
**Integrating Qur'anic Texts with Malawian Folklore in Conceptualising
Water Metaphors for Rethinking Science in the Humanities**

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Abstract

The importance of religious literature and folklore in amplifying scientific thought concerning water has been ignored and not adequately integrated with modern science. This is even though from time immemorial, water has been, and still is, the most common natural resource that the poor and affluent use daily. This study explores how water and water-related metaphors are loaded with scientific thought in Qur'anic texts and Malawian folklore. The study employs ecosemiotics and geocriticism to explore water-related natural and scientific phenomena. The use of eco semiotics and criticism to read religio-cultural literature is a quandary that this study conveys since other studies have focused only on analyzing water-related texts in the Bible and the Qur'an without integrating folklore. The study provides a qualitative and descriptive analysis of water metaphors in selected Qur'anic texts and Malawian proverbs to unearth scientific thought. The findings show that the selected Qur'anic texts and the Malawian proverbs converge in depicting earth-centered scientific thought. The findings also concretize the postulation that thinking in terms of science is entrenched in humans insofar as they reflect on natural phenomena and the laws of nature. Observational and experiential knowledge about the behavior of water builds into verifiable scientific data. Humans are ineluctably integral to nature, and using metaphors, parables, and proverbs involving water illustrates not only its usefulness in sustaining life but also the knowledge generated from water.

Keywords: Qur'an, metaphor, folklore, eco semiotics, criticism, science

Introduction

The attainment of development goals for any community depends on water availability. The *Malawi 2063* prioritizes "the provision of clean water, sanitation, and hygienic services" (38). Prioritizing water as a key factor for development entails how pivotal it is as a driver for healthy communities and development. To achieve the African Union's *Agenda 2063, The Africa We Want*, water is also one of the priorities: "The continent embeds principally adaptation processes to maintain healthy ecosystems, preserve the African natural environment – as the largest remaining reserve of pristine waters, old growth forests and land in the world" (30). Thus, water is vital for the health of human and non-human communities and the elixir for the growth and development of organisms. Malawi's *National Water Policy (2005)* carries the overall goal of "sustainable management and utilization of water resources, to provide water of acceptable quality and of sufficient quantities, and ensure availability of efficient and effective water and sanitation services that satisfy the basic requirements of every Malawian and for the enhancement of the country's natural ecosystems" (4). Water quality and its availability in quantities that human and non-human communities can sufficiently use are key indicators of quality of life. *The 2030 Agenda and the Sustainable Development Goals (2018)* emphasise that "[c]lean, accessible water for all is an essential part of the world we want to live in" (35). Water is, therefore, not only vital to sustain life but also key in development. Water, however, does not carry one fixed meaning. *Proverbs 5 15-17* calls upon a married young man to "Drink water from your own cistern, flowing water from his with strangers." One's wife, symbolised by the "cistern" is a source of water for a husband, and from this "cistern," the husband drinks to the fullest satisfaction. The husband is also a source of water only for his wife and his water is not meant to be "scattered" to other women but water restricted to one "stream" (one's wife). This water is empathetically shared between wife and husband, *umuna/ukazi* (fluids). *Surah Al-Hajj, 22:5*, reads in part, "We created you out of dust, then out of sperm, then out of a leech-like clot, then out of a morsel of flesh, partly formed and partly unformed." From this embryological science, water, therefore, is the origin of and the basis for life. Water, the most abundant natural resource, exists not only in its commonly known liquid state but also in solid and gaseous states. The local similitude, *Munthu ndi madzi sachedwa kusungunuka* (The human being is water, she/he easily melts), contextualises water as the basis for life. It is the major constituent of protoplasm. The permeability properties of water that enable it to

occupy different spaces at different times imply that spatial and temporal metaphors regulate its existence with scientific signification. The search for knowledge from natural phenomena like the behaviours of water is primordial throughout all cultures. Cultures have sign systems through which adherents learn not only from their socio-cultural institutions but also from natural phenomena and their sign-mediated meanings.

