_hampers_handles_hats_
 helmets_hinges_hoops_hookahs_houses_humidors_incense_insect cages_irrigation water wheels and pipes_jackets_
 j a r s _ j e a n s _ j e w e l r y
 _junks_kiosk_kite frame_lacquerware_ladders_ladles_lampshades_landing docks_landscaping_lanterns_laundry_poles_
 levees_light_bulb_filament_lofts_looms_markers_masts_mattress_medicines_mills mobiles_musical instruments
 _nails_napkin rings_needles for knitting_nets_organs_ornaments_outdoor furniture_oyster cultivation_racks_packaging_
 p a p e r p u l p _ p e g s _ p e n s _ p i l l o w s
 _pins_pipes_plates_plybamboo_poles_polo balls_polo mallets_posts_pots_propellers_quiltbatting_quilts_racks_rafts_
 raincoats_rakes_rattles_rayon_reeds for instruments_reinforcement for concrete/adobe_rings_roofing_ropes_rulers
 _ s a i l c o v e r s _ s a i l s _ s a k e _ s a n d a l s _
 scaffolding_scarecrows_screens_shades_sheaths for knives_shields_shingles_shoehorns_shovels_sieves_skewers_ski
 poles_spears_splints_stakesstilts_stools_string_swimming pools_tables_tableware_teahouses_tea strainers_tea
 w h i s k s _ t e n t s _ t e x t i l e s _ t h a t c h
 _tiles_tokens_tongue depressors_toothpicks_torches_towers_toys_traps_trays_tree houses_trellises_trestles_troughs_
 t r u m p e t s _ t u b s _ t w i n e
 _umbrella_vase_violin_wagons_walls_waterjugs_waxes_weapons_wheelbarrow_whips_whistles_windbreaks_windmills_
 x y l o p h o n e
 _yoga pants_yurts_zither

SOURCE: FARRELLY'S THE BOOK OF BAMBOO
bamboo pulp magnified 75 x
(*guadua angustifolia*)

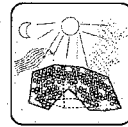


SOURCE: DUNKELBERG'S IL-31 BAMBUS BAMBOO
bamboo joints commonly used for
rafters and joists; fences and walls

