

Outcome oriented geospatial applications in research; Urban Harvest experiences

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Contents of the presentation

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System wide and Ecoregional Programs (SWEPS)



Why is urban agriculture important?

- **The Issue: urbanization and poverty growth in a deteriorating environment**
 - Half the world's population now lives in towns or cities and by 2020, this is expected to rise to 60%. implications for the situation of food security, poverty, and unemployment in these regions, which typically lack infrastructure and experience economic and political instability
- **The Response: an integrated agricultural research response**
 - Pool research knowledge and resources at national and international levels to better understand and address the complex interplay of food security, income needs, and the ecological, social, and institutional particularities of towns and cities.
- The [Consultative Group on International Agricultural Research \(CGIAR\)](#) is a unique global partnership for agriculture with 15 food and environmental research centers around the world which it supports referred to as Future Harvest.
- Several [Future Harvest research centers](#) have already implemented research projects in urban and peri-urban agriculture.

About Urban Harvest

- Launched in 1999 by the CGIAR initiative to direct and coordinate the collective knowledge and technologies of the Future Harvest Centers towards strengthening urban and peri-urban agriculture (UPA).
- The Initiative, formerly known by its acronym SIUPA, and now renamed **Urban Harvest**, helps Centers link together their own efforts and become partners with many national and international efforts.

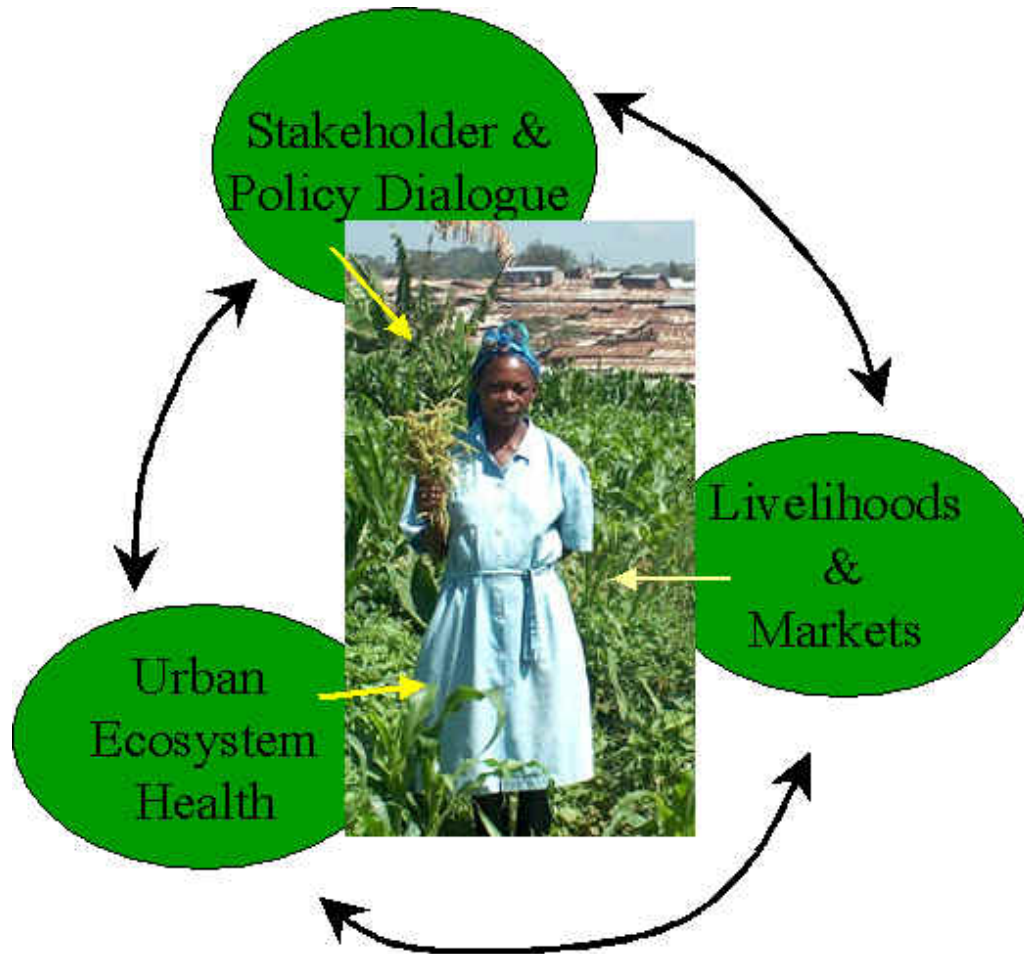
The goals of Urban Harvest

- Contribute to enhanced food security, improved nutrition and higher incomes for poor urban and peri-urban families
- Reduce the negative environmental impact of UPA and enhance its positive potential for sustainability
- Establish the perception of UPA as a productive, essential component of sustainable cities

