

ACCRA'S MAN-MADE FLOODS: HOW POOR PLANNING DROWNS OUR CITY YEAR AFTER YEAR

By

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Every rainy season, Accra holds its breath. The skies darken, the downpours begin, and inevitably, familiar scenes unfold: streets transformed into raging torrents, homes submerged waist-deep, vital infrastructure crippled, livelihoods washed away, and tragically, lives lost. The narrative often blames "unprecedented rainfall" or "nature's fury." While intense weather events are a reality, this explanation is dangerously incomplete. As a civil engineer working on the ground in urban resilience, I assert that Accra's chronic flooding is primarily a man-made disaster, a direct consequence of decades of poor urban planning, weak enforcement, and a systemic failure to prioritize sustainable development. We are not just battling nature; we are drowning in the consequences of our own planning failures.

Beyond the Rain: The Engineered Roots of a Crisis

Flooding is, fundamentally, a water management problem. Rainwater must flow somewhere. In a naturally functioning landscape, it infiltrates into the ground through permeable soils, is absorbed by vegetation, or flows gradually through streams and rivers into larger water bodies. Urbanization disrupts this cycle. Impervious surfaces: roads, pavements, rooftops, prevent infiltration. The natural pathways for runoff (drainage channels, wetlands) are often blocked, filled, or constricted. Effective urban planning and engineering exist precisely to mimic and manage this disrupted cycle: designing and maintaining drainage systems, preserving natural buffers, and regulating development to minimize flood risk.

Accra, unfortunately, exemplifies what happens when this planning fails. Our flooding crisis is not an act of God; it is the result of specific, identifiable planning shortcomings:

1. **The Drainage Deficit: Neglected Arteries of the City:**

- **Inadequate Capacity & Coverage:** Much of Accra's formal drainage network was designed decades ago for a smaller city and lower rainfall intensities (pre-climate change). It is woefully undersized for the current urban footprint and the increasing frequency of heavy downpours. Vast areas, particularly newer informal settlements and peri-urban zones, lack any engineered drainage whatsoever.
- **Poor Maintenance:** Even existing drains are often clogged with silt, construction debris, and most critically, solid waste. Regular, systematic desilting and cleaning are sporadic and underfunded. Drain inlets are blocked by improperly disposed refuse. This drastically reduces their capacity long before the heaviest rains hit.
- **Fragmented & Incoherent System:** Drainage networks often lack a city-wide, integrated master plan. Systems in one neighbourhood may discharge into systems in another that are already overloaded or physically disconnected. There's a lack of coordinated outfalls into major water bodies like the Korle Lagoon or the sea.
- **Engineering Shortcomings:** In some cases, drains are poorly designed (wrong gradients, inadequate structural integrity) or constructed with substandard materials, leading to collapses and blockages.

2. **Encroachment and the Strangulation of Waterways:**

- **Building in the Flow:** This is perhaps the most visually glaring failure. Critical natural drainage channels like the Odaw River, Onyasia, and other major drains have been relentlessly encroached upon. Informal settlements and even formal developments have built structures within the floodplains and sometimes directly over concreted drains. This drastically narrows the channel's capacity, forcing water to back up and spill over during heavy flow. The 2015 disaster at the Kwame Nkrumah Circle interchange, where floodwaters trapped and killed people in a tunnel, tragically highlighted the consequences of building within a major drainage corridor.
- **Loss of Riparian Buffers:** Natural vegetation along riverbanks and drains plays a vital role in stabilizing soils, filtering runoff, and slowing floodwaters. This buffer zone has been systematically stripped away for development or waste dumping, increasing erosion and the speed of runoff.

3. **The Wetland Wipeout: Silencing Nature's Sponges:**

Accra was historically dotted with wetlands such as the Sakumono Lagoon, Chemu Lagoon, Densu Delta, and numerous smaller marshes and swamps. These ecosystems are nature's flood control infrastructure. They act as giant sponges, absorbing vast quantities of rainwater during storms, slowly releasing it afterward, and filtering pollutants. The systematic reclamation and development of these wetlands for housing, industry, and infrastructure is a catastrophic planning error. Filling in Sakumono, building over marshlands in East Legon, Achimota, and countless other areas, has removed the city's

natural safety valves. Water that was once absorbed now flows unimpeded onto streets and into homes.