This calls for the use of the term “ecosemiotics” defined as “a branch of semiotics that studies sign processes as responsible for ecological phenomena” (Maran and Kull 2014: 41; Maran 2020:3). Literature’s raw material is language. Ecosemiotics as a theory connects with insights of literature as a cultural product. Meaning-making, semiosis, is the domain of literature. Zapf notes that “[l]iterature uses the resources of language, imagination, and discourse for the creation of long-term, self-reflexive models of ecosemiotic complexity” (4). Since literature blends with cultural ecology, the mingling of culture and nature is embedded in culturally loaded signs. The culture-nature interplay is important in ecosemiotics since people learn how to survive in the environment in which they are born. Although the use of metaphors in encoding and decoding meanings is culturally specific, like scientific data, meaning can be generalised.

Howarth observes that “[w]e know nature through images and words, a process that makes the question of truth in science or literature inescapable, and whether we find validity through data or metaphor, the two modes of analysis are parallel” (77). Metaphor provides important insights in deciphering meaning from literary texts. Derived from Greek, the term “metaphor” means “carrying from one place to another” and this is an implicit comparison (Cuddon 432). Thus, ideas can be understood without overt utterances. If “the vehicle is symbolic and carries an implicit tenor” the metaphor is variously known as organic, structural or functional (Cuddon 497). The term “tenor” is described as “the purport or general drift of thought regarding the subject of a metaphor” and “vehicle” refers to “the image which embodies the tenor” (Cuddon 713). As such, metaphor means naming something by comparing its attributes with another. In his *Poetics*, Aristotle explains that “[m]etaphor consists in giving the thing a name that belongs to something else; the transference being either from genus to species, or from species to genus, or from species to species, or on grounds of analogy” (1457^b7). People’s cultural norms, mores, beliefs, and values are enmeshed in metaphors. Lakoff and Johnson are of

the view that the “most fundamental values in a culture will be coherent with the metaphorical structure of the most fundamental concepts in the culture” (22). For example, *Madzi ayima m'kandodo* (Water stands in a stick), as in *mzimbe* (sugarcane), is a metaphor. *Kukaponda kamandiponda* (When I step on it, it steps on me). This expression refers to when an individual stands in a bucket of water and the displaced volume of water when the two feet are submerged. These metaphoric constructs could be understood in the context of Malawi but are open to generalisation.

Geocriticism is a geo-literary theory that overlaps with ecocriticism in that both theories have “their mutual interest in issues like place, space, landscape, and nature” (Prieto 19). Humans and nature are interconnected and the representation of place in literary texts is the focus of these two theoretical formulations. Tally Jr. explains that “[g]eocriticism allows us to emphasise the ways that literature interacts with the world, but also to explore how all ways of dealing with the world are somewhat literary. The geographer [...] is a kind of writer (‘earth-writing’ being what geography is, literally), and the representational techniques used in such sciences are often analogous, if not identical, to those used in so-called imaginary writing” (Tally Jr. x). Geocriticism is thus, concerned with the analysis of “place, space and mapping” (Tally Jr. and Battista 2). Geocriticism’s emphasis on places, confined spaces, mapping, different forms of imagery, and multiple voices inform the theory’s interest in deterritorialised spaces in the globalised capitalist context.

In what follows, the study focuses on selected Quranic verses and Malawian proverbs involving water in three main sections. The first section focuses on metaphors of water in Qur’anic literature and Malawian folklore. Water is a natural resource that occupies different spaces in various states. Rainwater runs on the earth’s surface and flows into streams, rivers, lakes, and oceans. Some of the water seeps into the soil. Some rocks are sources of rivers. Lightning and thunder occur in rain and other atmospheric conditions. The second section deals with the religio-cultural metaphoric construct of water that reflects scientific thought. Water in various bodies such as oceans, seas, lakes, and rivers play significant roles as sources of food supply and habitats for marine plants and animals and for commercial activities. The last section concludes the discussion of how scientific thought is depicted in Qur’anic literature and Malawian folklore. Arguably, the arts and humanities carry scientific thought that can be verified by modern science.