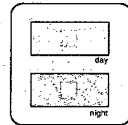
DESIGN



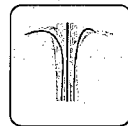
[a] porosity gradient



[b] permeable membrane

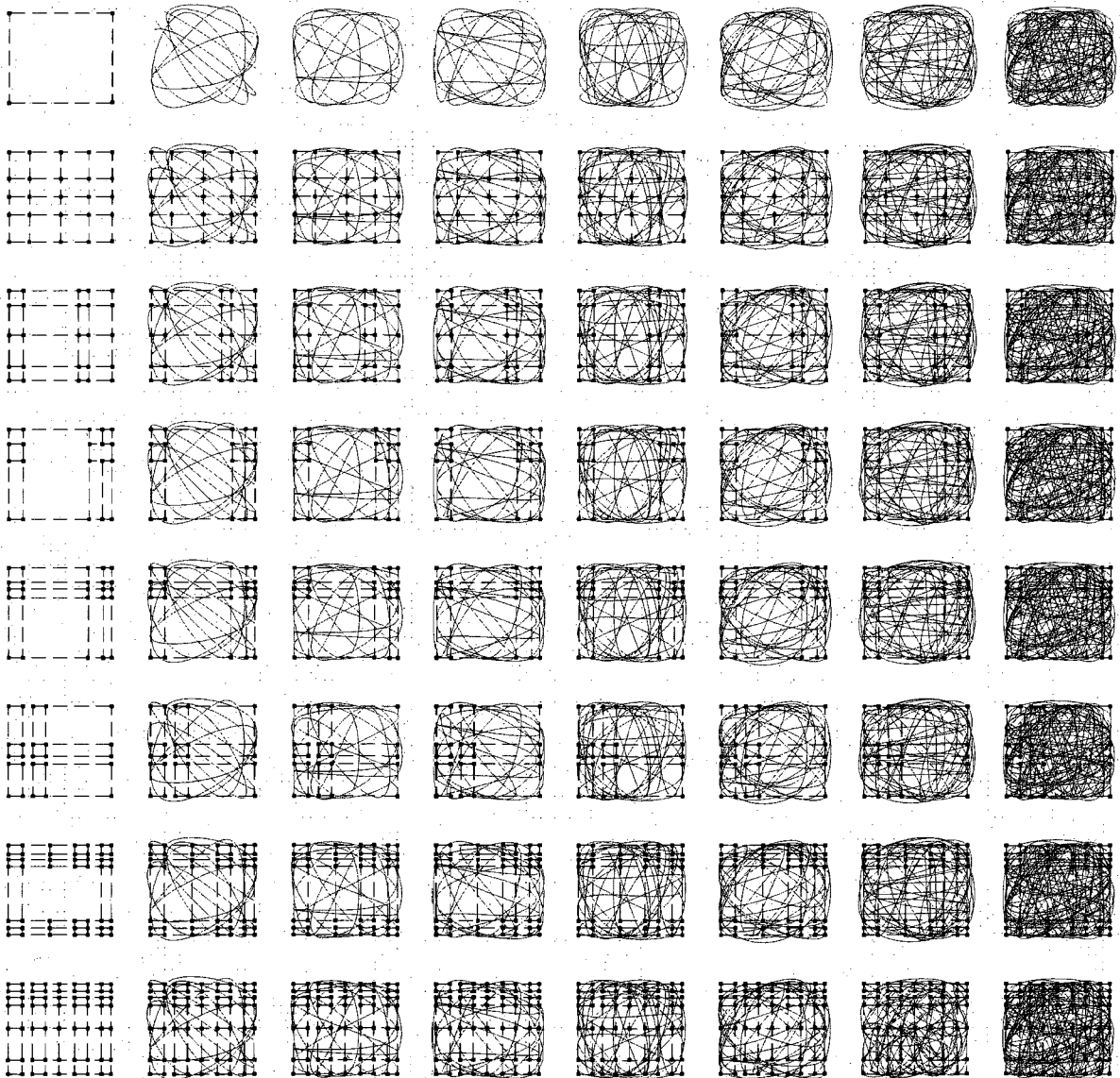
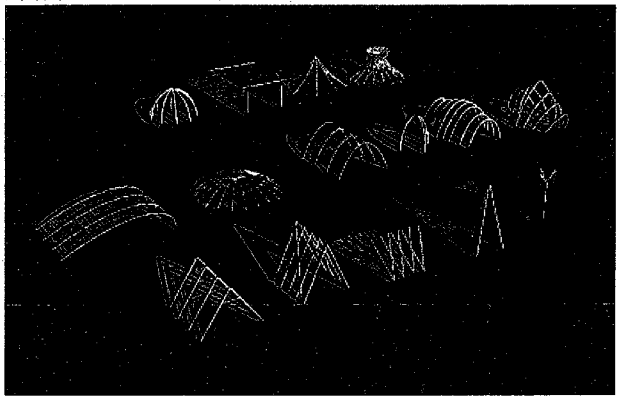


