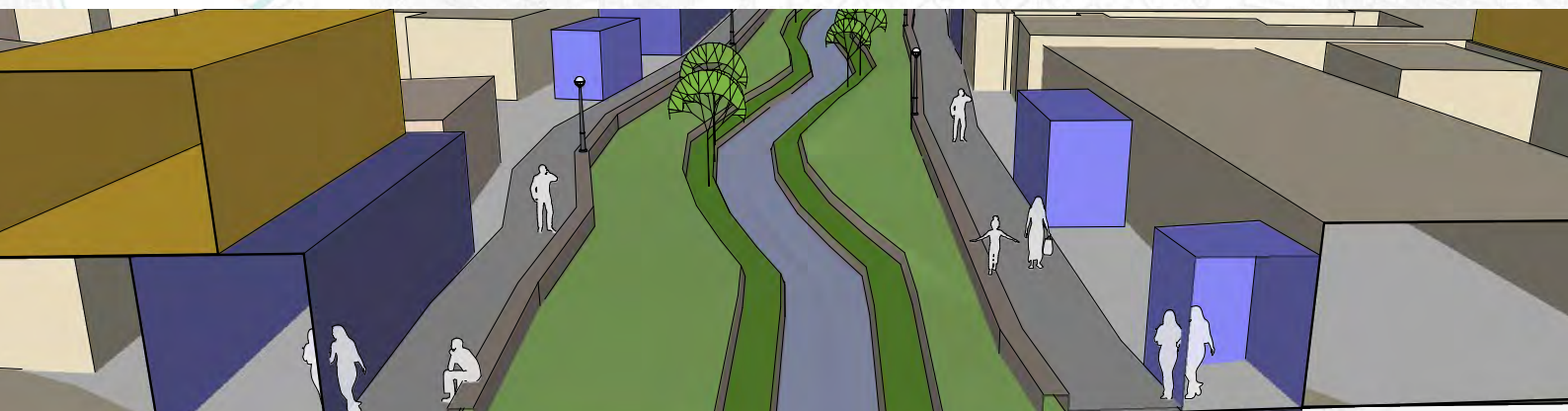




The Millennium Cities Initiative: Accra

Networks and knowledge for community resilience-building in Ghana's capital



Millennium Cities Initiative
EARTH INSTITUTE | COLUMBIA UNIVERSITY

THE MILLENNIUM CITIES INITIATIVE: ACCRA

Networks and knowledge for community resilience-building in Ghana's capital

Columbia University in the City of New York.
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I. INTRODUCTION



This report, presented to the Accra Metropolitan Assembly’s Town and Country Planning Department and its development partners, serves two purposes: to document the outcomes of the Accra Millennium City Initiative – a five-year partnership between the Accra Metropolitan Assembly (AMA), the University of Ghana-Legon and the Millennium Cities Initiative (or “MCI,” a project of Columbia University’s Earth Institute) aimed at facilitating improvements in residents’ living standards and access to urban services, especially in under-served settlements; and to contribute knowledge and foster linkages gained through the Initiative with the AMA and its partners as they pursue future development and resilience-building activities.

It is an unfortunate reality that development programmes in Accra and other cities in low-middle income countries sometimes come and go, establishing little to no continuity between each other, thereby missing out on the opportunity to refine and strengthen each others’ strategies, actions and overall impact. We sought an opening for continuity after our programme ended in 2015 by assisting the AMA in applying for the Rockefeller Foundation’s *100 Resilient Cities* campaign, given the synergies between our program and theirs. In late 2014, Accra was selected as one of the “Resilient Cities” and will begin its resilience-building process this year. Through this report, we hope to cultivate linkages between our work and that of the AMA’s settlement upgrading programme and the *Resilient Cities* campaign, as well as with other laudable initiatives designed to benefit the City and its residents.

About the Millennium Cities Initiative

The Millennium Cities Initiative was established to help selected, under-resourced municipalities across sub-Saharan Africa engage urban poverty issues and make progress towards attaining the Millennium Development Goals (MDGs). MCI assisted the “Millennium Cities”¹ in identifying critical gaps in realizing the MDGs, as well as in identifying the financing, programs and partners capable of filling them. Where possible, MCI would connect municipalities with our extensive network of partners around the world – including investors, philanthropists and entrepreneurs; nonprofits and corporations; and governmental and multilateral institutions.

¹ These cities were generally regional capitals near to the sites of the Millennium Villages Project (MVP), MCI’s sister integrated rural development effort. MCI’s other project in Ghana, lasting nine years, was in Kumasi, Ghana’s second largest city and the nearest metropolitan area to MVP’s initial site in Ghana, in Bonsaaso, Amansie West, in the Ashanti region.

II. THE ACCRA MILLENNIUM CITY INITIATIVE: AT A GLANCE

The Accra Millennium City Initiative was launched in early 2010, following a series of discussions between the Accra Metropolitan Assembly and the Earth Institute on a potential collaboration to develop strategies for improving spatial development and access to physical and social infrastructure services in underserved, low-income, high-density settlements within the City. The Mayor of Accra, having committed to improving the people of Accra's access to public services and infrastructure - including public health, water and sanitation, education, transport, housing, waste management, energy and economic opportunities - reached out to the Earth Institute to solicit technical advice in how to do so, in inclusive, strategic and sustainable ways. The AMA was also interested in leveraging the Earth Institute's network of development partners to attract private sector and donor agency investment in redevelopment projects in parts of the City that were (and are) under serious economic duress. The Earth Institute, seeing Accra's important role in the ECOWAS region² as a political, economic and transport hub that was increasingly attracting regional and international private sector investment, was interested in designing strategies to capitalize on the City's emerging assets to address unsustainable forms of urban development, including fragmented access to municipal services and insufficient integration of low-income settlements into the broader urban economy. Upon being declared a Millennium City, the Accra Metropolitan Assembly adapted the concept originated by the Earth Institute and MCI to include its own goals, strategies and interventions.

Following intensive background research on various issues in the urban sector in Accra and a series of strategic meetings with the AMA and other Accra-based development agencies, MCI revised its role within the broader programme: to help the AMA 1) build a more robust knowledge base on its under-served communities; 2) identify strategies to facilitate more healthful and productive spatial development and place-making; and 3) facilitate partnerships with other development agencies and private sector firms involved in urban management.³ The AMA selected Ga Mashie (James Town and Ussher Town), Korle Gonno, Chorkor, Nima-Maamobi and Accra New Town as sites for the programme, all of which are among the City's most disadvantaged. In these settlements, environmental sanitation and spatial inequalities in access to urban services and productive employment have been fundamental challenges for decades. These themes were especially relevant considering that overlapping issues such as pollution of waterways, poor solid waste management and barriers to job mobility in the urban labor market are not clearly articulated in the MDGs. Thus, MCI sought to engage these issues strategically by 1) documenting current conditions in underserved, low-income, high-density (LIHD) settlements; 2) identifying potential innovative methods to improve access to municipal services and the overall standard of living for residents in those settlements; and 3) engaging a network of international and local donor and private sector organizations to work with the AMA to implement those interventions deemed appropriate. In addition to the AMA, our partners included the University of Ghana-Legon's Department of Geography and Natural Resource Development, whose Urban Disaster Risk Reduction Programme was an instrumental collaborator for our research activities. We also reached out to a broad network of development organizations, including the World Bank (particularly its Urban & Water Branch), UN-HABITAT, Cities Alliance, CHF International (now Global Communities), Institute for Local Government Studies, SWITCH Urban Water; Ga Mashie Development Agency, Housing the Masses, People's Dialogue on Human Settlements, the Nima-Maamobi Mother's Club, Voice in Community Empowerment and other NGOs and CBOs to become partners in the programme.

Documenting current conditions in the selected settlements was not superfluous but rather necessary, as there were not enough in-depth and contextual data on the settlements to inform the AMA's redevelopment plans. That said, a number of excellent studies on urban poverty and environmental health had previously been published by Ghanaian researchers and NGOs, so rather than "reinvent the wheel," our aim was to produce data that would add value to previous findings in ways that could be acted upon by national and local government,

² The Economic Community of West African States, or ECOWAS, is a regional association of 15 West African nations established in 1975 to create an economic union capable of raising living standards, strengthening cross-border relations and increasing economic stability across West Africa. In addition to Ghana, member countries include Benin, Burkina Faso, Côte d'Ivoire, Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo and Cape Verde.

³ MCI, as a partner in the programme, operated at no cost to the AMA.

as well as by other development agencies or NGOs. The primary medium used to document conditions and potential interventions was a set of community upgrading profiles that reported on environmental conditions, access, reliability and quality of municipal services (water, sanitation, waste management, etc.), as well as on assets and constraints in the area's economic landscape.

A mixed-methods approach was used in the profiling, drawn from household surveys, focus groups, community forums, GIS mapping, spatial designs and environmental assessments, such as groundwater quality tests and solid waste stream audits. We discuss this body of work in the next section.

Given that our research was aimed at capturing a more spatially and socially nuanced picture of conditions in the selected settlements, the optimal approach to take was obvious: to revolve planning and place-making principles around residents' knowledge of their own community – this invaluable asset appeared to have been woefully under-represented back in 2010. The AMA facilitated crucial entry into the settlements via its elected Assembly members, who were very enthusiastic and accommodating to MCI's needs in the field. That said, working with residents, especially with such under-represented groups as youth, women, the elderly and tenants, necessitated a time-intensive process of trust-building and dialogue. These settlements had been underserved for decades, and their inhabitants had developed mistrust of the AMA and of members of Parliament over the lack of substantive improvements in residents' living conditions.

The MCI programme had a few essential ingredients that enabled us to build trust and rapport with residents and community-based organizations (CBOs):

- Our access to national and local government, development organizations and larger NGOs, and our ability to help facilitate network-building between them and CBOs and other community interest groups;
- Our ability to commit staff to spend substantial time in each community: logically, stakeholders found our intentions more believable and feasible once we had been working there for several months, rather than for 10-14 days;
- Giving residents the platform to determine the specific issues (such as the conditions of public toilets, schools, waste collection and disposal) to be captured, and presenting these in full detail, unencumbered by other individuals or parties interested in keeping the status quo;
- Sharing our strategies for using the findings to attract interest in assisting their community in developing and funding interventions;
- Designing the findings to be used easily by residents in negotiating for improvements in basic services.

Of course, it was necessary to be forthright and measured about what our work could accomplish, given our limited resources and influence capacity. While our caution was sometimes met with skepticism about what concrete, beneficial outcomes might eventually result from our work, most stakeholders appreciated our disclosure and reiterated their interest in collaborating with us. Once we had earned the buy-in with respected leaders in the settlements and they had worked with us in the field, residents were very generous with their time and volunteered to assist us on a number of occasions. In particular, youth groups were instrumental in the programme, committing many hours as volunteers, working with us at every stage of the process and helping to ensure that the findings accurately reflected their community's existing resources, potential and constraints.



Staff from MCI and Zoomlion join community leaders in New Town to discuss a project aimed at identifying appropriate methods for managing solid waste. Photo: J. Melara



Above: MCI staff, Korle Gonno Assembly Member Abel Banini and community leaders survey groundwater seeping to the surface into housing plots. Photo: J. Melara



Above: a community forum held by MCI to present concept designs for proposed redevelopment of the Nima-Maamobi drain and to receive feedback from residents. Photo: R. Alhassan

III. OUTCOMES & PLANNING RESOURCES



Accra Millennium Cities Initiative:
Selected Settlements

Source: Urban Management Land Information System, Geological Survey Department
Map by The Earth Institute, MCI

Legend

- Area of Analysis
- Sub-Metro

Map 1: Settlements targeted by AMA for MCI programme

MCI's most relevant resource for the AMA's own settlement upgrading programme and for the *Resilient Cities* campaign is its urban planning information: settlement maps, concept spatial designs, household surveys, focus groups and forums. This information, rooted in local knowledge, touches upon a range of issues pertinent to settlement planning and resilience-building, as outlined below. The information is culled from our publications on Accra, which provides more detail on methods and data.

