Aquitectures = Water + Architecture
Expressions of Water in Philippine Architecture, Landscape and Urbanism

A Flagship of Project of the National Committee on Architecture and the Allied Arts for the Philippine International Arts Festival 2010

Exhibition Venues: Manila (National Museum) or Vargas Museum (UP Diliman) for Luzon
Iloilo or Bacolod for Visayas
Zamboanga or Cotabato for Mindanao

The Eccentric Architecture of Water
Water is the only inorganic liquid that occurs naturally on earth. It is also the only chemical compound that occurs naturally in all three physical states: solid, liquid and vapor. This liquid water is vital to all living organisms, from the simplest microbe to the most complex animal, so it is fundamental to the existence of the whole web of life, humanity, and civilization. Water has always played a pivotal role in architectural history and design.

Aquitectures = Water + Architecture is a multimedia and installation exhibition using projected images, sound, paintings, and archival visual materials that discursively explores the longstanding relationship of water and architecture in Philippine society with the following thematic clusters:

Water-borne Architectures
( Amphibious Austronesian Vernacular Architecture, Riverine and Lacustrine Settlement Patterns, Naval Architecture) Building on piles is an almost universal, and undoubtedly ancient, feature of Philippine vernacular architecture, both among lowland communities and ethnic groups. Its history in mainland Southeast Asia can be traced back to Neolithic times, and its wide distribution in island Southeast Asia and the Pacific suggest that the technique was used by the early Austronesian settlers of the archipelago. Pile foundations have several advantages in a tropical climate, especially when settlement patterns are mainly concentrated as in coastal, riverine and lakeshore areas. Piles raise the living floor above the mud and flood waters which occur during seasonal monsoon rains, while providing excellent under floor ventilation in hot weather.

The archipelagic features of the Philippines have encouraged both terrestrial and naval architecture. Filipinos living in maritime regions, have, for centuries, constructed houses on stilts. Sea nomads, such as the Samal, the Tausug, the Yakan, and the Badjao, inhabit these amphibious houses.

Although descending from the Austronesian architectural tradition, the houses found widespread among the different Muslim communities in the South are categorized into: land-based stilted dwellings situated along the shoreline; oceanic dwellings built completely over the sea and entirely detached from the shoreline; and, the houseboat, which is both home and fishing boat to the Badjao.
Sulu houses are supported by piles driven deep enough for structural anchorage into the reef floor. The houses are linked together to the shore and to one another by a network of catwalks and bridges of timber and split bamboo, above sea level.

**Water as Design Metaphor**
The use of water and its properties as a design metaphor in the development and exploration of new and experimental architectural form is one approach in postmodern allusive edifices.

**Water and Sacred Space**
(Water as symbol of spiritual purification and divine blessing/ Water as spatial element in sacred architecture i.e. mosque Ablution fountain/ church Font/ Baptism etc.) Although water is rarely pure, it has been seen as an emblem of purity for thousands of years. Many religions have purification rituals involving water, often in the form of symbolic washing—as in Christian baptismal rites and Islamic ablution fountains. In such religions, water plays a fundamental role in creation, sacred dwelling, blessings, affirmation of faith, and divine retribution.

**Recreational Water Environments**
Water Leisure Cultures (beachfronts, spas, bathhouses, aqueduct architecture, swimming pools and hydrotherapeutic structures) Water has an undeniable allure. We gravitate towards lapping rivers, lakes, ocean, as an escape from landlocked lives. The myriad functions of recreational water have given rise to a plethora of accoutrements for easing the enjoyment of it – hotels, restaurants, resorts, rental equipment, swimwear – and an industry. Water has become a recreational commodity to be marketed, advertised and sold.

Spas and baths existed within a web of interconnected, though at times conflicting, medical, philosophical, aesthetic, social and religious discourses. Bathhouses flourished during the Spanish period in areas where hot springs and therapeutic mineral waters abounded like those found in Los Baños in Laguna and in Sibul near San Miguel de Mayumo in Bulacan. The settlement of Los Baños (Spanish for “baths”), which had numerous hot springs and whose waters were said to have curative effects, attracted the Spaniards especially the Franciscan friars. In 1589, Father Pedro Bautista established public bathhouses constructed of rattan, bamboo, and nipa erected over a course through which hot water from the spring passed through.

**Waterscapes and Fountains of Civic Life** (Landscape architecture and public fountains) Water is a universal landscape element. It is the vital element which can bring life to any landscape; immediate life, constant life. Water’s wonderful contribution to this world has been to shape the hard landscape through its immense forces of erosion and to create the soft landscape through its gentle nurture of vegetation. In itself it is the fundamental soft element. It is a sculptural medium unsurpassed in its potential to make the most of its form, transparency, reflectivity, refractivity, color, movement and sound. It is a most desirable medium for a landscape designer. But such bounty is not gratuitous. It demands knowledge and understanding for effective use. Water can create an atmosphere which stirs almost any emotion.