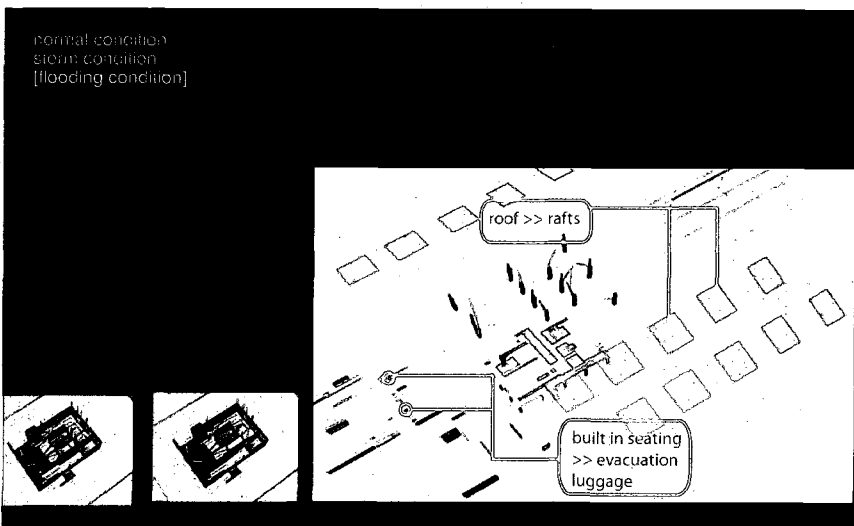
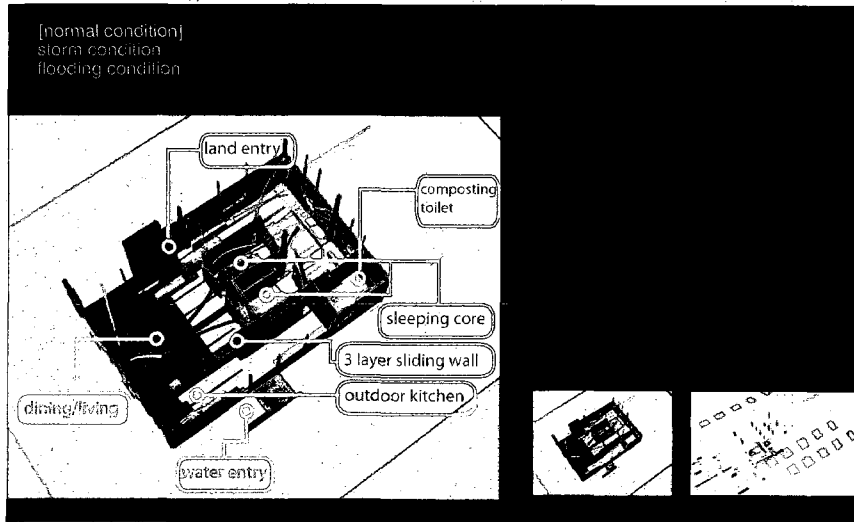
[c] open/closed plan



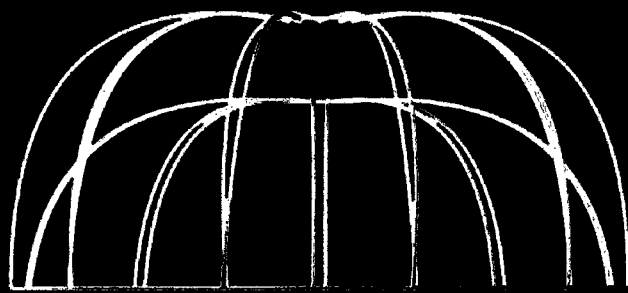
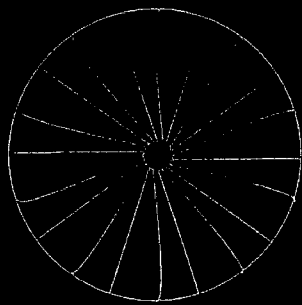
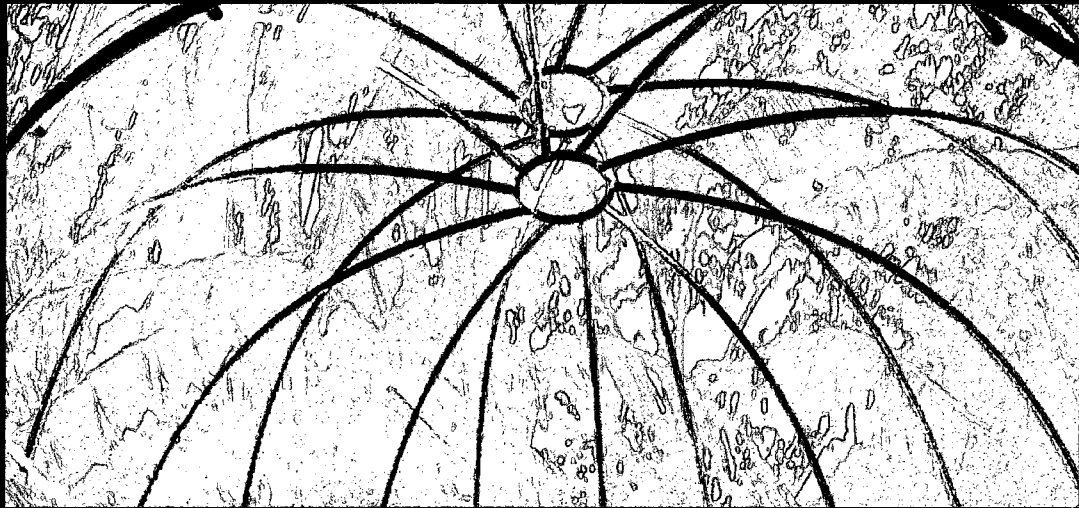
[d] flexibility