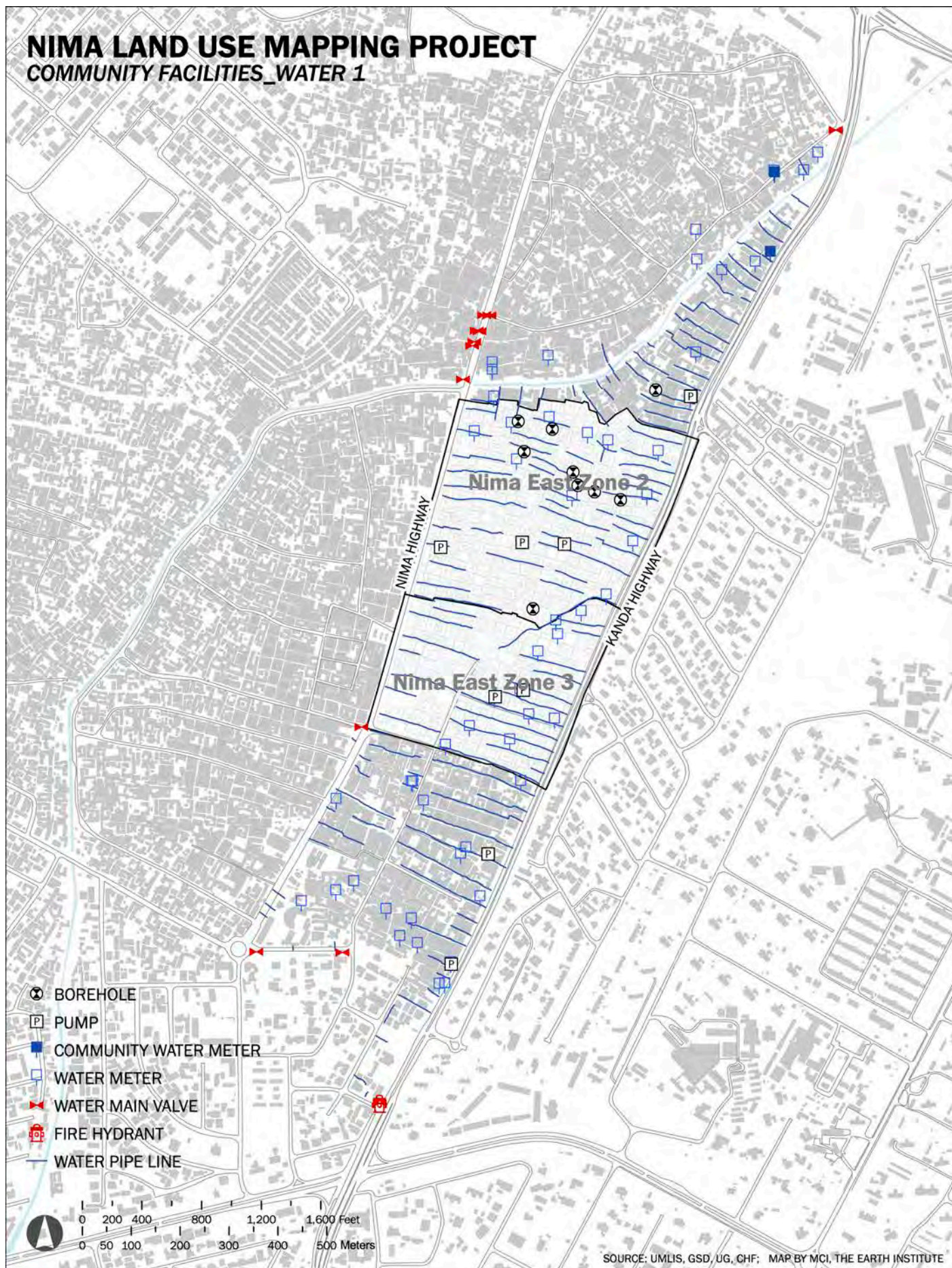
SETTLEMENT MAPS

Maps of the settlements were created using a combination of Geographic Information Systems (GIS) and Global Positioning Systems (GPS) technologies to illustrate the settlements' spatial layout, stock and condition of community assets and basic services, including elevation, roads, drainage networks, pedestrian alleyways, water and sanitation facilities, waste management logistics, healthcare, education and recreation infrastructure and its condition, and clustering of informal economic activities. The mapping projects were conducted in collaboration with the University of Ghana-Legon, CHF International (now Global Communities), community leaders and CBOs. Previous mapping documents published important data on poverty and environmental health indicators using official Census data and field research to summarize conditions for each community in the AMA;⁴ our maps added value to this knowledge base by spatially referencing specific constraints to access to services in the settlements and pinpointing where specific actions might be taken to improve conditions. As examples, our maps for Nima identified only one fire hydrant for all of Nima East and identified potential routes where water and sewerage infrastructure could be extended from the Nima East "gutter" into the adjacent residential areas; maps for Chorkor show flood-prone areas and sites where unfinished drains with stagnating bags of human excrement expose makeshift water pipes to risk of waterborne disease; and the maps for Korle Gonno show what types of businesses have established along the Korle Bu Hospital Road (Guggisberg Avenue) since the mid-2000s, information that can be used to inform local economic development plans.

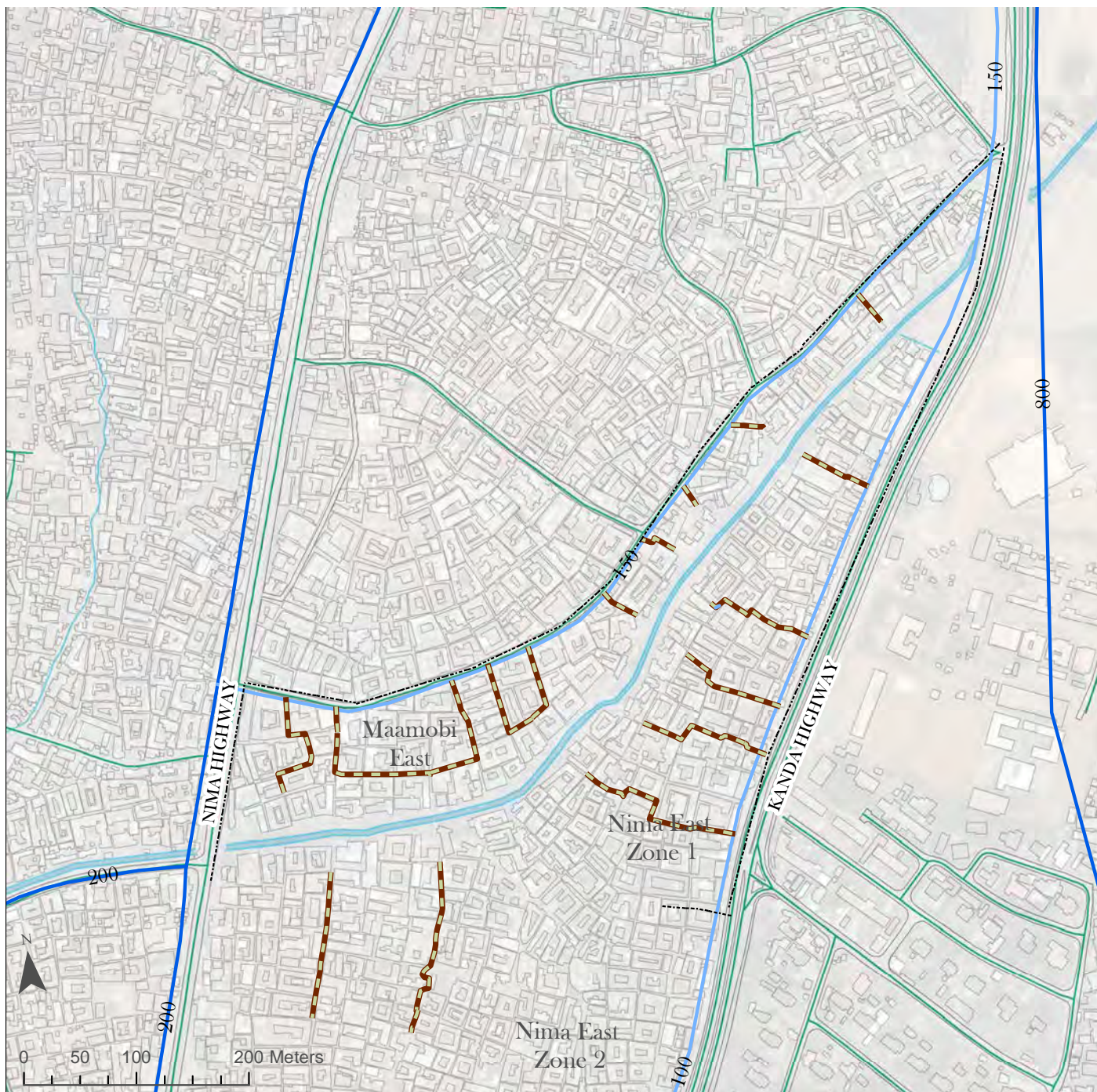
⁴For example, see the excellent maps by Songsore, Nabila, Yangyuoru et al. (2001). *State of Environmental Health Report of the Greater Accra Metropolitan Area*. Accra: University of Ghana Press; CHF International (2010). *Accra Poverty Map*.

NIMA LAND USE MAPPING PROJECT

COMMUNITY FACILITIES_WATER 1



Map 2: Water supply network for Nima East



POTENTIAL SEWERAGE BRANCHES: Nima-Maamobi East Drain Area

Legend

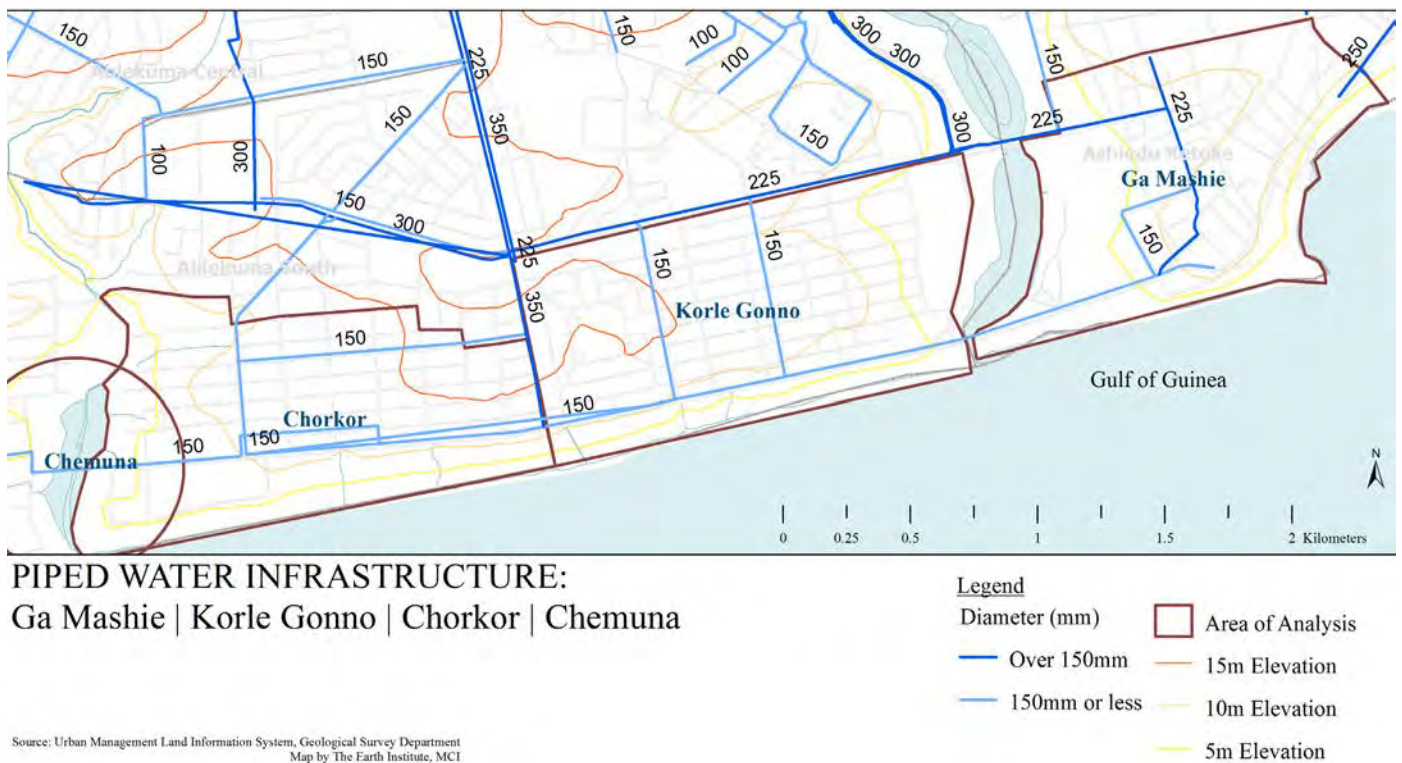
- Water Main (Over 150mm diameter)
- Water Main (150mm diameter or below)
- - - Potential routes for key condominium branches

Source: Aqua Vitens Rand Ltd.;AMA UMLIS; Geological Survey Department; Earth Institute MCI.
Map by Earth Institute MCI (2012).

Map 3: Potential routes for sewer installations in Nima East drain area
(Note: The construction of roads would mandate installation of newer water mains.)



Map 4: Pollution conditions and incompatible land uses in the Chemuna environs.



Map 5: Piped water mains along four coastal MCI sites

HOUSEHOLD SURVEYS, FOCUS GROUPS & FORUMS

MCI's household survey findings in Korle Gonno and Chorkor include data on dwelling conditions, education, employment and access to transport and utility services, and expand from there into perceptions of each community's social capital, coping strategies and potential for economic development. Also captured were perceptions of the quality of civic engagement and of what the local government's intervention priorities should be. The Chorkor survey, with a sample of 700 households, captures a broad range of resilience issues, ranging from observed coastal erosion and property damage from storms and floods; to estimated periods of water outages; to ranking residents' difficulties in paying specific household expenditures; to the level of civic engagement. These findings are particularly relevant to the *Resilient Cities* project, given that they are recent (based on data collected after the 2010 Census) and delve more comprehensively into the different yet overlapping resilience dimensions. The settlement profiles have been integrated into the AMA's settlement upgrading programme as a resource for informing upgrading projects, which thus far include one in Nima-Maamobi and one in James Town and Korle Gonno.⁵ Our focus groups in Chorkor, Korle Gonno and Nima focused on youth, their experiences in the labor market, educational attainment issues and their development priorities for their community. Our forums held in Nima and Maamobi focused specifically on the needs and priorities of youth, girls and young women – as has been the case with most NGOs, we found it optimal to partner with a CBO representing the vulnerable group (in this case, the Nima-based youth NGO VOiCE) and to let the CBO take the lead in galvanizing attendance and facilitating discussions. The forums tackled issues ranging from girls' education, cholera prevention and waste management to priorities for infrastructure improvements.

SPATIAL CONCEPT PLANS & DESIGNS

Policymakers, NGOs and researchers in Ghana have rightly focused their efforts on reforming land and housing policy to make urban space more accessible, affordable and functional for all. Though much remains to be done on that front, substantial progress has been made through the LAP I and II programmes, as well as others introduced by various development agencies. In that light, we determined that the MCI programme could add value to the urban knowledge base in Accra by working with various community partners to propose ways of improving articulation between the ecological resources, nodes of economic activity and living spaces in LIHD settlements through spatial planning and design. The importance of these themes to Ghanaian cities is validated through the National Urban Policy,⁶ particularly the envisioned policy initiatives in Objectives 3, 4 and 6, including:

- *Develop and manage infrastructure systems with the appropriate technology needed to provide basic hygienic conditions in towns and cities.*
- *Develop and manage infrastructure systems with appropriate technology and standards to suit the peculiarities of urban communities.*
- *Promote local economic development (LED).*
- *Target infrastructural investments in growth centres as the choice destination for investments and other economic activities.*
- *Change official attitude towards the informal enterprises from neglect to recognition and policy support.*
- *Build up and upgrade the operational capacities of the informal enterprises.*

Our aim was to visualize these articulations in a way that would be pragmatic for the AMA's own settlement upgrading programme, both to draw upon for already-slated upgrading and/or redevelopment projects and as an adaptive knowledge resource of sorts that could inform future projects. Doing so required an approach that was more substantive than one focused on introducing "cutting-edge best practices" that might have worked well elsewhere, but that did not fit the local physical, economic, institutional and cultural contexts.