Research Framework

- Research framework focuses on three essential themes in UPA which provide the basis for guiding activities at the practical level of research and development projects in regional settings, as well as in alliance-building initiatives at global and regional level.

Research Framework



Urban livelihoods and markets: research questions

- What are the livelihoods contributions of urban and peri-urban agriculture?
- How can rural-urban resource flows and markets bring bigger benefits to poor rural and urban households?
- Changes in which factors of production offer the best route to profitability and sustainability of urban production systems?
- What key opportunities exist for better integrating crop and livestock agro-enterprises with each other and with urban markets?
- What does local agriculture contribute to urban nutrition?

Stakeholder and policy analysis, dialogue: research questions

- What are the key interests, knowledge and demands of types of stakeholders vis a vis urban agriculture?
- What positive and negative effects do urban institutions/ policies have on agriculture?
- What kinds of dialogue, stakeholder platforms and interventions contribute to structural and policy change?
- What urban resource use models can improve integration of UA in policy and planning?

Urban ecosystem health: research questions

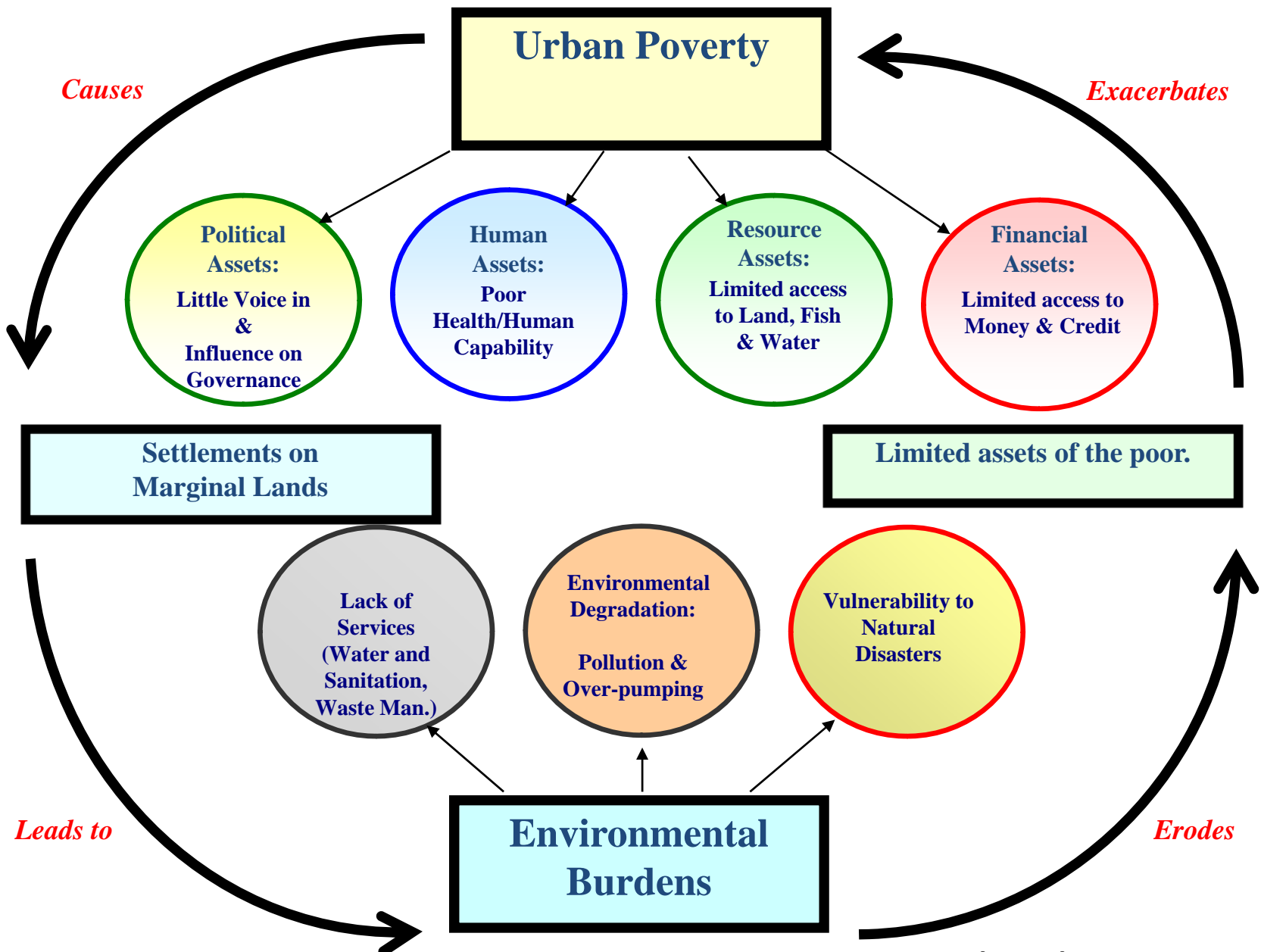
- What are the contaminant and disease pathways affecting humans which involve UA?
- What are the risks/benefits of liquid and solid waste use?
- How can contaminants and zoonoses be managed?
- What are the effects of changing urban NR use on agriculture?
- How can UPA contribute to a healthier urban environment?
- How can use of organic wastes in UPA be improved?