4. **Solid Waste Management: The Clog in the System:**

Accra's struggle with solid waste management is intrinsically linked to flooding. Plastic bags, bottles, food waste, and other debris are carelessly discarded into open drains, gutters, and waterways. This waste acts like a dam, blocking the flow of water long before the drain is hydraulically full. During rains, blocked drains overflow prematurely, and the accumulated waste is washed downstream, often causing secondary blockages. The infamous "plastic waste tsunami" witnessed during floods is not just unsightly; it is a primary cause of the flooding's extent and severity. Inadequate waste collection, lack of enforcement against dumping, and insufficient public education perpetuate this cycle.

5. **Unchecked Urban Sprawl and Impervious Surfaces:**

- **Paving Over Paradise:** Rapid, often unplanned, urbanization has replaced permeable land (soil, vegetation) with vast expanses of impervious concrete and asphalt. Rainwater that once soaked into the ground now becomes instant surface runoff, overwhelming drainage systems.
- **Informal Settlements in High-Risk Zones:** Lack of affordable, well-planned housing and weak land-use controls drive the poor to settle on the only land available: floodplains, steep slopes prone to erosion and landslides (like parts of Adentan and Dodowa), and filled wetlands. These communities are the most vulnerable, bearing the brunt of floods with inadequate infrastructure or disaster preparedness.

6. **Climate Change: The Accelerator on Existing Failures:**

While not the root cause, climate change acts as a dangerous multiplier. Projections indicate increasing rainfall intensity in West Africa with more rain falling in shorter periods. Our already inadequate and compromised drainage systems, built for a different climate era, are simply incapable of handling these deluges. Poor planning has left us critically vulnerable to the climate impacts we knew were coming.

The Cost of Complacency: More Than Just Water

The impacts of this planning-induced flooding are profound and multi-dimensional:

- **Human Tragedy:** Loss of life and injury are the most devastating costs. Families lose loved ones in preventable disasters.
- **Economic Devastation:** Businesses are destroyed, inventory ruined, workplaces inaccessible. Critical infrastructure – roads, bridges, power substations, telecommunications – is damaged, disrupting the entire city's economy. The cost of emergency response, cleanup, and repairs runs into millions of Cedis annually. Property values plummet in flood-prone areas.
- **Public Health Crisis:** Floodwaters mix with raw sewage (due to overwhelmed or non-existent sanitation systems) and toxic waste from dumpsites (like Agbogbloshie). This creates a breeding ground for waterborne diseases like cholera, typhoid, and dysentery. Mosquito populations explode, increasing malaria risk. Mold infestation in flooded homes causes respiratory problems.
- **Social Disruption:** Schools close, commutes become impossible, communities are displaced, and social cohesion is strained. The psychological trauma of repeated flooding and loss is immense, particularly for children.

- **Environmental Degradation:** Pollutants (oil, chemicals, heavy metals, sewage) are washed into lagoons and the ocean, destroying fragile ecosystems, killing marine life, and contaminating fisheries.

Charting a Course to Dry Land: Solutions Rooted in Smart Planning

Blaming the rain is futile. We must address the man-made roots of the problem. This requires a fundamental shift towards integrated, resilient, and strictly enforced urban planning:

1. Prioritize & Modernize Drainage Infrastructure:

- **Comprehensive Master Plan:** Develop and fund a city-wide, climate-resilient drainage master plan. This must integrate surface water, stormwater, and wastewater management, considering future growth and climate projections. Use advanced modelling to identify bottlenecks and prioritize interventions.
- **Massive Investment:** Allocate substantial, sustained funding for construction, expansion, and, crucially, maintenance of the drainage network. Explore innovative financing mechanisms (e.g., stormwater utility fees).
- **Nature-Based Solutions (NBS):** Integrate Sustainable Drainage Systems (SuDS) at scale: permeable pavements, bioswales, rain gardens, and constructed wetlands within developments and along roads. These slow, store, filter, and infiltrate runoff at the source, reducing pressure on conventional drains.
- **Rigorous Maintenance Regime:** Implement a systematic, well-resourced schedule for desilting, cleaning, and repairing

drains before the rainy season. Employ technology for monitoring blockages.