Rather than use dwellings as a unit of analysis, we focused on spaces that were of fundamental importance to settlements and to the broader functions of the City: water bodies (including lagoons, rivers and streams), a major service site such as a hospital or market, streets and walkways, and proposed redevelopment sites. These spaces are particularly relevant given that all of the settlements selected for the MCI programme were located close to water bodies and/or economic nodes and had been targeted by the AMA for redevelopment

⁵ The upgrading in Nima-Maamobi is commissioned by *l'agence française de développement*; the James Town and Korle Gonno project, by UN-HABITAT.

⁶ Government of Ghana Ministry of Local Government and Rural Development (2013). *National Urban Policy*.

projects: Nima-Maamobi contain an ECOWAS market and a river that bisects the two settlements; Kwao Tsuru is located next to a printing and second-hand electronics hub; Korle Gonno is situated next to the Korle Bu Teaching Hospital and has a long stretch of beach; and Chorkor is situated next to the Chemu Lagoon and the ocean, on which the community depends for fishing.

Improving environmental sanitation and prospects for local economic development (LED) in the LIHD settlements ultimately required engaging two issues: 1) how to improve waste management and reduce waste pollution along the waterways to which settlements were adjacent, and 2) how to configure land uses so that “mixed use” extends beyond the strictly dual residential-retail status quo to include sanitation, healthcare, education/training and recreational infrastructure – which, at any rate, tends to buttress residential and commercial investment. Further, where possible, through our design proposals we promoted the expansion of municipal service improvements in a redevelopment site to its surrounding peripheral settlement(s). These principles sound almost rudimentary on initial impression, but there was (as of 2010) and still is little manifestation of said principles in Accra, despite the increased investment in mixed-use development - whether through upgrading programmes or through the real estate sector. As such, though in no way sufficient to shift the development landscape, visualizing alternative approaches to settlement development and facilitating discussions regarding effective implementation of these approaches remain relevant in their own right.

Flexibility in conceptualizing social and economic space in spatial designs is critical, given the socio-spatial heterogeneity found in each settlement, which is evident even in those situated immediately adjacently, with similar demographic and cultural features. We therefore found it useful to use a development “scenarios” scheme that took into account different goals and interests, local cultural contexts and different spatial limitations (such as flood zones and right-of-ways for roads), by visualizing multiple design options for consideration.

As mentioned, our concept designs, found in the profile reports for each settlement, were intended in part to help the AMA attract investment in settlement upgrading projects, which were successfully secured for Nima-Maamobi, Ga Mashie and Korle Gonno. We present brief summaries of our spatial design work, starting on page 11.



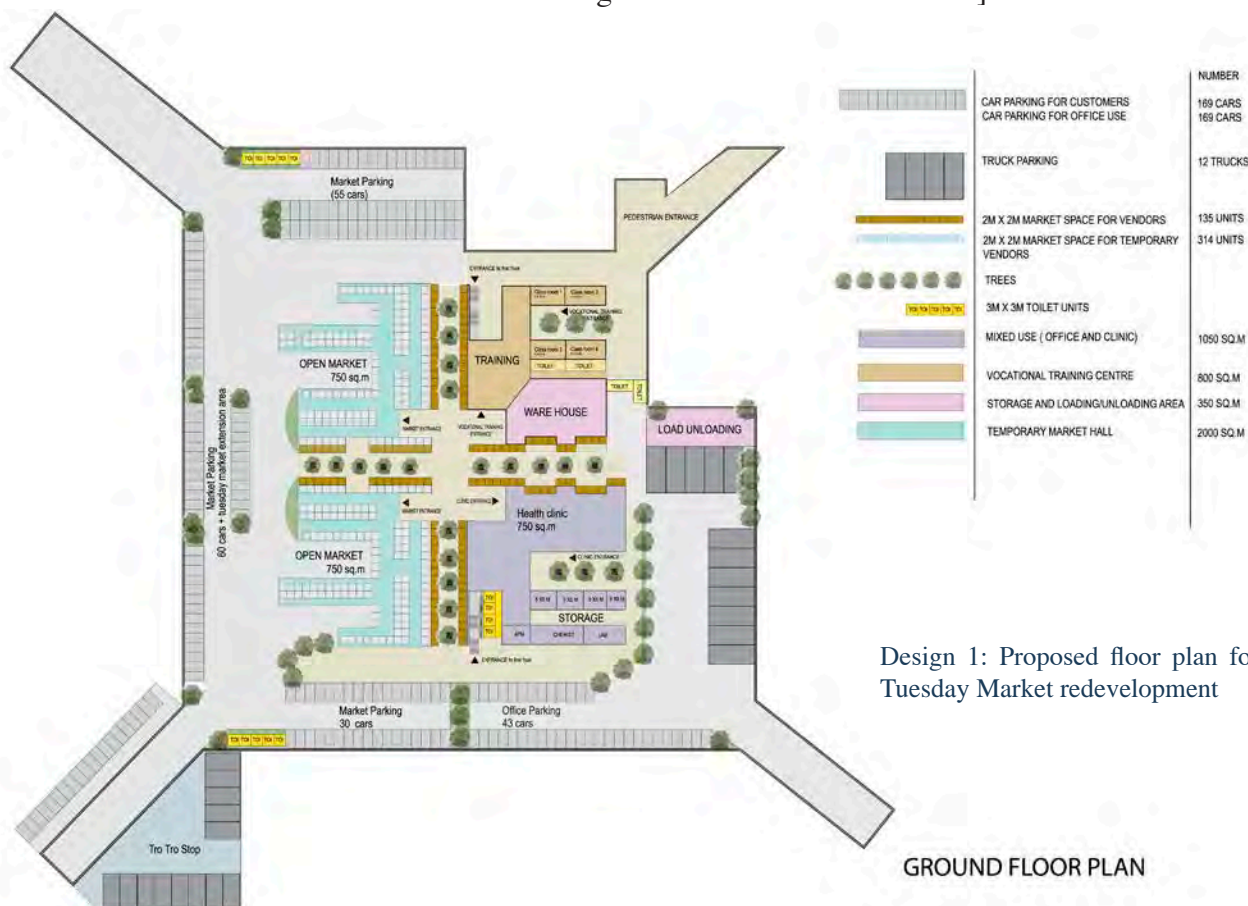
A popular walkway and gathering area in Nima East. Photo: K. Kurtak

TUESDAY MARKET

The Tuesday Market, situated along the borders of the communities of Korle Gonno, Chorkor and Mamprobi, is one of Accra's official traditional markets. Its busiest market day is Tuesdays, hence the name. It used to attract vendors and customers from across Accra, but most of its patronage now comes from residents in the Ga communities (James Town, Korle Gonno, Mamprobi, Chorkor, Mamponse, Dansoman, etc.). Despite having been upgraded with new stall installations some years back, drainage infrastructure and cement flooring were not completed, and as a result, the market floods frequently during heavy rains, resulting in muddy and inaccessible flooring. Waste management is so poor that customers are repelled by foul stench and swarms of flies coming from trash heaps that have not been collected for up to three weeks. Further, the vendors complain that the management (the Market Association) lacks a transparent system to allocate vending stalls. As such, many vendors have moved to the streets behind the market to sell.

The situation allowed the opportunity to examine how to contend with a multitude of problems that might be faced by a traditional market, how to attenuate those problems and restore the market's intended function and viability, and how to add a range of services, such as childcare, a clinic and office space. Residents and customers were surveyed, to ascertain their priorities for the market's redevelopment, while research was conducted on how market logistics (stalls, etc.) were generally managed. Based on that information, we submitted a design dividing the original site into a market, vocational training center, office space and pedestrian lobby. (See Design 1 below, for the site design.) In addition to the vocational training, office space and lobby, the proposed structure also contains an AMA sub-Metro office for convenient market management, parking, loading docks, clinic and public toilets. The envisioned outcome is a cleaner, healthier and more transparently operated market that draws vendors back inside to sell their products, attracts customers also to the new facilities inside, and that can ultimately serve as a catalyst for commercial investment along the market environs. That said, design is not Tuesday Market's principle problem – rather it is management of the stalls and refuse collection. These findings resulted in the AMA beginning dialogue with the “Queen Mother”⁷ and Market Association, to negotiate improvements in sanitation and maintenance of market logistics. The AMA continues to look for investment opportunities for upgrading the Tuesday Market. For further reading on this design, please see our publication, “AMA Community Upgrading Profile: Korle Gonno.”

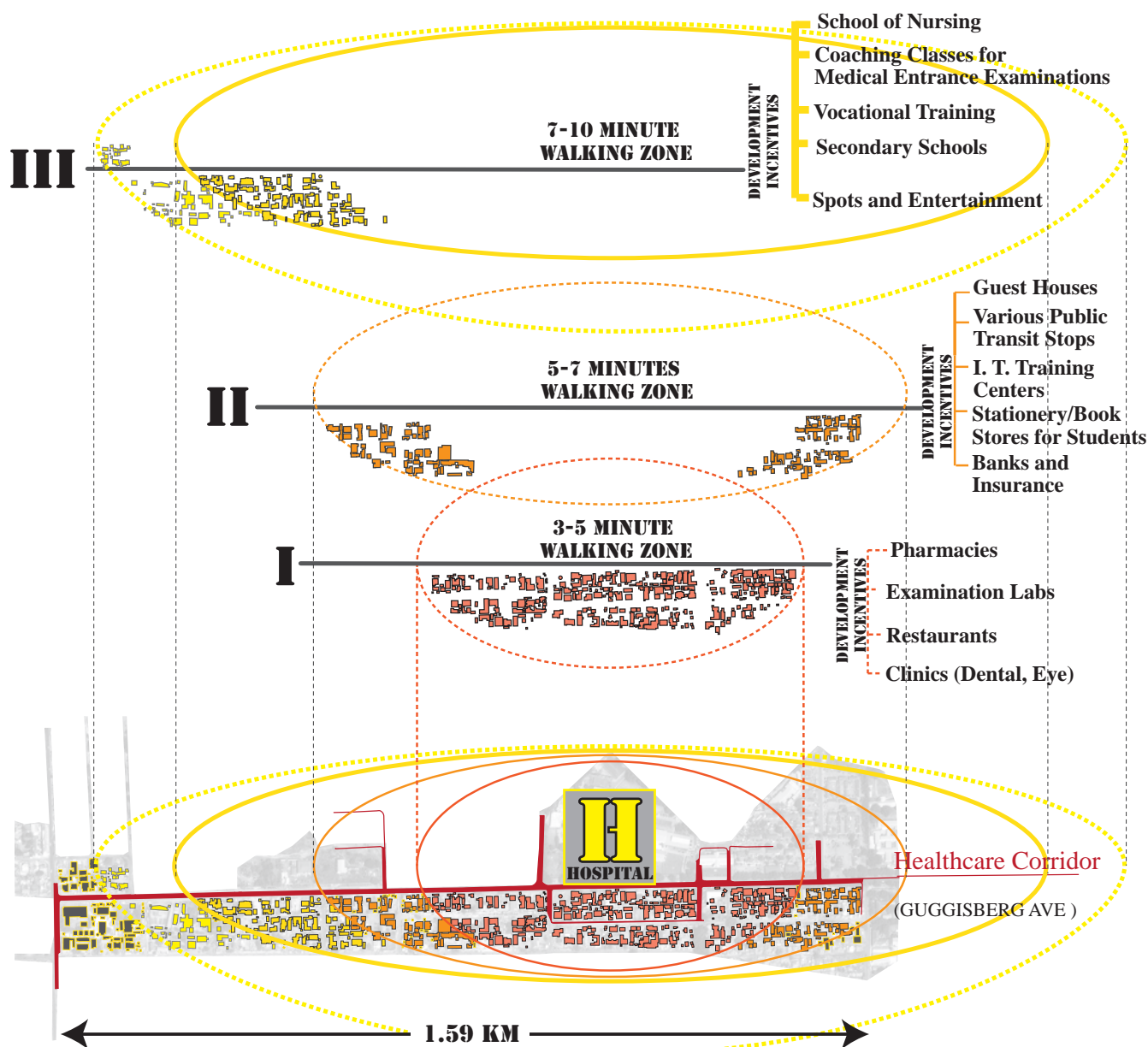
[www.mci.ei.columbia.edu/millennium-cities/accra-ghana/mci-research-on-accra/]



⁷The Tuesday Market Queen Mother is responsible for the market's operations.