Methods and entry point of geospatial science and technology

- Basic and participatory research methods
- Geospatial analytical methodologies
- Participatory GIS
- Action-research approaches in Policy analysis, reform and change

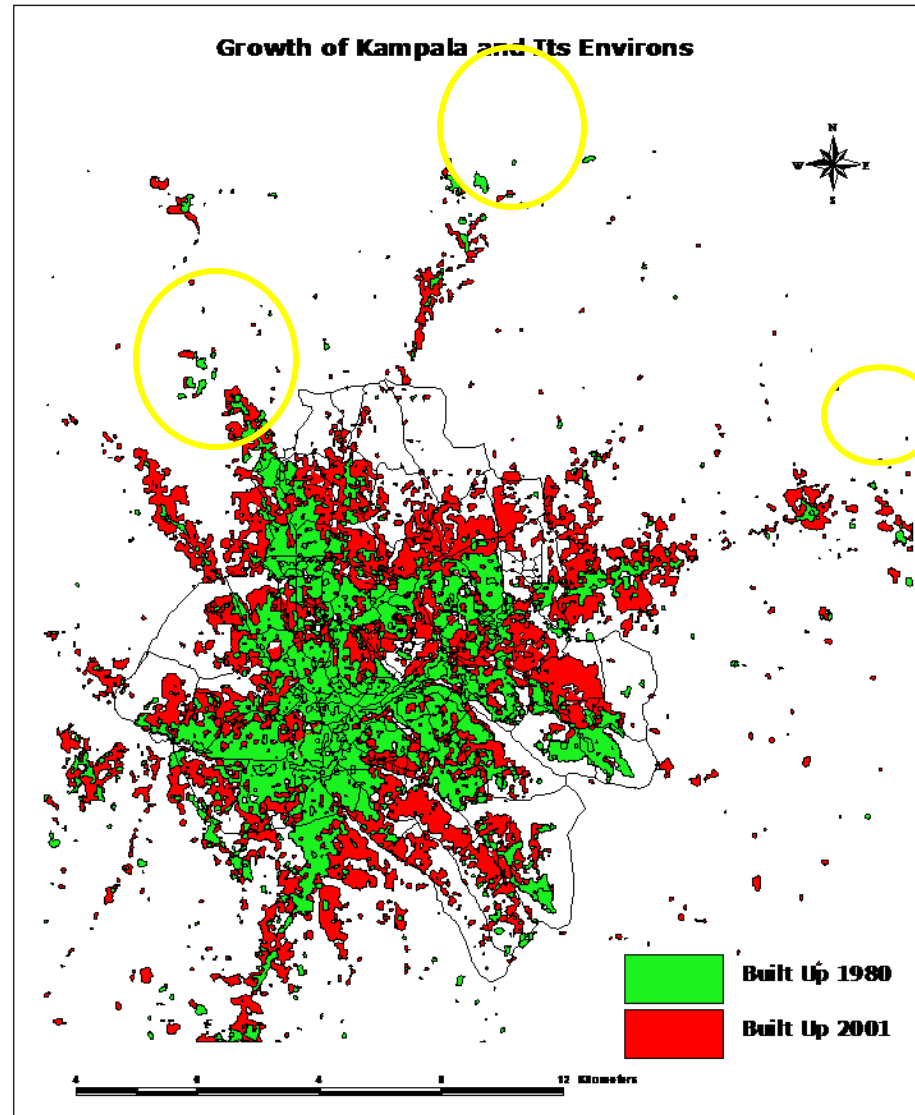
Examples

- GIS mapping and modeling of flood experiences
- Participatory mapping and assessment of local environment