Water circulation and its different roles

Water is used in religio-cultural literature as a sign or code for those endowed with wisdom and understanding. Water is an encryption from which people reflect natural laws and make sense of them. Water plays a crucial role in greening the earth and producing fruits and crops of different hues. Thus, this section deals with the archetypal recurrent patterns of water in its various forms and the metaphors involving water from the Qur'an and Malawian folklore. The hydrological cycle benefits from water's existence in liquid, solid, and gaseous states and plays a critical role in replenishing water on Earth. *Surah Az-Zumara, 39:21*, alludes to the water cycle, reminding the addressees to reflect on the source of water, rain, and how it circulates. Water occupies different spaces thereby creating spatial metaphors with multiple significations. Rain comes from the sky; it is a sign that has its sender, God, and it is a communicative sign:

The addressees are people, invited to reflect on how water circulates from the clouds onto the earth's surface, percolates into the soil, is absorbed by plants, and flows into rivers, lakes, and oceans; only to rise again through evapotranspiration. The appeal to the faculty of seeing is meant to make the addressees observe and contemplate water, its circulation, and its effects on plants. How rain comes from the sky and soaks into the earth and feeds into rivers, brooks, glaciers, streams, lakes, and other bodies of water is under the laws of nature. Thus, the whole passage focuses on human-nature relationships drawing our attention to signs in nature as a source of knowledge and wisdom. The sky, springs, and earth evoke spatial metaphors. Surface water flows, it infiltrates and percolates into the ground as groundwater forming the baseflow. Overland flow brings water into springs, rivers, and lakes. Transpiration, evaporation, and precipitation continue the water cycle again. Altitudinal drop in temperature is a condition known as "dry adiabatic lapse rate" (Holden 6) and it leads to condensation of water vapour culminating in precipitation and saturation. Wherever water is present in different forms in these temporal and spatial metaphors, constitutes indexical signs that locate places.

Maidment observes that "[a]s an earth science, hydrology is closely related to other natural sciences, understanding precipitation and evaporation requires knowledge of climatology and meteorology; similarly, infiltration is connected to soil science, groundwater flow to geology, surface runoff to geomorphology, streamflow

to fluid mechanics” (1). These natural sciences are inferred in the Qur’anic text being probed. In a few words, the Qur’anic text under discussion carries information about the natural sciences and biological sciences as well. The yellowing of leaves and drying up of plants are symbolic of death. At specific times in their lifespans some organisms “dry up and crumble away” and this reflects signs that mediate between living organisms and environmental conditions.

Germination of seeds requires moisture, “Then He causes to grow, therewith [moisture], produce of various colours.” A whole gamut of agricultural produce is sustained by water and the call to people to consider what they see implies that what is involved is observational science. Similarly, the proverb, *Ili kutali mvula mpesa umera m’ng’amba* (The rain is late in coming, seeds will sprout in drought) (Kumakanga, 1996:12), informs indigenous ecological knowledge about seed germination at one level of interpretation; rain is not a requirement for seed (*mpesa*) germination (*kumera*). Dew (*mame*) is a form of water caused by several factors including water droplets on the earth’s surface from the air and water droplets distilled from the soil under humid and cloudy conditions. Although dew forms on different surfaces such as vegetation, buildings, and soil, it moistens the soil so that some seeds with pervious membranes can absorb moisture and germinate despite the absence of rain. Pragmatically, the proverb uses *mvula* (rain) as a metaphor for a witness (*mboni*) in a court case and the germination of the seed (*kumera mpesa*) implies that the case proceeds even if there is no witness (rain/*mvula*) because there is sufficient evidence for its continuation in dew/*mame*. The formation of dew/*mame* during drought (*ng’amba*) provides alternatives for the survival of animals and plants. Thus, water carries cultural codes, and signs through which people generate knowledge from natural phenomena.