[concepts]

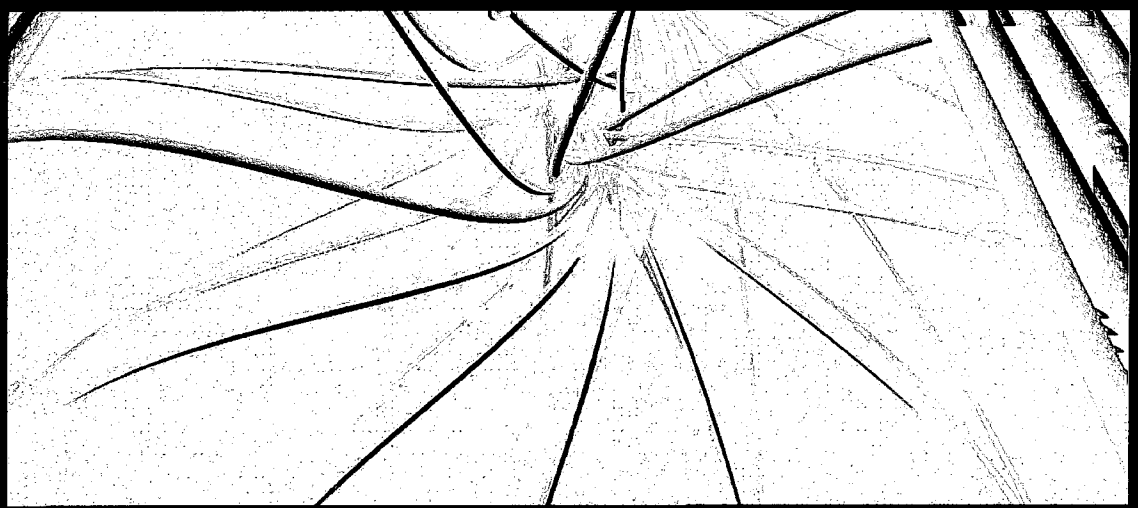




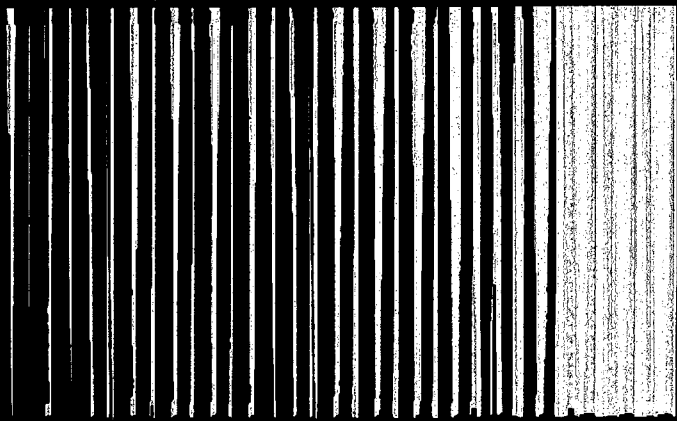
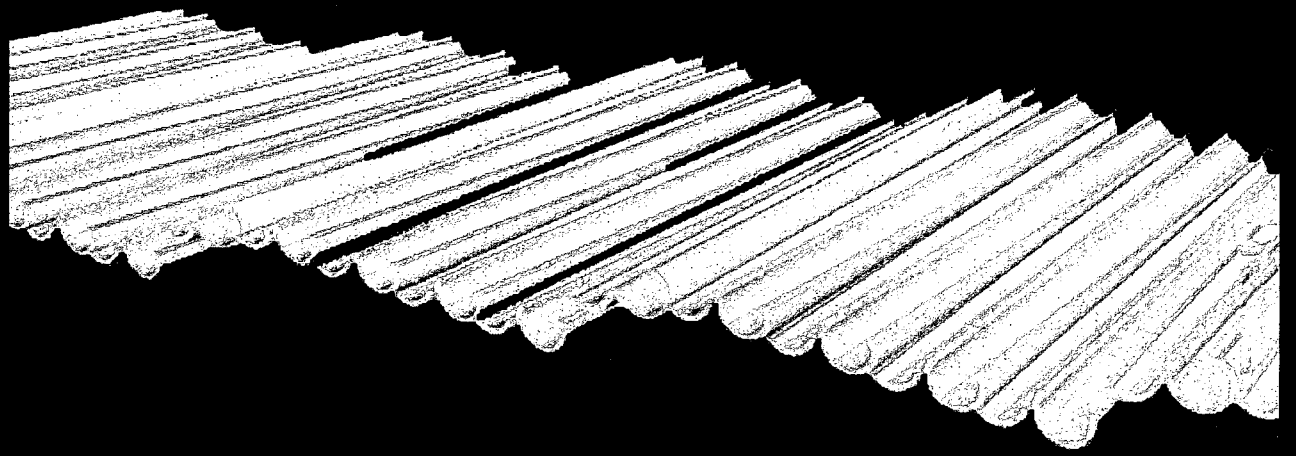