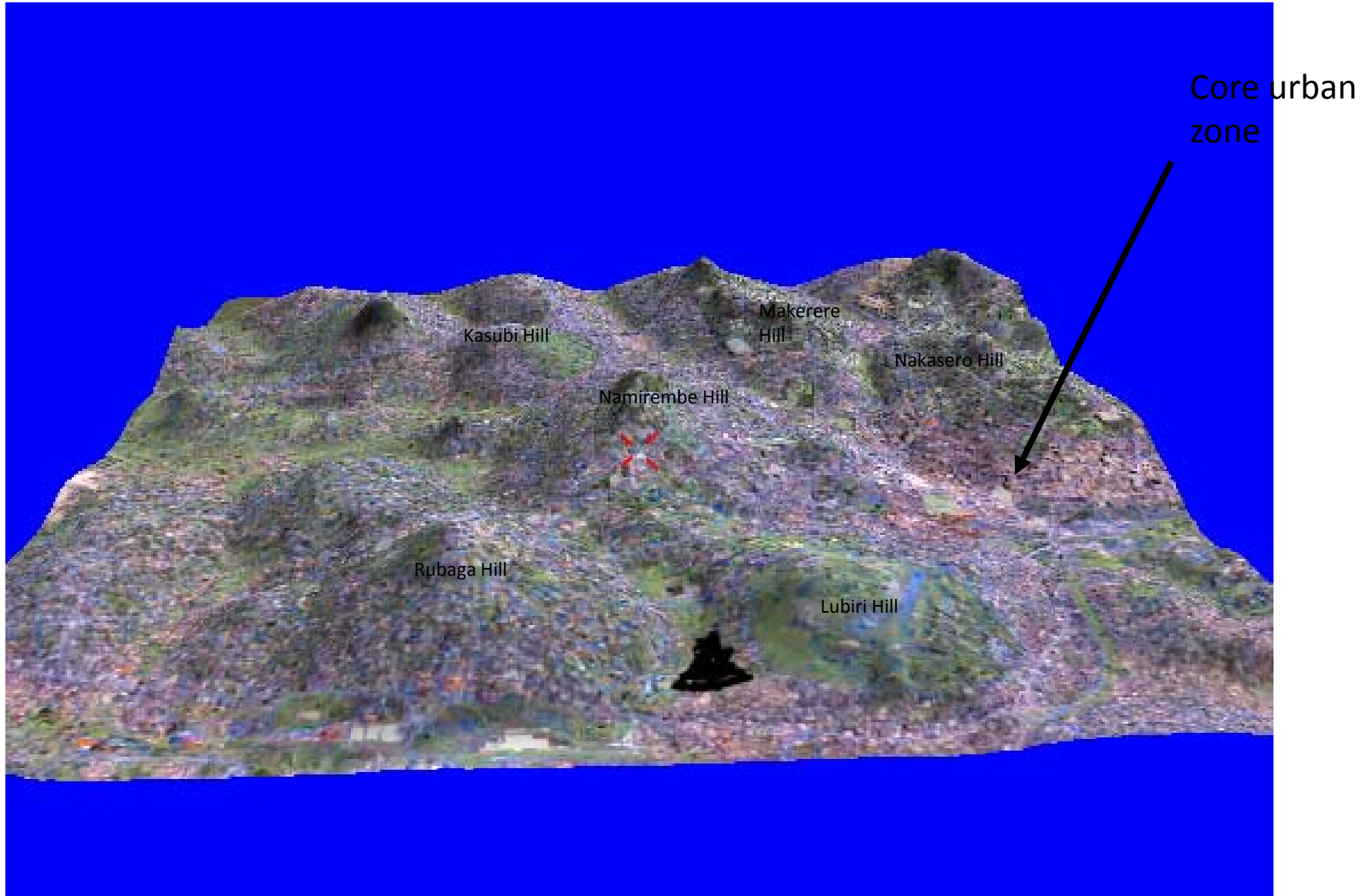


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Remote sensing and tracking peri-urban developments