KORLE BU HOSPITAL “HEALTHCARE CORRIDOR”

The Korle Bu Teaching Hospital is one of the major healthcare service centers in Accra and has attracted an array of healthcare-related businesses along Guggisberg Avenue, where Korle Bu is situated. On nearly a weekly basis, the road continues to see new structures and businesses offering ancillary services, but in an ad-hoc manner that undermines its potential as a viable healthcare corridor. Further, employment opportunities for the labor pool residing in the adjacent neighborhoods are few and far between, because of low educational attainment (i.e., individuals not completing senior high school) and/or the lack of vocational training programmes aimed at the healthcare sector. MCI developed a set of recommendations aimed at fostering business cluster associations, creating training programmes for aspiring healthcare professionals (such as nurses), infill development, building guidelines and commercial plazas. The design strategy used three “walking zones” to illustrate where specific land uses and economic activities could be promoted. Design 2 below illustrates the design strategy. The envisioned outcome is a healthcare node that offers an array of services in a more cohesive and convenient layout, allowing compact growth, and gradually opening up training opportunities for those looking for work in the nearby areas that are beset by lack of employment. For further reading on this design, please see our publication, “AMA Community Upgrading Profile: Korle Gonno.” [See previous page for link]

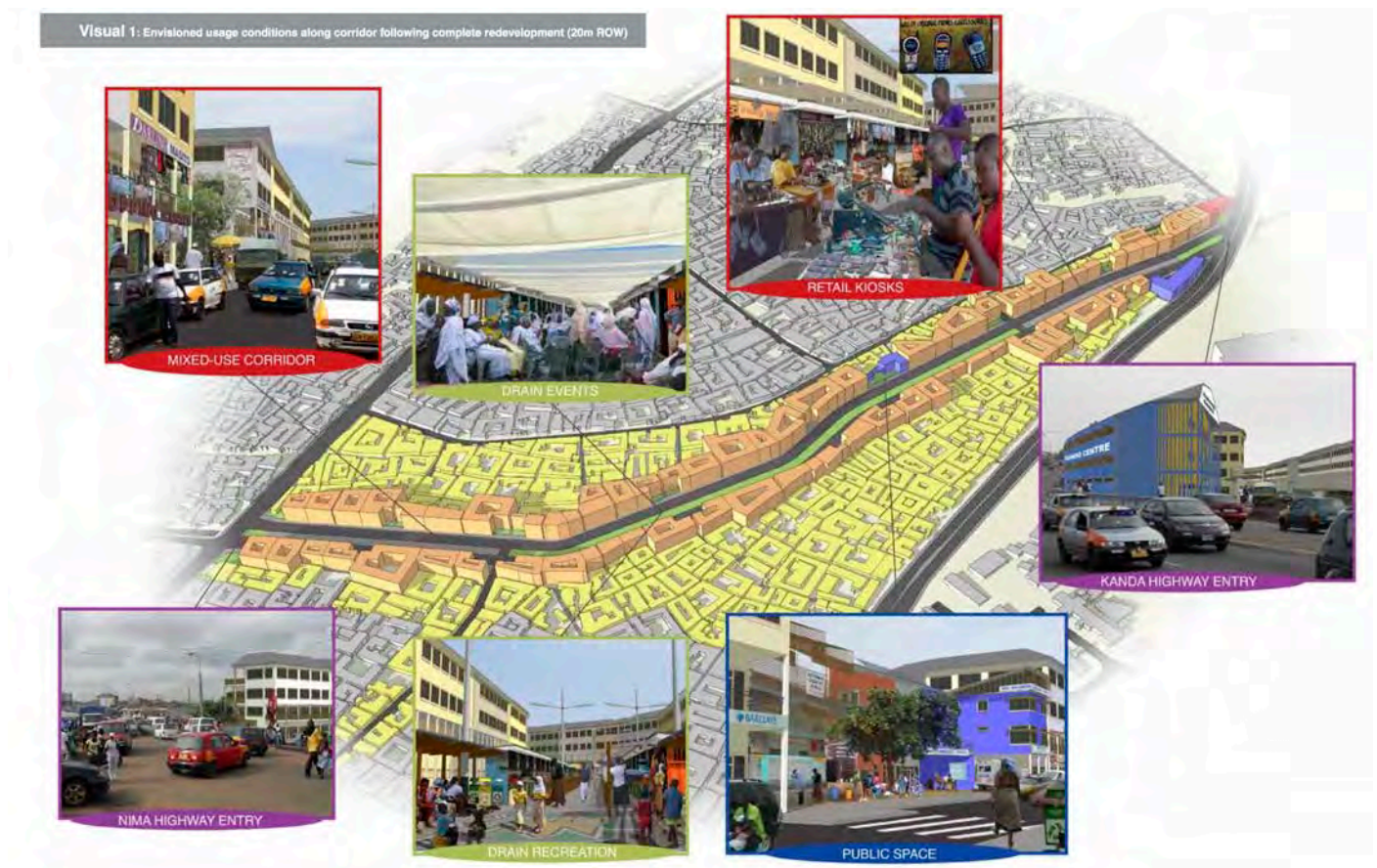


Design 2: Design strategy for Korle Bu Hospital “Healthcare Corridor” proposal

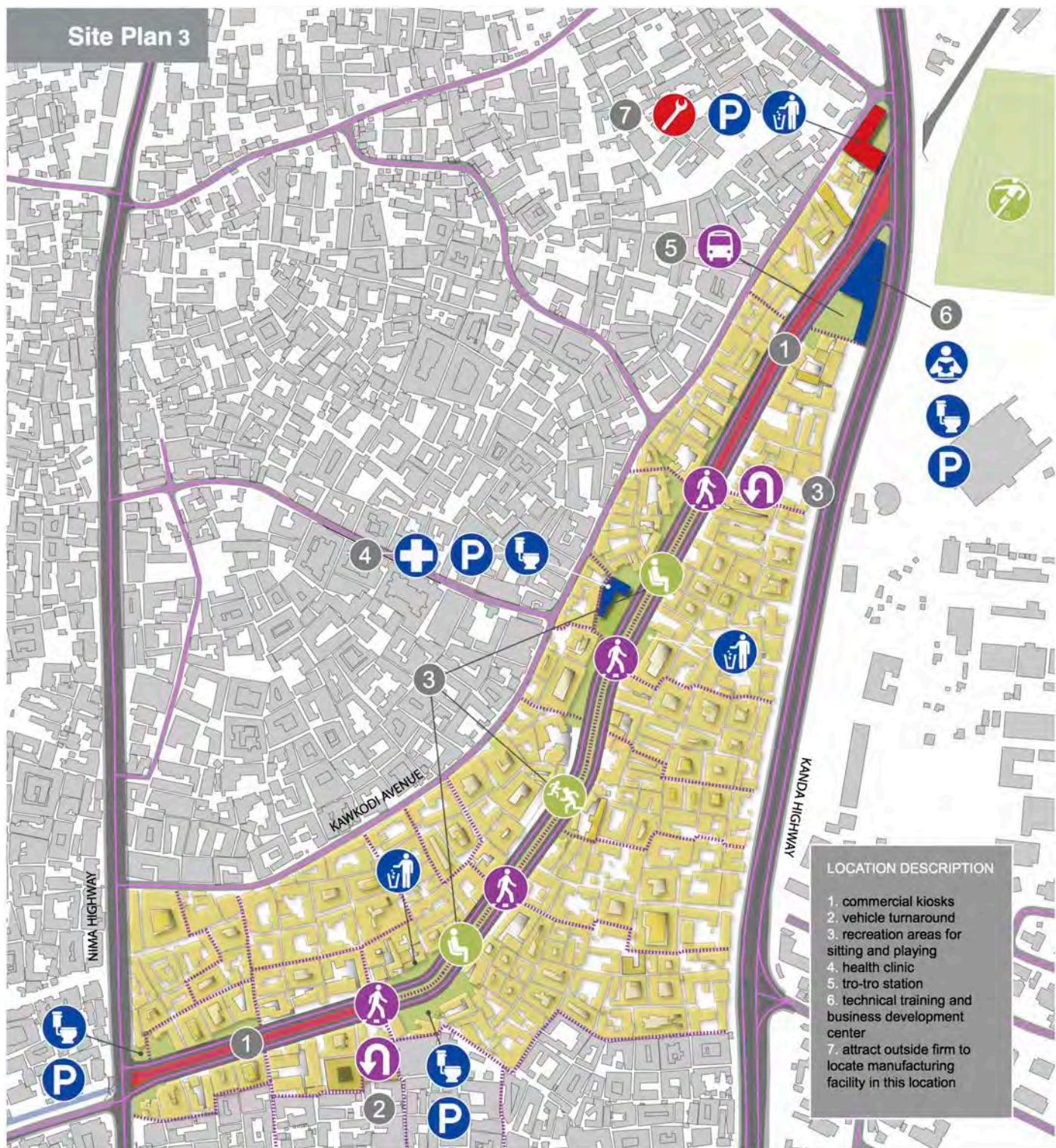
NIMA-MAAMOBİ DRAIN AREA

The Nima-Maamobi East “Gutter” has long been a symbol of Accra’s environmental sanitation woes. The sight of eroding structures along the embankment, refuse piled up and children defecating along the streambed are familiar to many in the City. In 2011, the Ministry of Water Resources, Works and Housing commissioned work on the gutter to convert it into an enclosed drain. The original drain design included a right-of-way (ROW) for roads on both sides of the drain, in order to provide access for maintenance. The AMA Department of Urban Roads (DUR) was tasked with the financing and implementation of all trunk infrastructure works along the ROW. Seeing an opportunity to attract investment in local economic development (LED) along the roads adjacent to the drain, the DUR requested that we conduct a study to identify opportunities for mixed-use development. In addition to a range of housing options, our design strategy included improvements and expansions in basic infrastructure (water, sanitation, drainage and waste management), improved roads and pedestrian pathway access, designated spaces for micro-, small- and medium-sized enterprises, a workforce development center and recreational space. Given that the level of redevelopment was contingent on the ROW dimensions, we drafted design scenarios for a 10-meter, 15-meter and 20-meter ROW. These options visualized the minimal level of investment at 10 meters, with clustering of economic activities becoming more likely as the ROW increases. Design 3 below shows the vision schematics. The envisioned outcome was to bundle sanitation, workforce development and recreational infrastructure along the ROW and to use the required water mains to extend water and sanitation infrastructure into adjacent dwellings so as to improve access to those services, thereby improving the community’s health, productivity and well-being. Design 4 (next page) shows the proposed concept site plans. These designs were submitted to Accra Metropolitan Assembly members, opinion leaders and CBOs in Nima-Maamobi, so that they could discuss the development scenarios, propose re-configurations to the designs and participate in attracting investors to the area. A redevelopment project implemented by Brazilian contracting company Contracta is slated to begin in the latter half of 2015. For further reading on this design, please see our publication, “AMA Community Upgrading Profile: Nima-Maamobi Drain Area.”

[www.mci.ei.columbia.edu/millennium-cities/accra-ghana/mci-research-on-accra/]



Design 3: Schematic for Nima-Maamobi drain area corridor proposal (labeled “Visual 1” in original report)



Design 4: Site plan for scenario strategies for Nima-Maamobi drain area corridor proposal

NIMA HIGHWAY-KANDA HIGHWAY CONNECTOR WALKWAY

Also in Nima East, this case illustrates a typical situation in LIHD settlements where there is very little access to vehicular and pedestrian routes. We began examining this case after learning that the only way in which residents in the upper half of Nima East could move between the Nima and Kanda Highways was via a series of unconnected alleyways meandering through the settlement. Most of the alleyways were at least 1.4 meters in width, and some were paved. We proposed to “merge” the alleyways by paving the remaining unpaved ones and linking them together to create one continuous walkway. Further, we proposed a “flex-commercial zone,” whereby empty spaces adjacent to the walkway would be utilized by residents for commercial and social activity. This component was particularly important, because economic activity is typically clustered along roads and walkways. Design 5 shows the design strategy. The envisioned outcome was improved access to pedestrian infrastructure (in an area where vehicular roads may not be the optimal intervention), with new enterprises catering to residents set up along the walkway, while retaining the lively bustle of the area, especially during the early evening, when people return from work. For further reading on this design, please see our publication, “Mediating People and Service Networks; Holistic Spatial Design Strategies for Accra’s Streets and Waterways.”[www.mci.ei.columbia.edu/millennium-cities/accra-ghana/mci-research-on-accra/] MCI commissioned a project to implement the first phase of the design – see page 19.

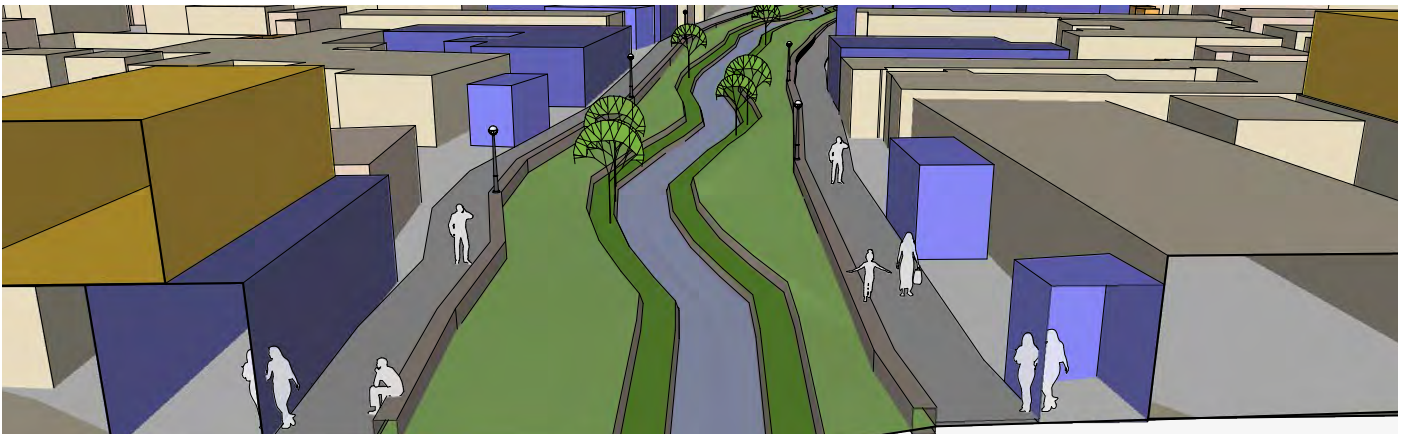


Design 5: Before/After designs for Nima-Kanda Walkway proposal

KWAO TSURU STREAM

Although Kwao Tsuru, an unplanned residential neighborhood located in Accra New Town, faces most of the environmental problems that its better-known neighbors Nima and Maamobi, it does not receive nearly as much attention from development agencies. Environmental sanitation is extremely poor here, due to its layout and high dwelling density, which limits the accessibility of waste collection vehicles. The entire neighborhood has only one waste dumpsite, with two waste containers. The residents cope by depositing refuse and wastewater into neighborhood drains and into the stream running through the residential quarters. This situation illustrates challenges for spatial planning, which is sorely needed, both to reduce the risks of flooding and of the outbreak of cholera and other waterborne diseases, and to create a more harmonious interface between residential and commercial land uses and the stream. The design strategy called for the establishment of sanitation and waste management services, a reinforced stream bank, buffer zone, and the reconfiguration of housing to align along a new walkway parallel to the stream. Design 6 shows the design strategy. The envisioned outcome is a more harmonious layout between the stream and the dwellings and drastic improvement in environmental sanitation, through the buffer zone and new sanitation and waste management facilities. For further reading on this design, please see our publication, “Mediating People and Service Networks; Holistic Spatial Design Strategies for Accra’s Streets and Waterways.”