scheme 1: layered basket



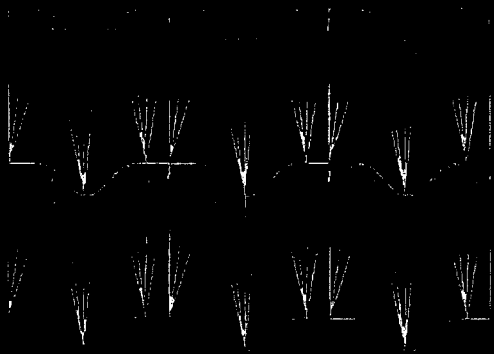
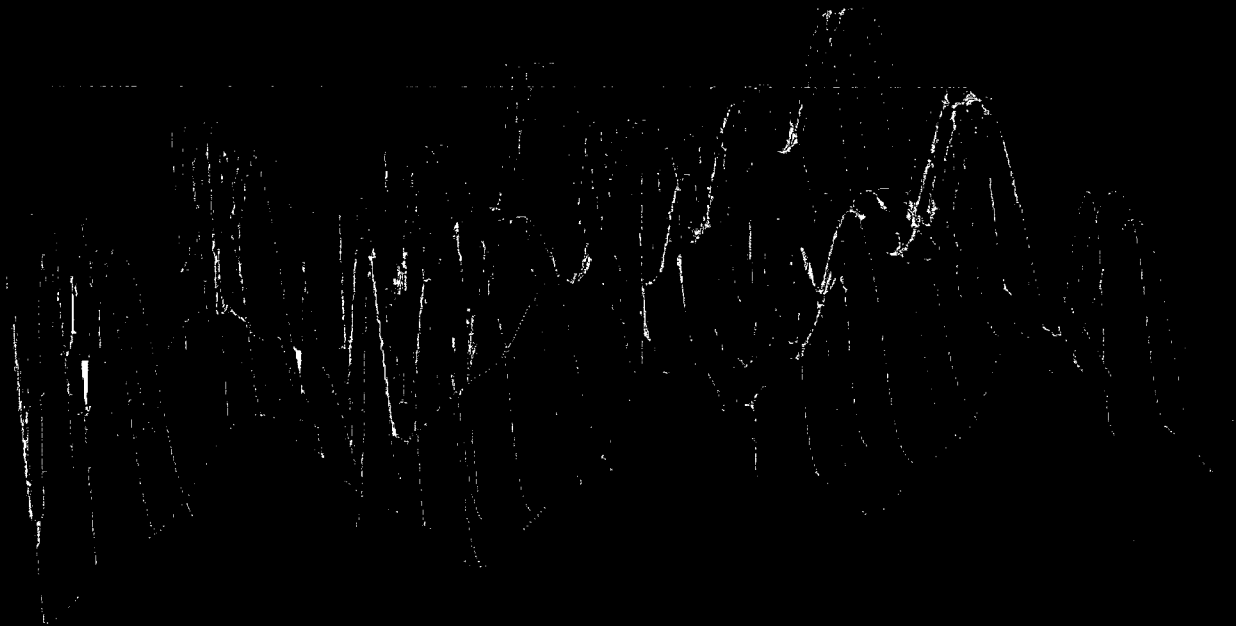
scheme 2: twisted dome