**Waterworks and Domesticity**
(Water and the Evolution of Filipino Domestic Life) Before the installation of a piped-in water system offered by the municipally operated Carriedo waterworks in 1882, Manila’s population
were entirely dependent on surface water supplies such as rivers and superficial wells, which were dangerously polluted. As water coursed though densely populated riverbank communities, it was subject to frequent and dangerous contamination.

Pure water could be obtained by channeling rainwater from the roof to the household cisterns called aljibe. These cisterns were usually built of bricks or adobe and contained enough water to last for weeks. The water for daily consumption was withdrawn by means of pails and kept in smaller earthen jars (tapayan) to which small alum crystals (tawas) were added for purification. This water was chiefly used for drinking. But this system was not always dependable and could not guarantee a constant supply of water as it was held hostage to the unpredictability of metrological phenomena.

The water from the Pasig River although readily available, could not support the entire population of Manila, especially those who settled in communities far from the river. Unable to buy their water from peddlers for economic reasons, these poor communities established superficial wells which supplied their need for water. The typical surface well had no curbing, shed or casing. In communal wells of this kind, people usually bathed and washed close to the well, which filtered the waste water back into the well, thus polluting the same well from which they also drink. These wells proved to be extremely unsafe and dangerous for drinking, provoking municipal orders for absolute closure at the height of cholera epidemic. The American proconsuls would substitute the same with artesian wells.

**Designing with Water, Waterproofing, and Architectural Detailing**

The concept of waterproofing or protecting buildings against the damaging action of water derives from the need to avoid water and humidity related elements that act negatively upon constructions. This negative effect can present itself in several ways, creating health problems, structure deterioration, facility damage and others.

Waterproofing is the formation of an impervious barrier which is designed to prevent water entering or escaping from various sections of building structures. Internal areas that are waterproofed include bathrooms, shower recesses, laundries and toilets. Whilst external areas waterproofed extend to roofs, planter boxes, podiums, balconies, retaining walls and swimming pools.

A rain gutter (also known as eaves trough, eaves channel guttering or simply as a gutter) is a narrow channel, or trough, forming the component of a roof system which collects and diverts rainwater shed by the roof.

**Urban Water Technological Systems of Modernity and Social Control**

(Colonial Sanitation, Sewer Systems and Medicalization of Urban Space) Sewers are perhaps the most enigmatic of urban infrastructures. Most citizens of modern cities are aware of their existence, yet few could accurately describe their layout or appearance. Water is a brutal delineator of social power which has at various times worked to either foster greater urban cohesion or generate new forms of political conflict. The expansion of urban water systems borne out the chaos of the 19th century industrial city, in which the relationship between water and urban space can be understood by the emergence of the ‘medicalized city’, characterized by features such as new moral geographies and modes of social discipline based upon ideologies of
cleanliness, a move away from laissez-faire policies towards a technocratic and rational model of municipal management, and a connection between urban infrastructures. Water played a pivotal role in this medicalization of urban space to produce what we would recognize as an archetypal modern city with its closely choreographed intersection between technology, space and society.

Water Navigation and Transportation Linkages
(Lighthouses, Bridges, Canals, and Waterways etc.) The perpetuation of the Hispanic urban program in the 19th century was synonymous to the elevation of living standards of its subject through urban infrastructure and public works manifested in the provision of potable water, in the building of roads and bridges, and in the introduction of railway and tram lines in the metropole. In the design and construction of water-related colonial infrastructures—ports, bridges, lighthouses, waterways, waterworks, railway, and urban tram system—Spanish engineers brought and employed the most advanced construction methods and the leading building technology available at the time.

Colonial economy was highly dependent upon port and harbor facilities as the latter functioned both as an entrepot and imperial base. Port facilities made possible the integration of the colony within the routes of global commerce and veins of world economy. Port improvements consisted of the erection of sea walls and small wooden docks in Manila, Ilocos, and Cebu.

Water and Power Generation
(Steam Engine, Hydrothermal Power Plants etc.) Water can be turned into energy in several ways, either directly through the power of flowing water, or indirectly by turning it into high-pressure steam. Steam can be used to drive engines—including the steam turbines that generate a lot of our electricity. Turning water into steam requires heat. This has to be produced by using other forms of energy such as burning fuel, so the water is just part of the process rather than the source of the energy. But flowing water has a power of its own, making burning fuel unnecessary, and modern techniques for harnessing this power can be efficient.

Water and Architecture of Disaster Prevention
(Flood embankments, Lahar dams, Pumping Stations etc.) Water is both a vital resource and a destructive force. When unusual weather brings too little rain, crops wither, farm animals can die, and people may starve. When there is too much rain, flash floods can leave trails of destruction, and rising rivers can overflow their banks and swamp whole landscapes. The floodwater can make sewers overflow and contaminate drinking water supplies, wreck power plants and leave people without electricity, and destroy homes and transportation links. Both extremes of drought and flood have been part of human experience for centuries, but as climates change and populations grow, droughts and floods seem to be becoming more frequent, and are having more devastating impacts.