[www.mci.ei.columbia.edu/millennium-cities/accra-ghana/mci-research-on-accra/]



Design 6: Before/After designs for Kwao Tsuru stream rehabilitation proposal

CHEMU LAGOON

One of Accra's main drainage outlets to the sea, the Chemu Lagoon runs between two predominantly indigenously Ga fishing communities, Chorkor and Agege. Decades ago, the lagoon had abundant fish and other aquatic species and was a site for Ga traditional ceremonies; now, it exemplifies the level of environmental neglect and decay arising from extreme waste pollution now common in Accra's waterways. Houses and primary schools adjacent to the lagoon are frequently flooded or waterlogged during the rainy season. Thus the challenges at this site were how to reduce waste pollution upstream and along the adjacent settlements, establish a buffer zone, relocate households in floodprone areas and restore the ecosystems functions of the lagoon. Our design strategy took those challenges into account and proposed a series of measures to re-establish the lagoon as both a recreational space and a carve-out space for small-scale economic activities undertaken by neighborhood entrepreneurs. The measures include defined buffer setbacks and zoning for new housing; infrastructure for relocated residents; health and sanitation facilities adjacent to the lagoon; and the re-establishment of the lagoon as a recreational space. Design 7 (opposite) shows the concept implementation design. The envisioned outcome is a lagoon that can function fully as a natural drainage outlet to the sea, where the grounds serve as a public park with an attractive commercial zone that can attract new businesses, creating an appealing environment for both locals and tourists to enjoy the scenery, eat and shop. For further reading on this design, please see our publication, "Mediating People and Service Networks; Holistic Spatial Design Strategies for Accra's Streets and Waterways."

[www.mci.ei.columbia.edu/millennium-cities/accra-ghana/mci-research-on-accra/]



Above, and right: The Chemu Lagoon. Many urban experts in Accra consider it an "everyday disaster."





Design 7: Before/After design for Chemu Lagoon rehabilitation and recreation proposal

INTERVENTIONS

Aside from providing new data for urban planning and technical assistance, the Earth Institute agreed to host an “Accra Investment Forum” in New York City, envisaged by the AMA as an opportunity to showcase proposed redevelopment projects for an audience of potential investors and developers. Due to coordinating issues and delays, the event was canceled, raising significant tensions between the two partners. The frustrations felt on both sides was understandable, given that the promises of donor financing of MDG-related investments in urban redevelopment had not come through, either before or in the wake of the global financial crisis. But the situation also opened the opportunity for MCI to take a more adaptive approach, centered on low-cost interventions identified in collaboration with our partners in the settlements.

These interventions included:

- Supporting youth-centered development in the so-called Zongo communities⁸ of East and North Ayawaso sub-Metro, through the establishment of the aforementioned new Zongo youth NGO, “Voice in Community Empowerment,” or VOiCE: This productive partnership led to an entire series of community-based research and interventions, including community fora, community upgrading, targeted workshops and advocacy campaigns. The renovation and opening of a new Ayawaso Community Youth Center and the scoping, design and construction of the Nima - Kanda Walkway are perhaps the most ambitious of these undertakings, but the participatory exercises are no less important. These have included VOiCE’s leadership and facilitation in organizing community-led environmental sanitation programs, including clean-up exercises and a Pre-Ramadan Community Clean-up; MCI donated the cleaning tools and materials, so that future such exercises can take place under community leadership.
- Establishing a Community Health Planning Service (CHPS) Health Zone in Kwao Tsuru, New Town (in partnership with the NGO Global Communities): In partnership with longtime NGO partner Global Communities (formerly CHF), MCI helped renovate and open a Community-based Health Planning and Services (CHPS) clinic in Kwao Tsuru, a low-income, high-density settlement in Accra’s New Town. CHPS Health Zones typically provide select pre-natal care, treat minor ailments and screen for such infectious diseases as malaria and cholera, referring patients to a hospital for more urgent care. Health Zone nurses also make the rounds of the neighborhood, reaching out to educate individual households regarding basic hygiene and other disease prevention methods. The new Health Zone is the first of its kind in Kwao Tsuru, with medical staff assigned by the Ghana Health Service. Global Communities provided a grant for building the structure, and MCI provided the furnishings and medical equipment. We anticipate that residents will now have improved access both to basic healthcare services and to useful information that can help them reduce the number of everyday hazards that continue to put the community’s health at risk.
- Providing improved pedestrian access between the Nima and Kanda Highways by building a pedestrian walkway linking the two: Following up on the Nima-Kanda Highway Walkway design mentioned on page 9, MCI funded the paving to complete the accessibility component of the design strategy. A team of Nima artisans and young laborers were hired to carry out the paving. The new walkway affords access from the main roads into the residential areas, has attracted small businesses and has spurred residents in other parts of the neighborhood to organize the paving of nearby alleyways, reflecting local enthusiasm for more urban upgrading projects in Nima. Community leaders are engaged in discussions on how to facilitate the “flex commercial zone” component of the project, facilitated by the local youth NGO, VOiCE. Access to the land along the walkway remains a challenge: the landowner may not have developed anything, but could choose to re-claim his/her property, if s/he sees that business is going well on his/her plot of land.
- Providing waste removal tools to youth to promote environmental sanitation and improve drainage: Earlier this year, Accra faced a waste management crisis when almost all of its landfills closed down, leaving only one to dispose of the entire waste burden of the City. The crisis was especially acute given the imminent rainy season, with solid waste choking drains and an increased risk of floods. Such risk is typically magnified in such

⁸ “Zongo,” or *migrant’s* quarters, is the term commonly used in referring to typically unplanned settlements populated by migrants from the north of Ghana. Zongo communities tend to have high population and dwelling densities and poor access to infrastructure services.

low-income, high-density settlements as Chorkor, Nima and New Town, where, on a regular basis, community leaders and youth-led CBOs organize waste-clearing exercises to improve stormwater drainage and reduce environmental health risks from the stagnant waste. These exercises, although insufficient alone to address the real challenge, have become essential adaptation strategies, as City authorities continue to struggle to provide lasting improvements in waste management. MCI began receiving requests by youth CBOs in Chorkor, Korle Gonno and Nima to provide them with tools such as wheelbarrows, shovels, brooms, facemasks and gloves, so they might arrange more waste-clearing exercises, as the sub-Metro offices did not have enough tools for them to borrow. MCI provided the tools and helped secure other such logistics as dump truck rentals, to help coordinate large-scale waste-clearing and clean-up exercises. The youth CBOs have kept the tools and have committed to ensuring that they are well-maintained, while community leaders have begun to raise funds through other sources (e.g., through a municipal facility known as “the District Common Fund”), to coordinate more frequent clearing exercises.

In addition, as noted, in 2014 MCI assisted the AMA in applying for a grant under the Rockefeller Foundation’s *100 Resilient Cities* programme, which provides financial and technical assistance to help selected cities develop and implement their own resilience plans. Accra was chosen as an award recipient in December 2014, and the programme began in March 2015. We saw this as an opportunity for the AMA and its partners to build and expand upon MCI’s work in Accra.



Above: MCI and Youth NGO “VOiCE” inaugurate the Ayawaso Community Youth Center, the first of its kind in the area. Photo: J. Melara



Above: An MCI-sponsored drain dredging and clean-up in Chorkor. These exercises become increasingly important during the rainy seasons. Photo: J. Melara

Below: MCI and Zoomlion distribute waste bins in Ayidiki (New Town). Photo: J. Melara

Below: A walkway in Nima connecting residents between Nima and Kanda Highways, commissioned by MCI. Photo: J. Melara



IV. MAPPING SHOCKS AND STRESSES IN ACCRA

This section presents information culled from the Accra Millennium City Initiative and other sources that can be a useful reference point for future development programmes, as there is likely to be considerable overlap between our work and theirs, including with the Rockefeller Foundation's *Resilient Cities* campaign. MCI's work focuses on environmental management, housing, municipal services and labor markets, all of which factor significantly into Accra's shocks and stresses. Further, since MCI focused mainly on urban poor settlements, the information can readily be integrated into a vulnerability assessment and upgrading schemes.

In preparation for the *Resilient Cities* project, three significant shocks were selected to be profiled: disease outbreaks (mainly cholera), floods and infrastructure failures (additionally, market fires and building collapses have increased in incidence in recent years). Four stresses were selected to be profiled: significant environmental pollution (especially pollution of waterways and water bodies); lack of affordable housing; pronounced poverty and inequality; and aging infrastructure. These shocks and stresses were selected using criteria outlined by the *Resilient Cities* programme. That said, the City's state of sanitation and waste management infrastructure and maintenance are among the issues requiring most urgent attention. It cannot be emphasized enough that these daily stresses, which affect a large section of Accra's populace, should be considered disasters simply because the compounding adverse impacts have accumulated over decades and are more prevalent than shocks such as floods and fires. The stresses experienced in Accra generally reflect the fact that an urban planning and governance system that progresses towards harmoniously adapting and refining land and environmental management with the needs of its growing population remains elusive. It can thus be said that the deep-rooted nature of Accra's urbanization problems extend beyond current concepts of "resilience," which tend to heavily emphasize climate change. Nonetheless, the resilience framework is useful in this context, to create linkages between our work and forthcoming initiatives and to illustrate how MCI's research can contribute to a strategy aimed at improving the health and productivity of the built environment in Ghana's sprawling capital.

SHOCKS

Disease outbreaks

Cholera is the deadliest disease to break out repeatedly in Accra – between June 2014 and February 2015 alone, over 20,000 cases were reported in Greater Accra, resulting in 121 deaths.⁹ Records from the Ghana Health Service have shown that the disease is especially prevalent in low-income, high-density settlements with inadequate access to water and sanitation infrastructure and poor hygienic practices, such as Old Dansoman, Korle Gonno, Mamprobi and Agbogbloshie.¹⁰ In recent years, cholera outbreaks have typically followed the rainy season, a time when waterborne diseases from exposure to excreta and other pathogens increase. The Ghana Health Service and AMA possess good documentation of outbreak cases but could benefit from having a GIS-based mapping system showing these cholera "hotspots" in the City, to inform prevention planning. While MCI does not have maps showing spatial concentrations of cholera outbreaks, a map database using similar methods (as those used by MCI for other purposes) can be made to document the frequency and geographic concentration of cholera outbreaks within LIHD settlements, as well as the number of healthcare facilities (if any) in each affected settlement and these facilities' human and logistical resources to prevent and treat the outbreaks. A color-coding scheme can readily be made to reflect how many indicators have been met by each local facility regarding its efficacy in prevention and treatment. Transportation routes to larger treatment facilities can also be easily mapped. A major stumbling block for the AMA, however, is that its Town and Country Planning Department has yet to possess adequate GIS logistics, including desktop workstations with ArcGIS software for each planning officer, map printers and up-to-date handheld GPS machines. This should be a priority investment for the forthcoming resilience plan in general.

⁹ See <http://citifmonline.com/2015/03/20/accra-recorded-20500-cholera-cases-from-june-2014-to-feb-2015/>

¹⁰ See Oteng-Ababio, M. (2014). More rhetoric or less action? Digging into urban health vulnerabilities: insights from urbanizing Accra. *GeoJournal*, 79: 357-371.

Given that the provision of adequate sanitation and waste management infrastructure will not occur in the short term, community sensitization on hygiene and food safety, availability of water treatment and the active enforcement of sanitary bylaws have become increasingly important. That said, much more coordinating effort is necessary to develop clear and concise accountability structures for the implementation of an integrated plan to improve provision of water, sanitation and waste management infrastructure, particularly in LIHD settlements.

Important authorities to convene to engage this shock include: the Ghana Ministry of Health, Ghana Health Service, the Accra Metropolitan Health Directorate, Korle Bu Teaching Hospital, the five sub-Metro hospitals, polyclinics, CHPS Zones and community health nurses; the Regional Ministry for the Greater Accra Metropolitan Area and the Greater Accra Regional Coordinating Council Sanitation Task Force; AMA Metropolitan Works, Drains, Waste Management, Planning and Budget Departments; AMA sub-Metro Departments and their environmental health officers; Accra Metropolitan Assembly members, members of Parliament, as well as the National Disaster Management Organization (NADMO), the School of Public Health at the University of Ghana-Legon; NGOs and CBOs, youth groups, Mothers' Clubs, savings federations, Market Queen Mothers and roadside vendors, among others.

Floods

Map 6 (p.24) shows flood-prone areas in Accra. Flooding occurs on an annual basis in Accra, most often in the areas with low elevation and/or poor drainage, including Dansoman, Teshie, Nungua, La Dadekotopon, the Chemu Lagoon environs (including Chorkor and Ggegbeigye) and the Korle Lagoon environs, as well as parts of Kaneshie, Kwame Nkrumah Circle, Taifa, Nima-Maamobi, Kwao Tsuru and Alajo. Many of these areas contain LIHD settlements whose residents are most vulnerable to impacts of floods, as they lack resources to invest in some of the adequate preventive measures and risk insurance. Flood hazard maps can be obtained at the Geological Survey Department of the Ministry of Lands and Natural Resources and at the AMA. While flooding conditions in "informal" settlements are not sufficiently documented, specific "hotspots" can be mapped, using combined GPS waypointing with GIS.¹¹ Elevation, floodplain zones, structural encroachments and conditions of engineered drains can be captured with this technology. The width of drains can be recorded and cataloged into GIS to see how much erosion has occurred over time using original drain widths. Maps can indicate where drains are choked, completely eroded or incomplete. A color-coding scheme can be created to show the severity of "choking" in settlement drains as well as in drains that convey waste to nearby waterways. This would be especially helpful information both for upstream settlements, where it can prevent the choking of waterways and drains downstream, and in identifying flooding hotspots. Using building footprints (where available), maps can show which housing structures are most vulnerable to floods (although most structures in these settlements have inadequate plinths). Of course, these tools solely address physical infrastructure; radio and social media are necessary tools for disseminating vital information but are often less robust in covering LIHD settlements.