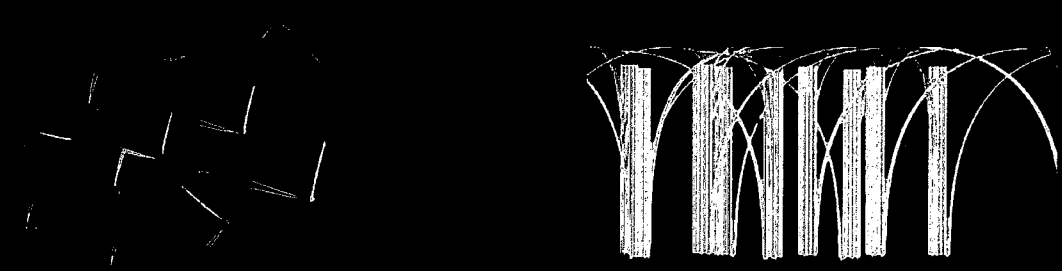
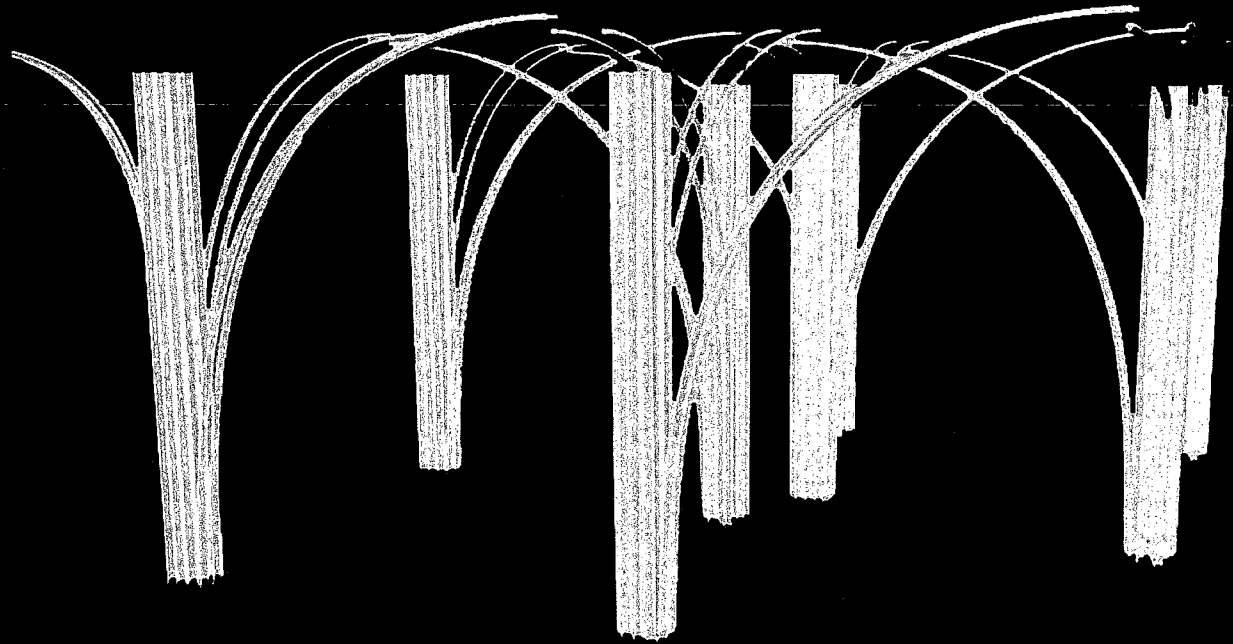
scheme 3: splice



scheme 4: ridges



scheme 5: bundled arches



BIBLIOGRAPHY

Alessio, Lorena. **Shigeru Ban**. Roma: Edil Stampa, 2008.

