

## Using the Concept of Adaptive Capacity to Explore The "Urban Security" Approach in Kigamboni New City Project

Liana Ricci

liana.ricci@uniroma1.it







## **Background Questions**

- How to adapt to environmental changes in fast growing (and informal) cities in sub-Saharan Africa city (In Dar es Salaam 70-80% are informal settlements and 2/3 are highly mixed rural-urban areas)
- FOCUS: reduce vulnerability by supporting/enhancing
   Adaptive Capacity (both institutional and autonomous adaptive capacity)





# Vulnerability



Vulnerability ...the propensity or predisposition to be adversely affected

...is a result of diverse historical, social, economic, political, cultural, institutional, natural resource, and environmental conditions and processes.

The fundamentally social connotation and 'predictive' value of vulnerability is emphasized . ... The social context is emphasized explicitly, and vulnerability is considered independent of physical events (IPCC, 2012)







# Vulnerability, Adaptive Capacity and Enabling Context

**Capacity** refers to the combination of all the strengths, attributes, and resources available to an individual, community, society, or organization that can be used to achieve established goals. This includes **the conditions and characteristics that permit** society at large (institutions, local groups, individuals, etc.) **access to and use** of social, economic, psychological, cultural, and **livelihood-related natural resources**, as well as access to the information and the institutions of governance necessary to reduce vulnerability and deal with the consequences of disaster. (extending Sen, 1983).







# Urban Infrastructure and Adaptive Capacity

Emphasis on the strong relation between **urban infrastructure** and **adaptive capacity** in African cities and in urban areas in general.

#### EQUATIONS ?

- better infrastructure = higher adaptive capacity (es. transport, water supply, etc.)
- lack of (modern steel and cement) infrastructure = vulnerability





### Role of Urban Infrastructure

System of urban infrastructures as 'socio-technical' systems are critical as they:

 structure a major part of the material metabolism <u>in industrialized</u> <u>societies</u>. They source, use, and transform huge amounts of natural resources. At the same time they are key **catalysts of environmental problems** like air, water, and soil pollution, and nuclear risks, and they make a major contribution to global warming. (Monstadt 2009: 926 cited in Bulkeley, 2010)

...liberalisation, privatisation, new technologies and regulatory ambitions have served to create a '**splintered**' urban landscape across, in particular, cities in North America and Europe which used to be dominated by a universal model of service provision (Graham and Marvin 2001, Coutard and Rutherford 2010)

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From "localist" to new politics of climate change in urban areas

Secure Urbanism and Resilient Infrastructure (Hodson and Marvin, 2010)

VS

Transition Town (alternative development)





# Secure Urbanism and Resilient Infrastructure

# Defend the city and its infrastructure in order to guarantee ecological and material reproduction

Carbon control era in the global cites (London, New York, Los Angeles, Mexico City and Cape Town): reducing GHG, enanching security and indipendence in energy supply for cities and reducing the energy cost for the residents

- Strategic protection against the impacts of climate change (specific long-term strategies),
- Autarchy or self-sufficiency in the provisioning of resources, goods and services, the
- Construction of Urban Agglomerations with efficient and closed systems for energy and transportation, are the three principles upon which UES is based

(Hodson and Marvin, 2009).



New Cities- eco-cities in Arab States, Latin America & Caribbean, Sub-Saharan Africa, Asia (e.g. Masdar City)





Site area 64,944,000 m2

## Kigamboni New City, Dar es Salaam









## Kigamboni New City, Dar es Salaam

Site area 64,944,000 m2





Source: http://www.ardhi.go.tz/kigamboni-new-city.html



### Kigamboni New city, DSM









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### Kigamboni New city, DSM

Dar es Salaam waterfront









http://www.youtube.com/watch?v=TwpZVFitNcg&feature=related





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Seoul Korea Usafiri na Usafirishaji Kuala Lumpur Malaysia Usafiri na Usafirishaji

Source: http://www.ardhi.go.tz/kigamboni-new-city.html





## **KNC** Implementation



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Source: http://www.ardhi.go.tz/kigamboni-new-city.html



# **KNC** Implementation

PENTA PORT

eative

The future of Africa!!