Panzaru observes that “[e]cosemiotics is generally considered to be a border discipline, not only because, by being a relatively new field of study, it is situated on the outskirts of the paradigm of semiotics. Ecosemiotics is a border discipline also in the intrinsic sense that it has emerged in the boundary between fields that study culture and those dealing with natural phenomena” (421). The circulation of water is a natural phenomenon but the Qur’anic text and the Malawian proverb being probed are rooted in the premodern cultures of Arabs and Malawians at particular times in history, diachronically, but in synchronic terms, these views are in tandem with modern science. Accordingly, Maran argues that “[c]ulture that has lost dialogic

relations with its environment is in danger of collapsing under its own weight” (46). Human affiliations to the environment are culturally coded and the environmental degradation in the contemporary postmodern culture de-contextualises human-environment dialogue.

Lightning and thunder result from differences in electrical charges under specific atmospheric conditions. Lightning and thunder are loaded with communicative signs. There are rules for their occurrence and conditions under which they occur. Relatedly, Posner notes that “[i]f the humanities do not limit themselves to developing rules for an adequate sign behaviour of humans, but also take on the task of studying the conditions of the possibility of these rules, they will have a chance to overcome their status of being arts and eventually become sciences” (2011:37). *Surah Ar-Rum, 30:24*, provides the conditions for the occurrence of lightning; cloudy, humid, and rainy:

This passage is hinged on rain and its life-renewing or revitalising potential. The first part of the passage refers to atmospheric electricity in the form of *lightning* and thunder amidst the formation of heavy rainy clouds. Thunderbolts evoke fear among humans despite the hope of rain that energises the earth, bringing about new growths, insects crawling, and others flying with vigour. The spatial metaphors of the sky as the source of rain and the earth as its destination culminate in reiterating the functions of rain, “and with it gives life to the earth after it is dead.” The imagery of dry earth is that of death, but with water, the dead earth is brought to life just like all animals and plants have water in their living cells, symbolic of life. Living organisms constitute ecological communities whose interconnectedness is sign-mediated in this metaphoric narrative. The proverb *Mvula ikagwa kuchuluka zoliralira* (When it has rained, there is a polyphony of voices) from frogs, millipedes, centipedes, crabs, flying and crawling insects, for instance, implies indigenous knowledge about the life-generating potential of rain.

As can be observed, the use of geocriticism in this study is apt. Tally Jr. explains that “[g]eocriticism is an essay, in the strongest and broadest sense of the word, an ‘attempt’ to make sense of things, to make sense of the ways we make sense of things, which is after all the role of the critic” (2011: xii). We make sense of our surroundings and natural phenomena through observation from which experiential knowledge is generated. The skies, the earth, and the behaviours of water in different

states are pivotal and crucially important in garnering this knowledge. Significantly, “[g]eocriticism surveys a territory, speculates about others, suggests possible paths to take, and argues in favour of certain practices and against others, all while peregrinating around multiple discourses of space, place, and literature (Tally Jr. 2011: xi). The polyphonus voices inform a geocritical literary approach that considers the discourses in science, arts, and humanities in harnessing a criticism that echoes Arnold’s description of the term “culture” as the “the best which has been thought and said in the world” (*Culture and Anarchy* 193). The best that has been *said* in this world has been *said* in the sciences, arts, and the humanities.