Altman, Daniel. **Connected: 24 Hours in the Global Economy**. New York: Farrar, Straus and Giroux, 2007.

Architecture for Humanity. **Design like you give a damn**. New York: Metropolis Books, 2006.

Associated Press. "Bosnia grave had more than 600 victims." **New York Times**. 23 Nov. 2007. <http://www.nytimes.com/aponline/world/AP-Bosnia-Mass-Grave.html>

Bennett-Jones, Owen. (5 Oct. 2000.) "Vietnam flood victims face crocs threat." Retrieved 26 Jan. 2009 from **BBC** Web site: <http://news.bbc.co.uk/2/hi/asia-pacific/957273.stm>

Brocheux, Pierre. **The Mekong Delta: Ecology, Economy and Revolution, 1860-1960**. Madison: University of Wisconsin-Madison, 1995.

Bumiller, Elisabeth. "300 advisers shape Obama's Foreign Policy." 18 July 2008. **New York Times**. http://www.nytimes.com/2008/07/18/us/politics/18advisers.html?_r=1

Clark, Nicola. "The Prince and his palace: A 6,400-square-foot getaway that flies." **New York Times**. 13 Nov. 2007. <http://www.nytimes.com/2007/11/13/business/worldbusiness/13plane.html>

Colomina, Beatriz. **Domesticity at War**. Cambridge: The MIT Press, 2007.

Colomina, Beatriz. **Privacy and Publicity: Modern Architecture as Mass Media**. Cambridge: The MIT Press, 1994.

Dean, Andrea Oppenheimer and Timothy Hursley. **Rural Studio: Samuel Mockbee and an Architecture of Decency**. New York: Princeton Architectural Press, 2002.

Diokno, Maria Serena I. and Chinh Van Nguyen. **The Mekong Arranged and Rearranged**. Chiang Mai: Mekong Press, 2006.

- Dun, Olivia. (2008.) "Migration and displacement triggered by flood regime change in the Mekong Delta, Vietnam." Retrieved 25 Jan. 2009, from United Nations University Institute for Environment and Human Security Web site: <http://www.ehs.unu.edu/file.php?id=432>
- Dunkelberg, Klaus. **IL 31 Bambus – Bamboo: Bamboo as a Building Material.** Stuttgart: Institute for Lightweight Structures, 1985.
- Farrelly, David. **The Book of Bamboo.** San Francisco: Sierra Club Books, 1984.
- Gargan, Edward A. **The River's Tale: A Year on the Mekong.** New York: Alfred A.Knopf, 2002.
- Ghirardo, Diane. **Architecture after modernism.** London: Thames and Hudson, 1996.
- Gupta, Avijit. **The Physical Geography of Southeast Asia.** New York: Oxford University Press, 2005.
- Hiebert, Murray. **Vietnam Notebook.** Hong Kong: Review Publishing Co., 1994.
- Jencks, Charles and Karl Kropf, eds. **Theories and Manifestoes of Contemporary Architecture.** West Sussex: Academy Editions, 1997.
- Koolhaas, Rem. **Content.** New York: Taschen, 2004.
- Krugman, Paul. **Geography and Trade.** Cambridge: The MIT Press, 1993.
- Le, Anh Tuan, Tran Thi Trieu and Nguyen Hieu Trung.(2007.) "Adaptation to Flood in the Mekong Delta." Retrieved 25 Jan. 2009 from Unit for Social and Environmental Research Web site: http://www.sea-user.org/download_pubdoc.php?doc=3441
- Le Corbusier. **Une petite Maison.** Zurich: Artemis, 1992.
- Leigh, Alan. (2001.) "Vietnam's Mekong delta suffers third year of flooding." Retrieved 25 Jan. 2009, from World Socialist Web site: <http://www.wsws.org/articles/2001/oct2001/viet-o18.shtml>

Malkin, Elizabeth. "Mexican floods push families to last islands of home." **New York Times**. 8 Nov. 2007. http://www.nytimes.com/2007/11/08/world/americas/08mexico.html?_r=1&_

Mankad, Raj. "On Budget, Off Grid: Solar Power Made Affordable." **Cite**. Fall 2008: 12.