Transportation & Industrial hub connecting Africa to the Indian Ocean

The source of national economic growth through global business, tourism resort, advanced education and high-quality residence

#### PENTA PORT of Tanzania

City of International Exchange

- □ City of Ocean Tour
- City of Convenience and Safety
- City of Education
- City of High-Technology Industry



Source: http://www.ardhi.go.tz/kigamboni-new-city.html

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Residential

464.46

# Infrastructure Plan

- Water Supply Plan
- Sewage Management
   Plan
- Solid Waste Management Plan
- Power Supply Plan
- ICT Plan





Source: http://www.ardhi.go.tz/kigamboni-new-city.html



#### PLANNING FOR RESILIENT CITIES AND

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### Planning in Dar es Salaam

Year of Publicat ion	Title and Content		Consultants G		Some of the Major Planning Concepts				
1949	<ul> <li>A Plan for Dar es Salaam (158pp + 12pp of appendices)</li> </ul>		Alexander Gibbs and Partners, London (1947-1949)	Britain	Zoning of functions Zoning of residential areas according to density and race Neighbourhood Unit "Breeze lane", open spaces provision Non-geometric street layouts Density and building standards				
1968	1968								
1979	<ul> <li>Dar es Sala Plan: Sumr Report (10</li> <li>Five Year D Programm</li> <li>Technical S</li> </ul>	am Master nary Main 4pp) Development e (60pp) Gupplements	Marshall. Macklin, Monaghan Sweden Ltd, Toronto (Nov. 1977 - April 1979)	Sweden	Flexibility—population attained rather than target years Hierarchical urban structure based on planning module. Subclassification of residential areas/recognition of squatter areas Participation of implementing agencies Detailed implementation programme including 47 priority projects.				
2020-2030 (not yet published)	- New Master Plan for Dar es Salaam City 2010-2030 (Dodi, 2011)		International Consortium: Dodi Moss LLC (Milan), Buro Happold Ltd (London), Q Consult Ltd, and Afri- Arch Associates (Dar es Salaam)	Italy, Great Britain and Tanzania	<ul> <li>Strategic objectives:</li> <li>Make Dar es Salaam a city leader in Tanzania and a central metropolis for all of Eastern Africa</li> <li>Address the main critical issues, including traffic and transport, infrastructure and informal settlements</li> </ul>				
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# Investigating the Adaptive Capacity

Exploring coping strategies

- Data source 6000 household questionnaire in PU Dar es Salaam
- Land Cover Classification
- Environmental features and characteristics
- Participatory Forum Theatre









# Household Survery

6000 HHQQ in Dar (5%)

**16**/86 Kata (wards)

73/447 Mitaa (subwards)

In Dar's coastal plain:

- Socio-economic heterogeneity
- Different environmental contexts
- Stably settled (at least 5 years)
- Livelihood dependent on ruralurban activities
- Rural-Urban features and lowmedium density settlements





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Activity 1.1



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Municipality	Ward	HHQQ (n.)	% of Municipality	% of Total
Ilala	Pugu Upanga Masbariki	434	36.7%	7.4%
(n. 1184)	Chanika Msongola	485 210	4.0% 41.0% 17.7%	0.9% 8.3% 3.6%
	Bunju	411	13.4%	7.0%
	Kawe	334	10.9%	5.7%
Kinondoni	Kunduchi	1399	45.7%	23.9%
(n. 3064)	Manzese	54	1.8%	0.9%
	Mbweni	79	2.6%	1.3%
	Msasani	787	25.7%	13.4%
	Charambe	35	2.2%	0.6%
	Keko	599	37.2%	10.2%
Temeke	Kigamboni	512	31.8%	8.7%
(n. 1612)	Kimbiji	70	4.3%	1.2%
	Makangarawe	156	9.7%	2.7%
	Somangira	240	14.9%	4.1%
Total		5860		100.0%















#### PLANNING FOR RESILIENT CITIES AND REGIONS COmplex Infrastructure System





### Participatory Forum Theatre People as Infrastructure



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# The Way Forward?

Is needed a re-coneptualisation of urban infrastructure departing from social network, "people as infrastructure". How this concept can be used to design an alternative infrastructure vision to:

- Avoid self-employment social/environmental justice
- Be flexible able to deal with uncertainty of environmental change and of urban growth patterns
- Support/increase local adaptive capacity

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**ACC DAR** Adapting to Climate Change in Coastal Dar es Salaam







www.planning4adaptation.eu



Liana Ricci

liana.ricci@uniroma1.it