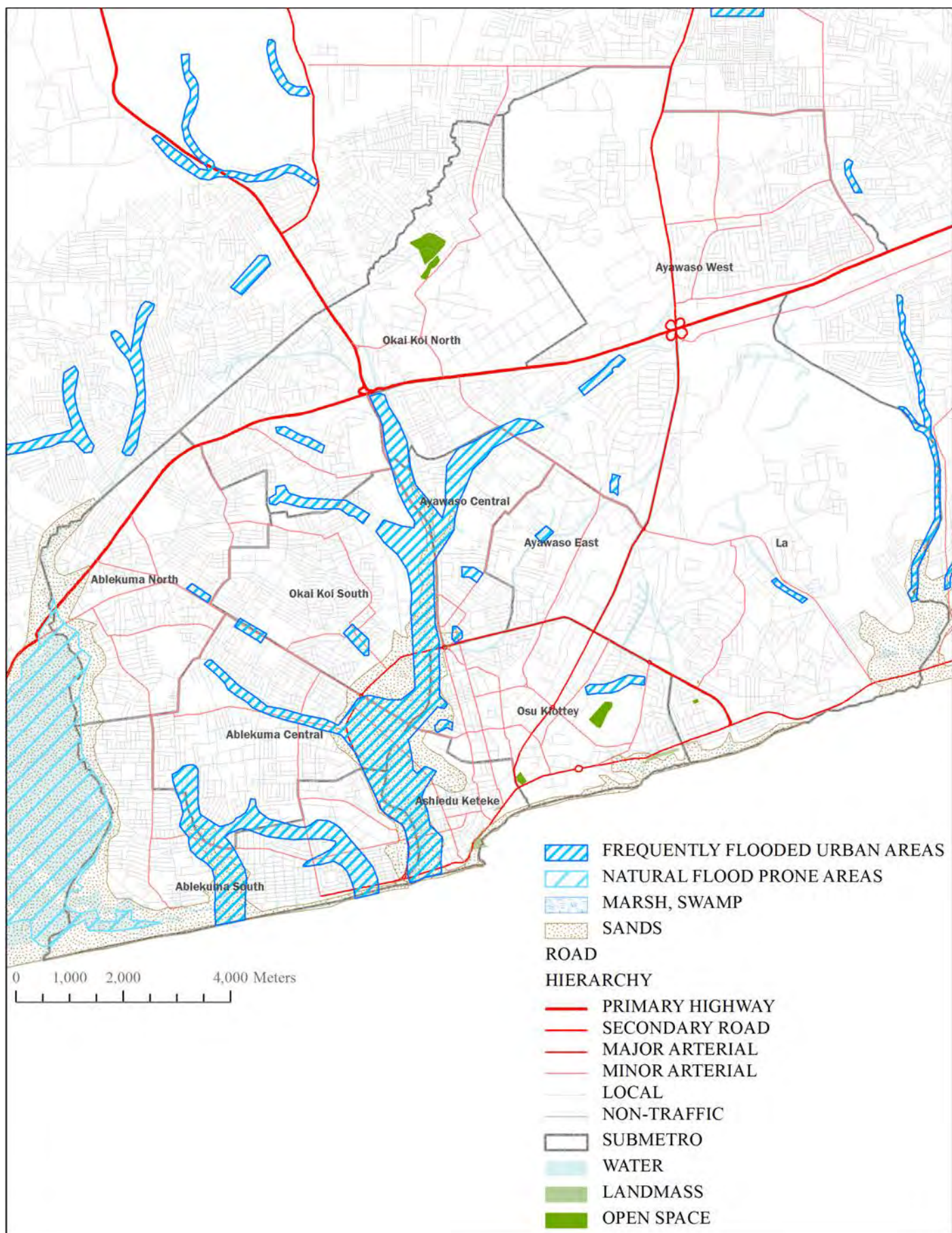
Important authorities to convene to engage this shock include: the Ghana Meteorological Service and NADMO; the University of Ghana-Legon Urban Disaster Risk Reduction Center; the AMA's Drains, Metro Works, Urban Roads, Drains, Town and Country Planning, Metro Planning and Budget Departments; the Ministries of Local Government and Rural Development and of Water Resources, Works and Housing; AMA Assembly members and members of Parliament; development organizations such as UN-HABITAT and the World Bank; television, radio, print and social media outlets; local NGOs, CBOs and youth groups (which are often relied upon after floods, to assist the elderly and disabled); and womens' and tenants' rights groups, among others. Of course, dissemination of information for building resilience on this front also requires a certain amount of overlap with those authorities listed in the Disease Outbreaks and Infrastructure Failures sections.

Infrastructure Failures

The most common and recent citywide infrastructure failure is the prevalence of power outages and rationings in the form of load shedding schedules. Outages resulting from load shedding schedules often switch between 12 and 24 hours almost on a daily basis, even in such affluent neighborhoods as East Legon and Dzorwulu.

¹¹ MCI mapped drainage network conditions in Nima East, Maamobi East, Kwao Tsuru, Korle Gonno and Chorkor.





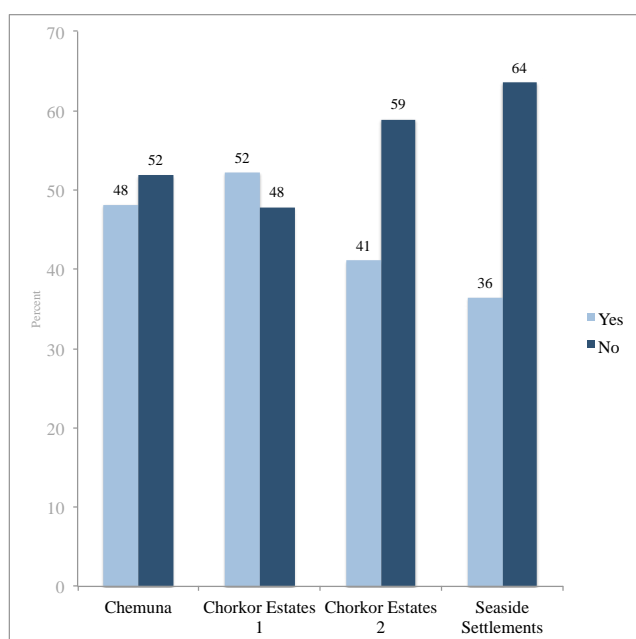
Map 6: Flood-prone areas in Accra
(Note: the data are from 2007; they likely requires revising but still show many of the flood-prone areas in the city.)

Previous page, top: An incomplete, eroded drain in Chorkor, with makeshift water pipes going through stagnant wastewater into homes. Photo: J. Melara

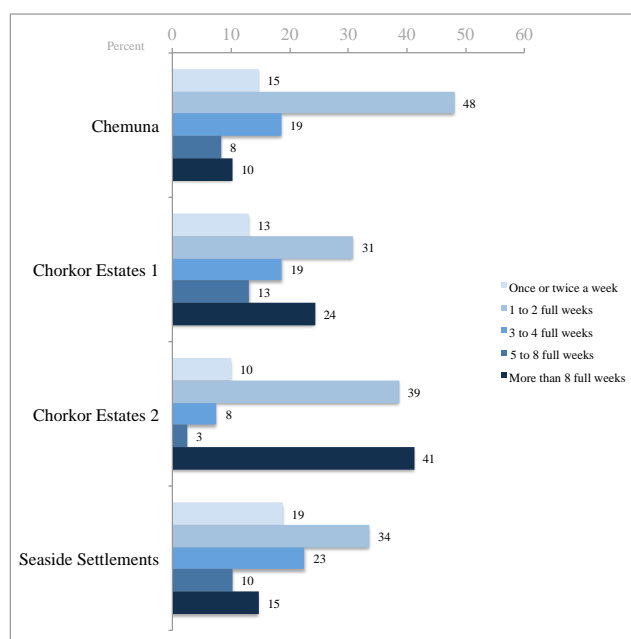
Previous page, bottom: Kwao Tsuru (New Town), a settlement prone to cholera outbreaks. Photo: J. Melara

In LIHD settlements, infrastructure failures encompass piped water outages; transmission of waterborne diseases, via cracked makeshift water pipes; over-patronized and poorly maintained public toilet facilities (resulting in many residents resorting to open defecation); power outages and compromised drains. The line between “shock” and “stress” for these failures is quite thin, especially during the rainy seasons when the impacts compound each other. In the settlements profiled by MCI, most of these conditions were captured either by GIS maps, household surveys or focus groups – the last providing crucial details and nuance about the nature and cause of these failures. Household surveys, or at least rapid assessments, can be designed to capture the access to infrastructure and its reliability (or lack thereof), affordability and the durations of service outages.

Important authorities to convene to engage this shock include: the AMA Metro Works, Drains, Urban Roads, Drains, Town and Country Planning, Metro Planning and Budget Departments; the Ministries of Local Government and Rural Development and of Water Resources, Works and Housing; Ghana Water Company Limited, GridCo, Zoomlion Ghana Ltd., such multilateral development organizations as UN-HABITAT and The World Bank; television, radio, print and social media outlets; Accra Metropolitan Assembly members, members of Parliament, local NGOs and CBOs, youth groups (who are often relied upon to assist the elderly and disabled after floods), women’s and tenants’ rights groups, among others.



MCI-University of Ghana 2014 survey results, showing percentage of houses in each “zone” of Chorkor that have space for building a toilet facility.



MCI-University of Ghana 2014 survey results, showing duration of water outages in each “zone” of Chorkor.

STRESSES

Significant Environmental Pollution

The most significant (and best documented) form of environmental pollution in Accra is the pollution of its waterways. Given this, and the limited data on local air and soil pollution, we concentrate our discussion on waterway pollution. It is important to note that the issue of water pollution in Accra cannot be effectively engaged without placing into context the City’s problems with sanitation and waste management. Map 7 (p.28) shows some polluted areas of Accra. The Korle and Chemu catchment areas, including their respective lagoons, merit priority consideration in a vulnerability assessment, due to their geography and what was once their key role in the AMA’s natural drainage networks. Both lagoons converge with the sea and are surrounded by densely populated settlements. The extremely polluted state of the Korle Lagoon has been well documented by local and even international media, as well as by researchers. A study conducted in 2006 by Karikari et al¹²

¹² Source: Karikari, A.Y., Asante, K.A., and Biney, C.A. (2006). “Water quality characteristics at the estuary of Korle Lagoon.” West African Journal of Applied Ecology, 10 (1).

showed low levels of dissolved oxygen (DO), high levels of BOD, suspended solids, coliform and ammonia nitrogen during neap tide,¹³ while spring tide samples showed smaller levels of the aforementioned and higher levels of DO. This was attributed mainly to high-intensity industrial and residential land uses; discharge of industrial pollutants and solid waste; and open defecation in the lagoon environs. Waste pollution continues along the lagoon, but the water quality has not been assessed recently. An ecological remediation project – the Korle Lagoon Ecological Restoration Project, conducted from the mid-late 1990s to the mid-2000s – is widely considered by local development practitioners to have come well short of achieving its main objectives.

There is a general sentiment among officials and some City residents that the extent of pollution of the Korle Lagoon is primarily due to waste coming from Old Fadama (also known as “Sodom and Gommorah”), an informal settlement of over 70,000 inhabitants adjacent to the lagoon. This assertion has never been scientifically verified, because a current comprehensive analysis of pollution activities for the entire catchment area has never been conducted. While the amount of waste (household and e-waste) dumped into the lagoon at Old Fadama is indeed cause for concern and urgent action, a great deal of waste is also dumped upstream, including the discharge of industrial pollutants from the Kaneshie industrial area into the Odaw River, which, like the other upstream dumping, occurs well before the river reaches Old Fadama.

Our research indicates that attributing the current waste pollution activities in the waterways primarily to the lack of respect for sanitary bylaws is too simplistic: access, reliability and affordability of sanitation and waste services are also important factors. Given the documented history of insufficient provision of such services in LIHD settlements¹⁴ and the lack of adequate and affordable solid waste management logistics allocated, many residents often have no recourse but to dump their waste into the waterways.

As examples, the MCI maps for Nima showed that all of Zones 1 and 2 of Nima East – the most densely populated and access-challenged areas of Nima-Maamobi – have only three waste containers. In Kwao Tsuru, a dense settlement in New Town, there is only one waste disposal station, with two containers. All of the containers are usually overflowing with waste at most times of the day, every day of the week. Further, some residents report that the informal waste pickers, known as Kaya Bola,¹⁵ do not actually carry their waste to the containers, but rather dump their loads at the Nima “gutter,” or even behind residents’ homes, without actually checking to see if there is space in the containers. It follows that, for areas such as Nima and New Town, sensitization campaigns will need to be bundled together with an improvement in waste management services, which may require the formation of, and support for, community-owned and -operated waste collection services that can work in tandem with “formal” waste management contractors. Currently, private contractors do not provide door-to-door collection services in low-income high-density areas due to lack of accessibility and lack of willingness among households to pay for the service. In the latter case, it is necessary to ascertain whether the residents are unwilling or unable to pay for the service, or are unwilling to pay for *poor* service. Community-owned and -operated waste collectors can help fill the gap in these areas and, with a substantial interest in improving waste management in their own community, they can be held to account by their neighbors. Of course, these interventions are of little utility if waste disposal infrastructure – i.e., landfills – is insufficient. At any rate, the unavoidable reality is that a restructuring of waste management at all levels will be needed to improve not only the environmental health in these settlements, but also the ecosystems functions of the City’s streams and lagoons. This includes improved final site infrastructure, improved collection and improved separation at source (household and industrial).