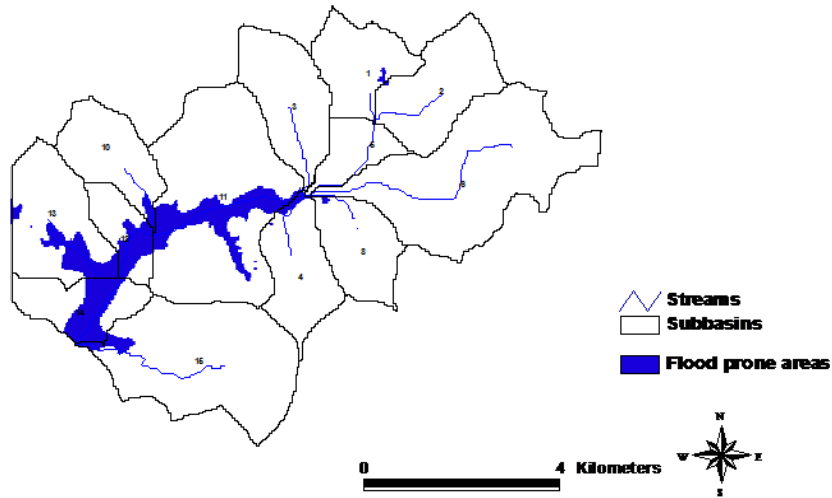


Urban Sprawl in Kampala

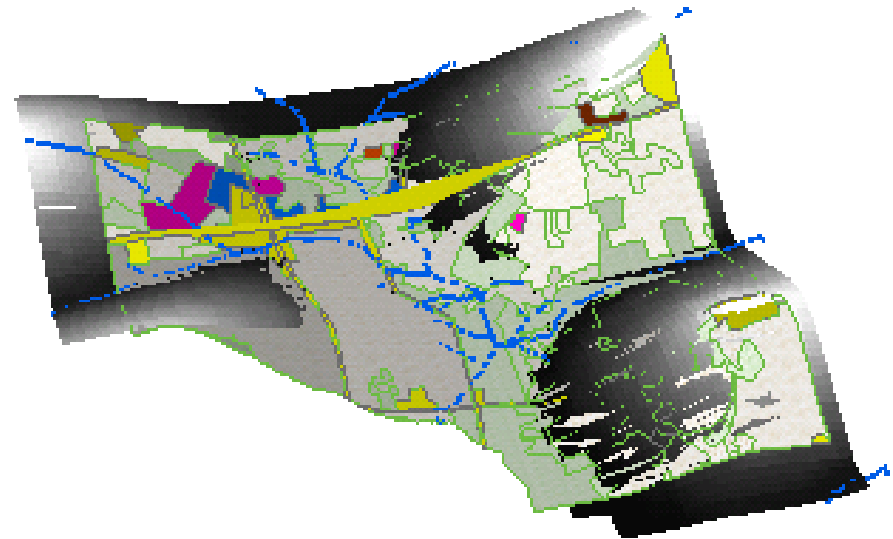


Integrated RS&GIS Applications in search for local solutions

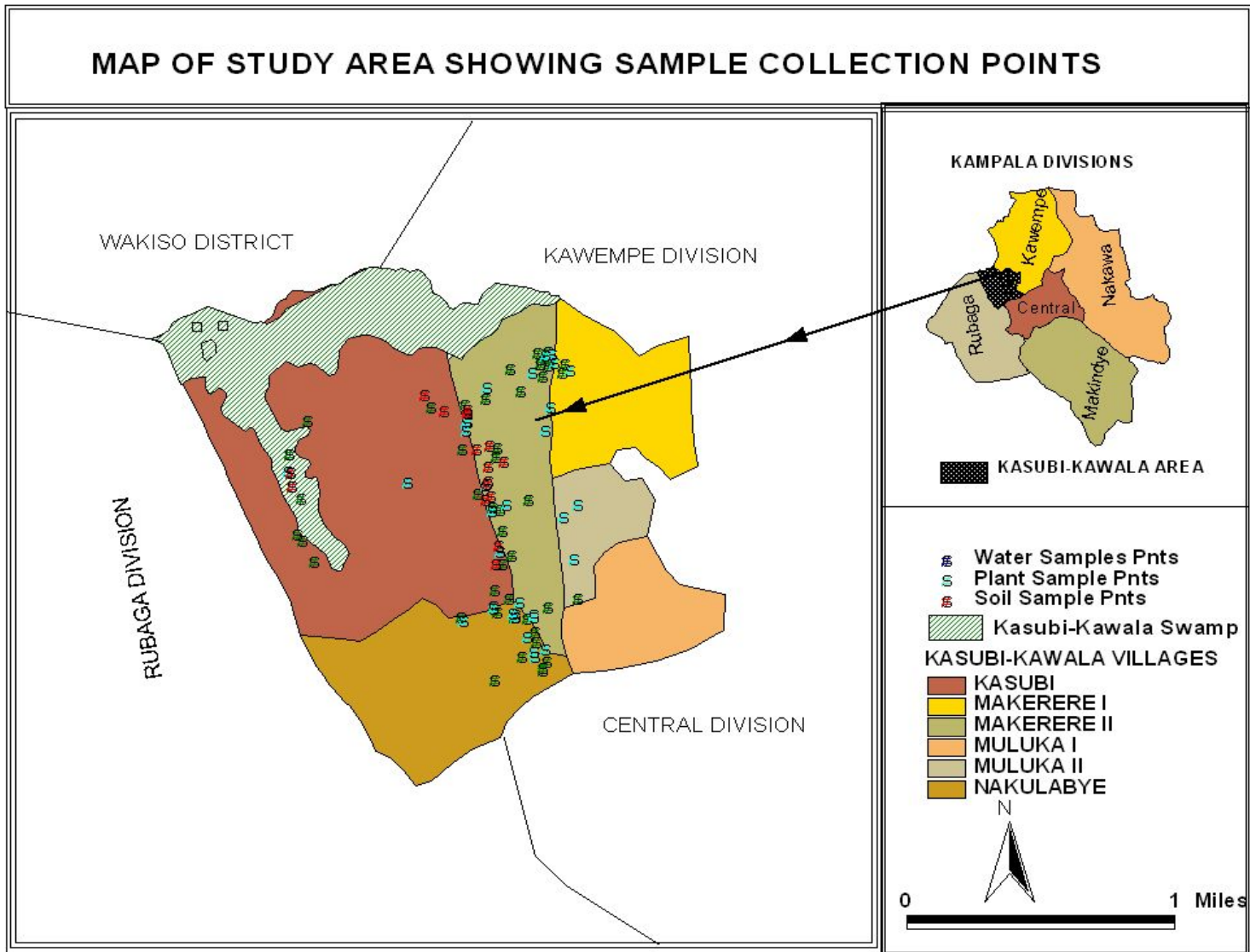
Flood assessment



Land use change analysis and vulnerability assessment



Linking participatory maps with GIS



Results

Sampling Location	Coliform Level*	E. Coli Level*
Tributary Stream	28200	1110
Kiwunya Mainstream	46300	5950
Drainage Channel	400000	32000
Main Drainage Channel	161000	121000
Protected Spring	1980	540
Floodplain and waste dumps	6400	40
Communal dumping site	4600	150

* colony forming units per milliliter, WHO and national standards for safe water are
0 cfu/ml

On-going research

- PGIS in health mapping
- Material flows (wastes, produce)
- Production and marketing linkages
- Visualization tool for policy influence and decision support

Concluding remarks

- The irrevocable urbanization of Africa makes observing Africa a requisite for sustainable development
- The place of outcome oriented research and or development
- Placing mapping tools in the policy and or community domains is empowering

- Thank you
 - Danke!
 - Asante!