2. **Reclaim and Protect Waterways & Wetlands:**

- **Strict Enforcement of Buffer Zones:** Demarcate and rigorously enforce legally mandated "No Development" buffer zones along all major drains, rivers, and lagoons. Relocate existing illegal structures within these zones through fair and participatory resettlement programs. This is non-negotiable.
- **Wetland Restoration & Protection:** Halt all further wetland reclamation. Identify and legally protect remaining wetlands. Invest in restoring degraded ones. Recognize them as vital infrastructure, not "waste land."

3. **Revolutionize Solid Waste Management:**

- **Investment in Collection & Processing:** Dramatically improve waste collection coverage and frequency, especially in flood-prone informal settlements. Invest in modern transfer stations and sustainable waste processing (recycling, composting, WTE where feasible).
- **Enforcement & Public Education:** Strictly enforce laws against littering and dumping in drains. Launch sustained, impactful public awareness campaigns on waste segregation and proper disposal. Engage communities in clean-up drives.
- **Drainage Design Integration:** Design drains with features that minimize waste accumulation (e.g., trash racks at strategic points).

4. **Smart Land-Use Planning & Enforcement:**

- **Updated Flood Risk Maps:** Develop accurate, publicly accessible flood risk maps based on current topography, infrastructure, and climate projections. Make these legally binding for planning decisions.
- **Zoning Regulations:** Prohibit high-density or critical infrastructure development in high-risk floodplains and vulnerable slopes. Promote water-sensitive urban design (WSUD) principles in all new developments.
- **Crackdown on Illegal Development:** Strengthen institutions (e.g., TMA, AMA) and provide them with resources and political backing to decisively halt and demolish illegal structures in waterways and wetlands. Address corruption enabling this.
- **Affordable Housing Strategy:** Develop a massive program of well-located, affordable housing with integrated drainage and sanitation to reduce pressure on high-risk areas.

5. **Climate Resilience Integration:**

- **Mainstream Climate Risk:** Integrate future climate projections (rainfall intensity, sea-level rise) into *all* infrastructure design standards (drains, roads, buildings).
- **Early Warning Systems:** Invest in robust meteorological monitoring and community-based early warning systems for heavy rainfall and potential floods.

6. **Governance, Coordination & Community Engagement:**

- **Unified Authority:** Establish a single, empowered, well-resourced entity with cross-cutting authority for flood risk management, coordinating AMA, TMA, EPA, NADMO, and utility providers.
- **Participatory Planning:** Actively involve communities, especially those in high-risk areas, in planning, implementation, and maintenance of flood control measures. Leverage local knowledge and build ownership.
- **Transparency & Accountability:** Ensure transparent budgeting and project implementation. Hold officials and developers accountable for violations contributing to flood risk.

A Choice, Not a Fate

Accra's flooding is not inevitable. It is the result of choices made, choices to neglect drains, to ignore encroachments, to sacrifice wetlands for short-term gain, to tolerate waste clogging our waterways, and to allow unplanned sprawl in harm's way. These choices have built a city acutely vulnerable to water.

At CSUPEM, we know the solutions exist. They require not just technical expertise, but immense political will, significant financial investment, rigorous enforcement, and a fundamental commitment to planning for resilience rather than expediency. We must move beyond reactive disaster response to proactive, integrated urban management.

The rainy season will come again. Will Accra continue to drown under the weight of its poor planning? Or will we finally choose to build a city that works with water, not against it? The cost of inaction is measured in lost lives, shattered economies, and a future perpetually underwater. The time for decisive, coordinated, and sustained action is now. Our city's survival depends on it. Let us choose dry land.