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**Drainage Systems in Nigeria**

Environmental sustainability is vital for maintenance of our ecosystem. Drainage systems and waste management are one of the many ways the environment can be sustained. A characteristic that should be well present in our environment are drainages. Drainage systems can include anything from gutters and drains in houses to remove rain water, storm water systems to drain rainwater from roads into roadside drains and drainage systems to remove sewage from houses into municipal ‘sewers’ for disposal. In present day Nigeria, this important feature of the environment is lacking in many areas of the country causing a wide range of problems for the environment and citizens alike. Personally, in my immediate environment there are no proper drainages.

Drainage systems are constructed to ensure that waste water and sewage is transported neatly to disposal points, thereby keeping the environment well drained and free of waste. Examples of components that make up a good drainage system include; closed ditches having pipe drains, drainage pipes, channels and conduits. There are two main types of drainage systems; surface drains and French drains. Other types of drainage systems are slope drainage systems, downspout and gutter systems, subsurface drainage systems, residential drainage systems. Surface drainage is the removal of surface water by development of the slope of the land utilizing systems of drains to carry away the surplus water. In subsurface drainage open ditches and the fields intercept groundwater and carry it off. French drain is a trench filled with gravel or rock containing a perforated pipe that redirects surface water and groundwater from an area.

Different factors add up to become causative factors of poor drainage systems in Nigeria. One being poor urban planning. Poor urban planning in the face of rapid urbanization is one of the many problems confronting our country today. It is also a high contributor to poor drainage systems in Nigeria. Every day, new structures are being put up with no attention paid to drainage structure. Alteration in planning has led to buildings being erected on drainage channels and path thereby increasing storm water problems. Residential areas especially are developed with no input for drains or channels for waste. Poor infrastructural planning is taking its toll on the occupants of different suburbs.

Improper waste management, is another reason for poor drainage systems in Nigeria. It is common practice of Nigerians to dump all manner of refuse and waste in gutters, ditches and drainage channels. These drainage channels remain unattended to and eventually get clogged. When rain falls there is no channel for the passage of water and the streets get flooded. Lagos, is one of the places in Nigeria that suffers from improper waste management. Whenever rainfalls occur, especially heavy ones there is often accumulation of all manner of waste on the roads accompanied by flood. Residents often have to walk or swim through the residue. Occurrences like this happen in all areas including the highbrow areas like Lekki, Victoria Island etc.

Poor maintenance of drainages is also a cause of poor drainage system in Nigeria. It is one thing to construct and another thing to maintain. The construction of drainages is a waste when not properly maintained. Conditions such as overgrowth of weeds, leakages and stagnation of water will not only hinder flow in the drain but also cause overflow problems.

Furthermore, faults in drainage design is a cause of poor drainage systems. Issues are generated by improper design of drainages. Rainfall distribution patterns differ in different places. Most drainages are designed with basic hydraulic formula without considering the variance thereby ending up increasing problems of flood and overflow of water in these areas. For instance, in Port Harcourt there have been cases of houses getting flooded even with the presence of drainages in the area.

The impacts of poor drainage systems in Nigeria are one too many. The absence of good drainage systems causes erosion problems. This has been experienced in many areas of Nigeria, where roads have been washed away and gullies created as a result of flooding. Erosion swallow homes as well as the livelihoods of people in the nation. Flooding is also an effect of poor drainages. Large bodies of water accumulate where they are not supposed to. Buildings and properties are covered and swept away by water. People are being displaced from their homes as a result of floods. In the year 2012, 363 people were feared dead while 2.1 million citizens were displaced across Nigeria as a result of floods. According to the National Emergency Management Agency(NEMA), 30 states out of 36 in Nigeria were affected by that flood experience and it was concluded as the worst that has ever happened in the last 40 years, causing damages of an estimated value of 2.6 trillion naira. The rainy season is now dreaded by citizens. In places like Edo state, people move out of their houses to go and squat with other families because of floods. This creates situations of discomfort for people.

Health hazards are posed as a result of poor drainage systems. Stagnation of water encourages breeding of mosquitoes. Water sources for domestic use by the people are also infected. These unhygienic conditions cause many people to come down with different sicknesses like malaria, cholera, typhoid etc. All are silent killers which snuff the life of people on a daily basis.

Deterioration of roads is also an effect of inadequate drainage systems. On a lot of Nigerian roads there are cracks, pot holes, ditches on the road pavements either at the edges or along the drive way which differ by shape, depth and rate of deformation. The bitumen and coal tar used on roads are also chipped away by flooding. The condition of the roads makes road users accident prone. It also causes heavy expenditure by the government as a result of constant reparation of the roads.

To solve the problem of poor drainage systems, I recommend adequate planning of urban cities with provision for the right types of drainage systems for different areas. The government could set up a board to effect this if there is none. Wastes should be properly managed. Waste collectors should be assigned to different areas across the country. This will stop people from disposing wastes on the roads. Penalties should be put in place for people found littering the streets. Maintenance and sanitization of drainages will also help to curb the problems associated with bad drainages. Members of the community could rally themselves for sanitization of their environs. Officials could also be assigned for the job. Drainages should be properly planned to avoid faults and waste of funds used in building the drainages. The solutions aforementioned should be encouraged at all levels by the government through workshops, public hearings and seminars for residents and citizens of the country. When policies are developed, the community should follow it up or it would be a complete waste. This will help in achieving environmental sustainability and good living for all and sundry.