Surah Ar-Rum, 30:24, cited above denotes *lightning* as being among signs in nature that make people “fear” for their lives despite the “hope” that the accompanying rain brings. Similarly, the Malawian proverb, *Wakwata kwa Mphenzi saopa Kung’anima* (If you get married at Thunder’s, don’t fear Lightning) (Kumakanga 40), alludes to indigenous knowledge that rain has connotations of Thunder (*Mphenzi*) and Lightning (*Kung’anima*). Kumakanga explains that *Mphenzi pa nthawi ya chilimwe imakhala ili chete, koma pa nthawi ya dzinja imang’anima ndi kugunda* (In the dry season thunder is silent but in the rainy season, lightning and thunder are observed) (40). Besides conducting experiments, the bulk of the knowledge in science is observation-based. Indigenous people know that thunder and lightning are associated with rain. In terms of modern science about what causes thunder, on the one hand, “Lightning causes rapid heating and expansion of nearby air, followed by cooling and contraction. This creates a sonic shock wave – thunder” (Bunning1). The “sonic shock wave” in the vernacular language, *kugunda*, creates auditory or acoustic imagery. On the other hand, in lightning the “cloud’s negatively charged base repels electrons on the ground. Cloud-to-ground lightning is one type of lightning – others also result from the charge difference in clouds” (Bunning1); this creates visual or graphic imagery. Since light travels faster than sound, lightning appears first before thunder is heard. There is scientific thought in the humanities and indigenous knowledge systems but underlexicalisation, which “refers to a lack of words for certain concepts” (Swan *et.al.*, 2004:182), shows deficiencies in vocabulary relating to science.

The threats that lightning instills in people are also reflected in the Malawian proverb, *Magulugulu a mvula anathawitsa mkamwini kumudzi mvula isanagwe* (The son-in-law ran away from the village for fear of thunder and lightning before the rain

started) (Chakanza 166). What this implies is that indigenous lore premises the rules for the occurrence of thunder and lightning under rainy conditions. Indigenous knowledge does not deal with “finished facts” but rather with “possibilities” as James observes “possibilities, not finished facts, are the realities with which we have actively to deal” (62). The son-in-law who runs away from the village in anticipation of rain, does so when lightning and thunder have already begun. In this case, therefore, Arnold is of the view that knowing both sciences and humanities is desirable arguing that, “he whose aptitudes carry him to the study of nature should have some notion of the humanities; he whose aptitudes carry him to the humanities should have some notion on the phenomena and laws of nature” (1868:300). Observation of natural phenomena and concluding the laws of nature are vital not only in knowing ourselves but also in knowing how to relate with our environment as trustees of that environment.

According to indigenous knowledge, the drainage system through which excess water drains off the catchment area into rivers or reservoirs is naturally schematised. The proverb, *Madzi saiwala khwawa (mkolokolo)* (Water does not forget the riverbed) (Chakanza 165), implies that the flow of water follows the laws of nature depending on the gradient of the land. Similarly, the proverb, *Madzi achulukana ndi a m'njira* (Water becomes plentiful because of all the side-streams) (Chakanza 163) presupposes the drainage system in which water from catchment areas flows to the big riverbed or even lakes, seas, and oceans are filled via small rivers which empty their water into the mainstream. *Surah Al-Mu'minun, 23:18* communicates the message that water descends from the sky and is distributed on earth in the form of rain and exposed to watercourses, “And We send down water from the sky according to (due) measure, and We cause it to soak in the soil; and We certainly are able to drain it off (with ease).” Rainfall distribution in different parts of the world including the drainage system is a topic in physical geography. In an era of acid rain due to climate change the fecundity of rain and other favourable environmental factors should be appreciated as in *Surah Al-Hijr, 15:22*, “And We send the fecundating winds, then cause the rain to descend from the sky, therewith providing you with water (in abundance) though you are not guardians of its stores.” Winds drive heavy rainy clouds and they participate in water currents in seas and oceans causing windward areas to receive rain while leeward areas remain dry. No human being controls these natural laws and natural sources “stores” or “reserves” of

water. The Yawo people's adage, *Kasulo kangali mesi nkasim'gona* (Do not seek refuge in a dry brook), anticipates the drainage system and how water moves from catchment areas into various streams and rivers into large bodies of water. Because of the drainage system regions that have not received rain can have water in their rivers and streams and if someone seeks refuge in a dry river, he/she can be washed away. The interconnectedness of water passages through the drainage system serves not only as a warning for humans to be alert but also reflects on how humans are integral to nature. The proverb's context is that in the precolonial and colonial periods, people used to travel to distant places on foot, and at night, they used to sleep in places where they felt they would be protected. Dry brooks were some of the places thought to provide protection.