The Chemu Lagoon environs are not as well known as those of the Korle Lagoon but are similarly polluted with waste that is discharged into the ocean, where it eventually reaches the shorelines of Chorkor and Ggegbeige. In Chorkor, where settlements are located on the shoreline and within reach of high tide, waste has accumulated to the point where there are mounds of waste within several feet of people’s homes that have lain idle for months, if not years. These waste mounds are obvious health hazards for residents. We mapped pollution conditions along the Chemu Lagoon/Chemuna environs and has proposed steps to gradually rehabilitate it. MCI has not mapped pollution conditions in Korle Lagoon. To develop a reliable restoration strategy

¹³ A neap tide occurs after the first or third quarters of the moon, in which there is least difference between high and low waters.

¹⁴ See Songsore, Nabila, Yangyuoru et al. (2001). *State of Environmental Health Report of the Greater Accra Metropolitan Area*. Accra: University of Ghana Press.

¹⁵ *Kaya Bola*, or informal waste pickers, are hired by households to dispose of their refuse.

for the Korle Lagoon, a full watershed assessment, or at least an assessment of the environs adjacent to the rivers and lagoon, is necessary. This information will help planners determine the appropriate range of short-, medium- and long-term interventions. Long-term interventions will invariably need to include a concerted campaign to promote requisite sanitation, hygiene and waste disposal habits in adjacent settlements, particularly in low-income ones such as New Town and Old Fadama. Of course, problems with spatial planning also play a key role, as do the current challenges faced by the AMA, in terms of institutional and financial capacity to undertake larger-scale, sustained community upgrading to address this issue convincingly.

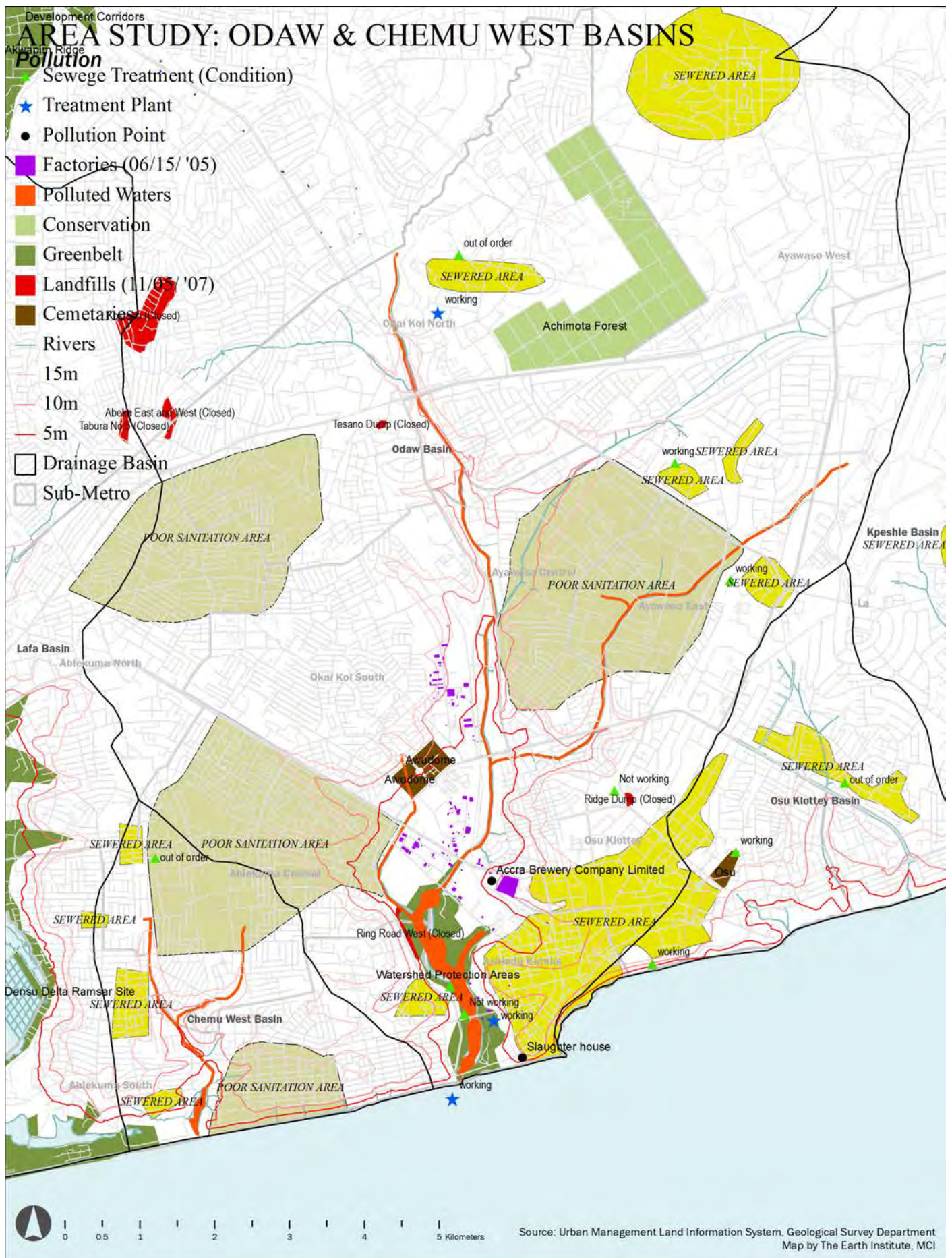
Important authorities to convene to engage this very important stress include: the AMA Sewerage Department, which has been tasked with the Korle Lagoon Ecological Restoration Project, as well as the AMA Metropolitan Health Directorate, Town and Country Planning, Metro Planning, and Budget Departments; the International Water Management Institute, Council for Scientific and Industrial Research, University of Ghana-Legon and other local universities; development agencies such as UN-HABITAT and the World Bank's Urban Water Unit; local NGOs, CBOs and interest groups residing in Old Fadama and upstream settlements.



Above: Old Fadama. Photo: J. Melara



Left: Plastic waste engulfing the Korle Lagoon. Photo: B. Ayele

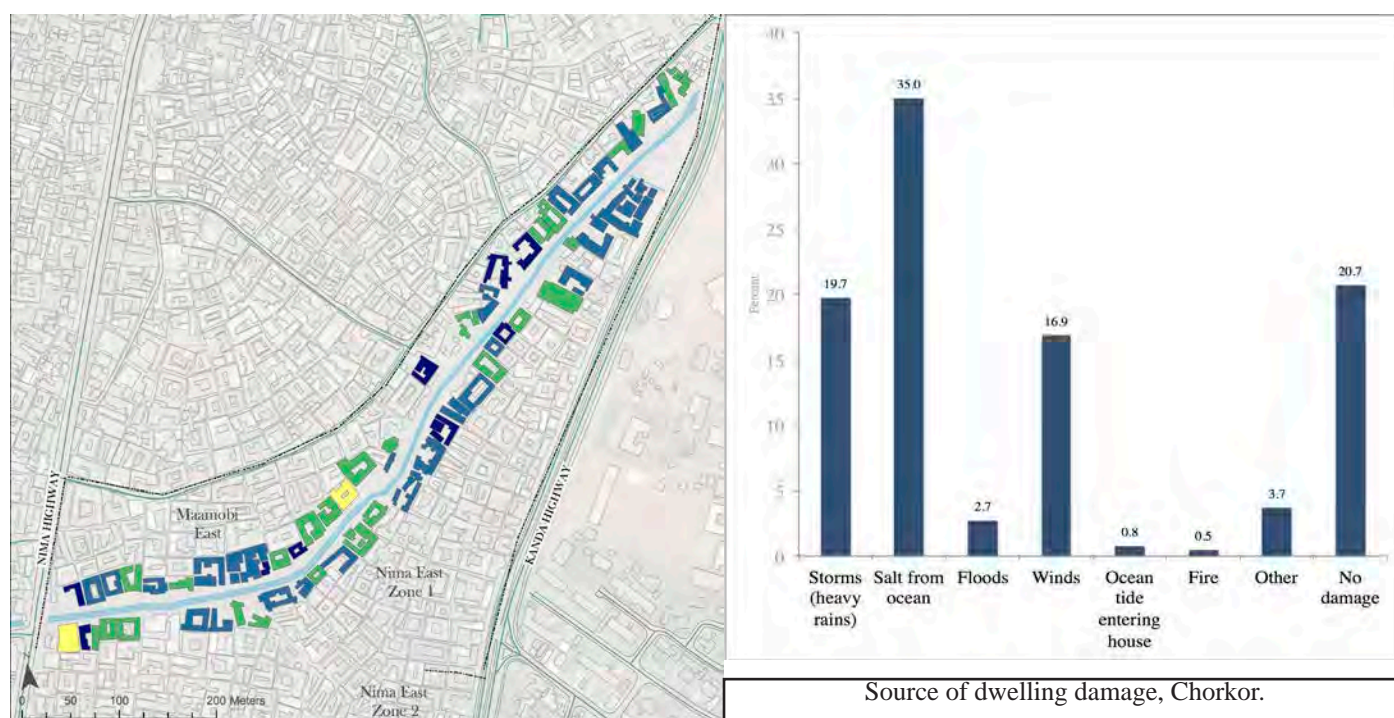


Map 7: Polluted areas in Accra, using data from Ministry of Lands and Natural Resources' Geological Survey Department (Note: data were created between 2005-2007 and require revision, but are a useful reference point.)

Lack of Affordable Housing

The lack of affordable housing in Accra has been expertly documented in the UN-HABITAT report, *Ghana Urban Housing Profile*,¹⁶ which estimates (page 174) that “if urban housing supply follows the proposed planning standards for occupancy of a maximum of two persons per room, there is a need for about 5.7 million rooms, together with all the accompanying land and infrastructure for adequate housing, between 2010 and 2020.” Further, UN-HABITAT estimate that to make housing affordable, units must cost in the range of \$10,000 to \$18,000 US Dollars (pg. 181). Overcrowded housing, especially in LIHD settlements, is reflective of the dearth in affordable housing in Accra. To capture a snapshot of housing needs in the Nima-Maamobi East drain area, a redevelopment site, MCI mapped crowding conditions by interviewing heads of households, to ascertain the average persons-per-room (PPR) rate (see Map 8); we then used a color-coding scheme indicating the rate for each dwelling. Designing household surveys to capture climate-related impacts on the physical conditions of dwellings and trends in activities of home-based enterprises can provide further insight on other housing needs. These are but a few methods to gather data that can inform a programme aimed at addressing the increasingly severe affordable housing challenge in Ghana’s capital.

There are numerous organizations in Accra with housing expertise, all of which should be approached as potential collaborators on an affordable housing component to the resilience strategy. These include: People’s Dialogue on Human Settlements, Global Communities (formerly CHF International), Housing the Masses, Tenants Resources and Advisory Centre, Akuffo & Associates and UN-HABITAT, among others. Important government authorities to convene to engage include the AMA Estates, Town and Country Planning, Metro Works and Budget Departments, and the Urban Development Unit of the Ministry of Local Government and Rural Development.



HOUSING CROWDING STATISTICS: Nima-Maamobi East Drain Area
(Only for first row of houses next to drain)

Legend - PPR Statistics (PPR = average persons per room in a house)

N/A 4 to 5.99
2 or less 6 to 9
2 to 3.99

Source: AMA UMLIS, Geological Survey Department, Earth Institute MCI.
Map by Earth Institute MCI (2012).

Map 8: Crowding conditions in the Nima-Maamobi drain area
(Note: This is an example of how household number, size and PPR can be mapped to help determine housing and infrastructure needs for a redevelopment scheme.)

MCI-University of Ghana 2014 survey results Climate-related impacts on dwellings in Chorkor, most of which required repair expenditures.

¹⁶ See <http://mirror.unhabitat.org/pmss/listItemDetails.aspx?publicationID=3258&AspxAutoDetectCookieSupport=1>

Pronounced Poverty and Inequality

In 2010, CHF International (now Global Communities) and the AMA published the Accra Poverty Map, which used data from the 2000 Census to map incidences of poverty according to eight indicators: population density, income levels, housing density, room occupancy, access or nature of access to water, domestic waste water, mode of solid waste disposal and nature of access to toilet facilities. As is the case with many composite poverty indices, this set of indicators does not comprehensively capture all poverty dimensions (it is difficult to do so), but is nonetheless a useful reference. Given that a number of studies on poverty in Accra had been already published using income and asset poverty, MCI focused its poverty-related research on mapping spatial inequalities in access to basic services from an urban planning perspective, with the exception of the Chorkor household survey, which recorded household income and assets.¹⁷ In this report, we emphasize a key component in addressing poverty and inequality: improving vulnerable groups' level of civic engagement in community development.

Achieving the level of inclusiveness requisite for a well-coordinated resilience or settlement upgrading strategy will call for increased effort in facilitating opportunities for vulnerable groups – youth, women, the elderly, disabled, migrants and especially those who are also tenants – to effectively collaborate with local government and other development agencies. These groups should be enabled to organize and negotiate with government for improvements in services, and for removing barriers to livelihood opportunities, while also ensuring that these groups can play a greater role in identifying and funding interventions in their communities. MCI's work with VOiCE illustrates the potential benefits of facilitating the conditions for vulnerable groups to develop their own community-based interventions and negotiations with local government. The accomplishments under this collaboration demonstrate that youth in the Zongo communities of East, North and Central Ayawaso sub-Metros have exceptional knowledge of the multifaceted issues facing their environs and of what can be done to promote adaptation and resilience to shocks and everyday hazards of various forms. Their knowledge can yield important benefits for their communities if they are supported in getting organized into a CBO, NGO or other collective where they can materialize their envisioned roles and actions.

Despite this potential, we found that there were insufficient opportunities for VOiCE and other youth groups to get even the minimal support needed to become more active in community development activities, even through local NGOs, unless youth employment was bundled with another, well-funded intervention, such as WASH. To the best of our knowledge, MCI's collaboration with VOiCE, in which we supported the inception and development of a youth collective for the purpose of building its leverage so that it might be more legitimately included in development activities, is the first of its kind in the East and North Ayawaso sub-Metros.