Marcus, Jonathan. "The long shadow of Vietnam." **BBC**. 25 Nov. 2007. http://news.bbc.co.uk/2/hi/middle_east/7109929.stm

McClure, F.A. **The Bamboos: A Fresh Perspective**. Cambridge: Harvard University Press, 1967.

McKinley, Jesse. "Cities deal with a surge in shanty towns." **New York Times**. 25 March 2009. <http://www.nytimes.com/2009/03/26/us/26tents.html>

McMurtry, John. **Unequal Freedoms: The Global Market as an Ethical System**. West Hartford: Kumarian Press, 1998.

Mydans, Seth. "Inflation delivers a blow to Vietnam's Spirits." **New York Times**. 23 Aug. 2008. <http://www.newyorktimes.com/2008/08/24/world.asia/24viet/.html>

Nguyen, Huu Ninh. (2007.) "Flooding in Mekong River Delta, Vietnam." Retrieved 25 Jan. 2009 from Climatic Research Unit of University of East Anglia, UK Web site: <http://www.cru.uea.ac.uk/tiempo/annex/cered/HDR07.pdf>

Ourousoff, Nicolai. "Instant Houses, Then and Now." **New York Times**. 18 July 2008. <http://www.newyorktimes.com/2008/07/18/arts/design/18dwel.html>

Peters, Robert L. **Worldwide Identity**. Gloucester: Rockport Publishers, 2005.

Pham, Andrew X. **Catfish and Mandala: A Two-Wheeled Voyage through the Landscape and Memory of Vietnam**. New York: Farrar, Straus and Giroux, 1999.

Ponciroli, Virginia, ed. **Katsura: Imperial Villa**. Milan: Electa Architecture, 2005.

- Richardson, Phyllis. **XS: Big Ideas, Small Buildings**. New York: Universe, 2001.
- Sheridan, Greg. **Cities of the Hot Zone**. Crows Nest: Allen & Unwin, 2003.
- Shigeru Ban: An Architect for Emergencies**. Dir. Michel Quinejure. 2006. DVD. First Run/Icarus Films, 2006.
- Slavid, Ruth. **Micro: Very Small Buildings**. London: Laurence King Publishing Ltd., 2007.
- Steffy, Loren. "After Hurricane Ike, hardship and hope in Galveston." *Houston Chronicle*. 13 March 2009. <http://www.chron.com/disp/story/mp/business/6310616.html>
- Spoor, Max, Nico Heerink and Futian Qu, eds. **Dragons with Clay Feet: Transition, Sustainable Land Use, and Rural Environment in China and Vietnam**. Lanham: Lexington Books, 2007.
- Timmons, Heather and J. Adam Huggins. "New York manhole covers, Forged bare foot in India." 27 Nov. 2007. **New York Times**. http://www.nytimes.com/2007/11/26/nyregion/26manhole.html?_r=1&o
- Tran, Dinh V. "Hue: My City, Myself." **National Geographic**. Nov. 1989: 594-603.
- Velez, Simon and Bamboo Architecture. **Grow Your Own House**. Weil am Rhein: Vitra Design Museum, 2000.
- Vietnam: Rice around the world. Retrieved 5 Sept. 2008 from International Rice Research Institute Web site: www.irri.org/science/cnyinfo/vietnam.asp
- Villegas, Marcelo. **New Bamboo: Architecture and Design**. Bogota: Villegas Editores, 2003.
- White, Peter T. "Saigon: Fourteen Years After." **National Geographic**. Nov. 1989: 604-621.
- White, Peter T. "Hanoi: The Capital Today." **National Geographic**. Nov. 1989: 561-593.