Qur'anic literature and the Malawian folklore demonstrate that water occupies different spaces in different states thereby creating spatial metaphors that can be mapped. The skies, clouds like the cumulonimbus, the earth, the watercourses on the earth's surface, and underground water are spaces and places that are geographically significant. Tally Jr. observes that "Spatially oriented literary studies, whether operating under the banner of literary geography, literary cartography, geophilosophy, geo-poetics, geocriticism [...] have helped to reframe or transform contemporary criticism by focusing attention [...] on the dynamic relations among space, place, and literature" (2020: v). The different places and spaces that water occupies in its cycle form a network of interconnections and geographical regions. Water, including its mineral content, influences animals and plants and these, in turn, influence humans. Easton and Block (2015:1), observe that:

The terrestrial phase is often broken down into the surface water phase (runoff, streamflow) and the groundwater phase (infiltration, percolation, aquifer recharge).

From the atmospheric and terrestrial phases of the water cycle, other territories that water occupies are reframed. The water vapour, liquid, and solid (*matalala*) states of water in the atmospheric phase of the water cycle imply various spatial metaphors different from those created in the territorial phase in terms of runoff, streamflow, infiltration, percolation, and aquifer recharge (wells, springs). In all these spaces, water uncannily transforms as it changes territory, gaining and losing pollutants with various chemical compositions. Water is used for purifying

and drinking. The proverb *Madzi overa umasambira ku mutu, akuda ku mapazi* (You use clean water to wash your head, but dirty water is for the feet) (Chakanza 164), philosophises indigenous geopolitics of hospitality which is asymmetrical. *Madzi overa* (clean water) represents delicious food given to and other generous gestures towards visitors/guests, *umasambira ku mutu* (to wash your head). *Madzi akuda ku mapazi* (dirty water for the feet), implies that what remains after the visitors/guests (symbolic of head/*mutu*) have enjoyed their meal, is for the host, *mapazi* (feet). At another level of interpretation, the proverb recognises pure, clear water, on the one hand, and dirty, impure water, on the other hand, and the different uses to which water can be put.

Just as water produces froth or effervescences that give off bubbles (*thovu*) resulting from chemical reactions as water flows on the surface of the earth, heating ore or metal in a furnace produces scum or impurities in its molten state. *Surah Al-Ra'd, 13: 17* depicts this scenario:

He sends down water from the skies, and the channels flow, each according to its measure: but the torrent bears away the foam that mounts up the surface. Even so, form, that (ore) which they heat in the fire, to make ornaments or utensils therewith, there is a scum likewise.

The flow of water in different springs, streams rivers, and lakes, is energised by rain from the skies, and water is used in different human activities. The rainwater soaks into the soil while froth or foam remains on the surface of the earth. Foam is seemingly not as important as rainwater just as the purification of ore by heating it in a furnace in metallurgical sciences is important but from it also comes scum. Froth and scum are symbolic of impurities that can be purified by water. However, the expression “that (ore) which they heat in the fire to make ornaments or utensils therewith” refers to how humans can transform nature in their utilisation of natural resources to come up with various works of art such as ceramicware, glassware, and bangles, among others, that would enhance the people’s economic well-being. Thus, human geography and physical geography are not only interrelated disciplines, connected to the natural sciences but also to economic geography. These interconnections notwithstanding, minerals, mountains, and rocks are studied in the domain of geology.