VOiCE's leadership and staff were encouraged to use their knowledge and creativity to design interventions for which MCI would later provide technical and financial support.¹⁸ We found that the staff welcomed and requested “coaching” from MCI as to how to design interventions and draft an annual program budget, reflecting maturity about the complicated nature of development projects. What VOiCE accomplished with the modest financial and technical support supplied by MCI speaks for itself, and demonstrates that youth collectives can facilitate a sizable number of tangible benefits for their respective communities -- in large measure because their initiatives are targeted with considerably more precision than the pre-determined projects often implemented by NGOs. The key here, of course, is to have and to spend the requisite amount of time in developing relationships and in learning which youth have high levels of resolve and commitment to community development initiatives.

Nevertheless, the existence, availability and commitment levels of CBOs and collectives representing vulnerable groups vary across the communities. In Nima, Maamobi and New Town, youth clubs are well organized and advocate tirelessly to be included in deliberations regarding their community's development; in contrast, in Korle Gonno, youth clubs have only recently (in the past 2-3 years) engaged in community development activities, with only one youth club having organized into a CBO (specializing in plastics recycling) as of 2014. Chorkor has a poorly developed youth development culture, which is evident in the fact that many youth organizations there have not evolved from “fun clubs” to development-oriented clubs (or to a hybrid

¹⁷ MCI's methods were summarized earlier in this report and are referenced in our settlement profiles themselves.

¹⁸ As used here, “technical support” includes advising as to how to coordinate logistics, conduct research and/or use budget funding effectively.

of both). This is due in large part to youth lacking the necessary resources (finances, logistics, etc.) to take a more active and empowered role, but also to a sense of disenfranchisement and pessimism about being taken seriously in community development deliberations. It is our experience that in both Korle Gonno and Chorkor, youth development culture is not as evolved as it is in the Zongo communities. Therefore, we recommend that specific support activities be arranged to encourage and enable youth in Chorkor, Korle Gonno and other areas with sluggish youth participation to take a more active role in designing and implementing community development projects.

In all the Accra communities where MCI has worked, we observed very little involvement of women in decision-making regarding community affairs. This may stem from a range of issues, from women not being taken seriously by their male counterparts, to the observance of norms rooted in religious practice, to women's not having as much time to participate, due to commitments at work and at home. Women's absence was especially noted during the majority of community forums coordinated by the sub-Metro offices. One of the most effective ways to encourage women interested in becoming more active in community affairs would be to provide financial support for them for 1-2 years, both for a small office with logistics (such as computers and printers), and for their designed interventions, as MCI did with VOiCE. This would give the women's groups time to develop their own organizational structures and a network of contacts and to identify ways to become financially self-sufficient. In addition, financial support should be predicated to some extent on the groups' conducting sensitization and media campaigns promoting more legitimate inclusion of women, their needs and their interests in community affairs. That said, providing a platform for excluded groups simply to voice their concerns to the AMA and to development organizations is not so much the issue; there are many "forums" with this as their sole objective. The focus should be on increasing women's role in the planning, budgeting and project implementation phases.

CBOs and civil society are central stakeholders in planning for resilience to poverty and inequality. Important authorities to convene to engage this critical stress include such organized youth collectives as the Ayawaso Federation of Youth Clubs and VOiCE; such women's groups as the Nima-Maamobi Mothers' Club; the Tenants' Resource and Advisory Centre, neighborhood savings federations, Shack/Slum Dwellers International, Global Communities and Housing the Masses; numerous other NGOs and development organizations; and the AMA Metro Planning, Education and Budget Departments.



MCI and youth NGO "VOiCE" host a "Forum for Young Ladies" in Nima, on education and safety issues affecting them. The ladies expressed concern with safety at night due to insufficient street lighting. Photo: J. Melara



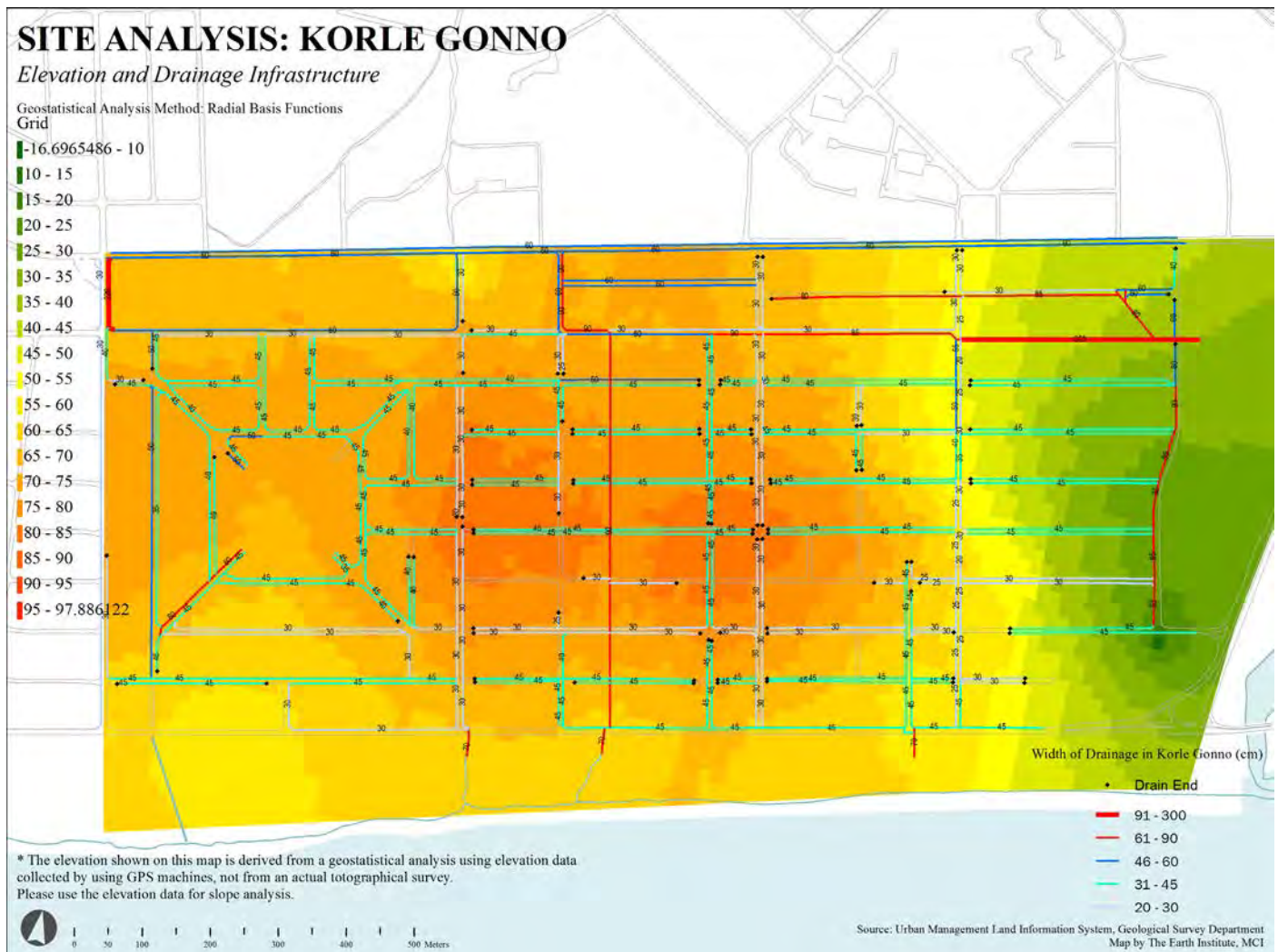
As an outcome of the young ladies' forum, MCI in partnership with VOiCE donate street lights to Nima, with ladies determining where the lights should be installed. Photo: J. Melara

Aging Infrastructure

Aging infrastructure in Accra is an area of concern in the few places where sewerage infrastructure exists, including in the Central Business District and Ministries areas, in areas where sewerage networks are incomplete and in settlements with poorly designed makeshift drains. To that point, it should be noted that Zongo communities such as Old Fadama and Sabon Zongo have typically struggled more with severely inadequate infrastructure provision than with aging infrastructure.

The extent of deterioration of some infrastructure can be captured with GPS and GIS technologies – for example, MCI mapped the physical condition of roads and drains in Korle Gonno (see Map 9 below), Chorkor and Nima East. Conditions of piped water and sewerage are difficult to map, due to their being located underground; the exception is with above-ground “informal” water pipes as are commonly found in the aforementioned settlements.

Important authorities to convene to engage this stress include: Accra Metropolitan Assembly members, opinion leaders, youth collectives, women’s groups and traditional authorities; the AMA Metro Works, Sewerage, Town and Country Planning, Urban Roads, Drains, Waste Management and Budget Departments; the Ghana Water Company Ltd, GridCo and Zoomlion; the Ministries of Water Resources, Works and Housing and of Local Government and Rural Development; such NGOs as Peoples’ Dialogue on Human Settlements, Global Communities and Housing the Masses; and UN-HABITAT and the World Bank.



Map 9. Drainage widths and elevation in Korle Gonno

(Note: Korle Gonno is a neighborhood with relatively good spatial planning but decaying infrastructure. Drain widths were catalogued to document extent of erosion where applicable.)

V. CONSIDERATIONS FOR THE WAY FORWARD

Forthcoming initiatives, including the *Resilient Cities* campaign, will be able to draw upon the AMA's convening power and the very skilled and dedicated human resource base in the urban sector, including: CBOs, youth collectives, civil society, local NGOs, larger development agencies, the University of Ghana-Legon and other research institutions in Accra, as well as the National Disaster Management Organization, the Ministries of Local Government and Rural Development, of Water Resources, Works and Housing and other national government ministries. With a unified and efficient coordination process, the AMA's settlement upgrading programme and the Resilient Cities campaign can achieve their objectives laudably, creating innovative guiding principles for urban management in Ghanaian and other West African cities. However, facilitating the requisite coordination necessitates a working knowledge of the development terrain in Accra, so that key opportunities might be capitalized upon and persisting obstacles can be proactively engaged. On the basis of our five years' experience with the MCI programme, we offer the following recommendations:

Managing Expectations

Expectations need to be managed in a very concise manner, with all envisaged outcomes laid out for forthright discussion. For example, any non-profit organization partnering with local government will probably contend with the fact that local governments are increasingly expected to attract investment in local economic development, and will thus pursue investment opportunities accordingly. The ensuing dialogue should clearly establish whether partners' interests are in fact harmonious. Of course, not only is effective dialogue needed between lead partner agencies, but also with those other stakeholders who will be critical to any initiative's ultimate success. This may appear obvious, but the negotiation process in Accra can be quite complex at times, with an array of competing interests to account for. Getting "on the same page" early on is of fundamental importance.

Enhancing Communication and Coordination

Communication and coordination, especially within the AMA and between partner non-governmental organizations, needs to be timely and inclusive, especially considering the well-documented coordination issues across the region. We emphasize this, as there were times when gaps in coordination between AMA departments impeded the progress of the MCI programme.¹⁹

It would be important to set aside funds for the purpose of hiring a project coordinator for the municipality, to ensure that the workflow will be timely and effective. While the *Resilient Cities* programme is scheduled to include funding to hire a "Chief Resilience Officer," the funding will only covers salary for two years. As such, the AMA would do well to establish continuity in the programme's workflow by having a contingency plan in place, either to keep the position past the second year, or to mainstream it into a position within the TCPD.

Improving Inclusion of Residents and Interest Groups

The AMA would greatly improve the prospects of success for its settlement upgrading programme and resilience strategy if it were to reconfigure its approach to participation/inclusion of vulnerable groups and settlements, going beyond (but still including) diagnostics workshops set up by the sub-Metros, by providing platforms for CBOs, interest groups and residents representing youth clubs, women's groups (or women-led health clubs), savings groups and especially tenants, to make their contributions in a setting without political interference or intimidation. Extra effort should be made to include youth, women's and tenants' rights collectives in developing a resilience or settlement upgrading plan, so that their considerable local knowledge and their own needs and interests can be integrated effectively.

¹⁹ As an example, even though one road extension project undertaken by the AMA Department of Urban Roads was going to impact the properties and land use alongside the road, the AMA Town and Country Planning Department was not made aware that the project was taking place.

One absolutely instrumental strategy to help strengthen support for community development and resilience-building projects is to bundle low-cost community-building interventions early on, in tandem with research or assessments, so as to respond effectively to the very real issue of “research fatigue.” This would be especially easy to accomplish in the communities where MCI has worked (James Town, Chorkor, Nima, etc.), since a suite of interventions of different scales has already been identified. For example, in Chorkor, building a cold storage facility for fish or establishing a clinic would build more receptiveness to participating in a coastal vulnerability analysis or a resettlement feasibility study. In Korle Gonno, installing streetlights and improving the refuse disposal logistics at the Tuesday Market would improve the likelihood of getting the Queen Mothers to meet and plot a course to attract market vendors back from the streets into the market. In Kwao Tsuru, small extensions to culverts that flow into the main drain might help persuade opinion leaders to participate in a redevelopment proposal.

Revising the Programme’s Catchment Area

Another very important measure to take in a settlement upgrading programme and/or resilience strategy is to capture comprehensively the different manifestations of urban poverty and urban poor settlements. The neighborhoods selected for the MCI programme were well-known “slums” in the City, but there are many lesser-known settlements - such as Sukura, Agege, Avenor and parts of Lapaz - that do not get the kind of exposure accorded to Old Fadama and Nima. There are also “poverty pockets” in more affluent neighborhoods, such as East Legon, which are experiencing very real sanitation problems, due to an increased number of construction workers settling within or near to construction sites without toilet facilities.



An opinion leader of a neighborhood in Ayawaso East presenting his neighborhood’s development priorities, at an AMA diagnostic workshop for the 2015 Medium Term Development Plan. Photo: J. Melara