Thus, environmental determinism, which is “the belief that human activities and cultures are [pro]foundly influenced and constrained by the natural environment” (Holt-Jensen 2022:71), applies to the interpretation of *Surah Al-Ra’d*, 13: 17. However, determinism is not chaotically rooted in serendipity or mere chance, it rests on natural laws. In this case, ecocriticism, geocriticism, ecosemiotics, hermeneutics, and environmental determinism, among other postmodern and critical theories, provide a platform for dialogue through interdisciplinary theorising that harnesses ecological thought. The language of hydrology is replete with the science of signs, symbols, and codes through which information is disseminated and meanings are deciphered. Some water-related proverbs are politically loaded, for instance, *Mvumbi ku ana, akulu nadya nthanga za maungu* (Rains for the children, the adults eat pumpkin seeds (Chakanza 223). The noun *mvumbi* is derived from the verb *vumba* (‘to rain’) as used in this proverb, it refers to continuously experiencing bad weather involving rain drizzles, and fog only for a particular section of the people, the electorate (*ana*) while political gurus, *akulu* (adults), enjoy state banquets (*nadya nthanga za maungu*) with cucumbers, fowls, lettuces, garlic, wine, and bottled water. The proverb creates the metaphor of rain/water as a vehicle for societal economic inequalities. Rain/water is also a metaphor for suffering and purification as in *Mvula ikakuona litsiro sikata* (Literally, when the rain has seen that you are dirty, it does not stop falling). The English equivalent is, “It never rains but pours” which means problems come in hordes (pouring beyond required rain). Ntaba’s proverbially entitled novel, *Ikakuona Litsiro Sikata* (1986), uses the water/rain metaphor effectively at different levels of signification: suffering, purification, harm, and disillusionment. These meanings of water/rain are also reflected in Zeleza’s *Smouldering Charcoal* (1992). When Mchere takes his son, Mtolo, to the hospital, it rains heavily. On the eve of Uhuru and during the Uhuru celebrations in Ngugi’s novel, *A Grain of Wheat* (1986), it rains, as a metaphor for both purification and disillusionment. Achebe’s *Arrow of God* (1964) depicts Ezeulu, the novel’s protagonist drenched in rain/water when he goes to Umuaro after his release from prison in Okperi as a symbol of his suffering. To be made to “drink, boiling fetid water” (*Surah Ibrahim, 14:16*), metaphorises punishment. Water is a metaphor for enmity. The proverbial expression *Samwerana madzi* (They do not drink each other’s water), epitomises a ‘poisoned chalice’ and contextualises why people should be particular about choosing households from which they can drink water safely for its

susceptibility to poisoning. Cultures decipher different meanings from water with a touch of science observed from the effects of water on individuals and communities.

Water in science and similitudes

Water is used not only in creation and recreation but also in industries. Oceans and seas have various uses not only as means of trade routes sources of food supply, salt, and habitats for marine organisms, but they are also sources of security, recreation, and minerals including natural gas. Oceans regulate climate change and weather conditions while cyclones, hurricanes, or tornadoes originate from oceans. Lalli and Parsons have observed that “[t]he total volume of the marine environment (about $1370 \times 10^6 \text{ km}^3$) provides approximately 300 times more space for life than that provided by land and freshwater combined” (1977, p. 1). This implies that oceans cover 71% of the Earth’s surface while only 29% is land. Marine organisms and terrestrial organisms live under different physical environmental conditions.

Cargo and passenger ships that sail in seas and oceans serve human needs. Shipbuilding conforms to the laws of nature to keep them buoyant. In the third century BC, the Greek mathematician, Archimedes, said, “Any object, wholly or partly immersed in a fluid is buoyed up by a force equal to the weight of the fluid displaced by the object” (quoted by Marine Institute, 2013). The Qur’anic literature periodised between 610 and 632 AD contains scientific thought that matches modern science. In *Surah Ibrahim, 14:32*, “He is who has made the ships subject to you, that they sail through the sea by His Command; and the rivers (also) has He made subject to you,” “by His Command” infer the laws of nature from which Archimedes derives his principle of buoyance. Oceans, seas, and rivers also provide people with different kinds of food to nourish their bodies in addition to minerals from which they make pieces of jewelry. In *Surah An-Nahl, 16: 14*, “He who has made the sea subject, that you may eat thereof flesh that is fresh and tender, and that you may extract therefrom ornaments to wear, and you see the ships therein that ‘plough’ the waves, that you may seek (thus) of the bounty of Allah and that you may be grateful,” the metaphor of ships ‘ploughing’ the waves as they sail implies buoyance in the laws of nature. Holden notes that “Tides [waves] are driven by the gravitational pull of the Moon and the Sun on the Earth” (2011, p. 100). These are natural laws not controlled by humans.

Naturally, small rivers flow into big rivers and then into lakes. Sometimes a big river flows into a bigger river that finally empties its water into the ocean. For instance, the Shire River flows into the Zambezi River and, finally, into the Indian Ocean. Observing this kind of behaviour of water, indigenous lore provides that children's forewarned behaviour culminates in acknowledging what was anticipated. In Malawian folklore, there are various similitudes involving water. The proverb, *Mtsinje wa Tinkanena udathira mu Siizi* (Tinkanena River poured its water into Siizi) (Chakanza 216). The name of the first river, *Tinkanena*, means "We Told You" or "We Warned You" while the confluent river, *Siizi*, means "Here It Is" or "Look Now How Things Are." *Siizi* could be an ocean or a lake. Based on people's knowledge of runoff from the watershed or catchment area that must reach its destination. Since runoff obeys the natural laws, children's or any other person's flouting of natural laws has serious consequences. The two rivers, *Tinkanena* and *Siizi*, though imaginary, do not only create spatial and temporal metaphors but their effects on human lives and other ecological entities. From an ecosemiotics perspective, *Tinkanena* and *Siizi* are symbolic of rivers loaded with cultural codes interrelated with nature and encrypted with meanings. The local expression *Nyanja sikhuta* (The lake/ocean never gets filled up) presupposes the drainage system where from the catchment area several rivers empty their water in oceans or lakes.

The proverb, *Mtsinje wopanda miyala susunga madzi* (A river without rocks does not keep water) (Chakanza 216), carries geological and lithological interrelatedness between rocks and water in a river. The spatial and temporal distribution of these rocks in the river helps slow down the movement of loads and other dissolved substances the river carries downstream. In sign-mediated communication, the river represents the village chief while the rocks stand for his/her helpers in the management of the village. *Kusunga madzi mu mtsinje* (to keep water in the river), in this case, means to uphold the people's wisdom. Thus, the laws of nature have a great influence on human lives.

Rocks are useful sources of water and they help conserve water. The proverb, *Madzi apamwala watunga walawira* (The water from the rock will be drawn by the one who sets off early in the morning) (Chakanza 164). *Madzi apamwala* is locative, locating where a natural phenomenon, water, is, *pamwala* (on the rock). Because the water trickles slowly from the rock, it collects more at night than during the day. Early in the morning is, thus, the right time to draw such water. The proverb creates spatial

and temporal metaphors and how human lives are affected by the scarcity of water. In the cultural-nature interplay, the proverb encourages hard work for an individual to enjoy scarce natural resources amidst high community demand for freshwater.

The difference between freshwater (*madzi okoma*) and saltwater (*madzi a mchere*) is usually noticed in the people's repugnance of the latter in their domestic uses especially drinking. *Surah Fatir*, 35:12, "Nor are the two seas alike, - the one palatable, sweet, and pleasant to drink, and the other, salt and bitter. Yet from each (kind of water) do you eat flesh fresh and tender, and you extract ornaments to wear, and you see the ships therein that plough the waves, that you may seek (thus) of the bounty of Allah that you may be grateful." The "palatable/sweet" (*kukoma/kutsekemera*) and "salt/bitter" (*mchere/kuwawasa*) polarity is felt in the tongue as the only human organ used for tasting food and drink. The palatability and bitterness of the freshwater and saltwater when one drinks inform that the tongue is a highly sensitive organ. The tongue tastes food and drinks and this creates gustatory imagery. Yet, despite the differences between the saline sea and freshwater sea, they are sources of food supply "you eat flesh fresh and tender," sources of minerals/metals from which people make various artistic wares, and "ornaments." Therefore, seas and oceans enhance people's commercial activities.

The Malawian adage *Madzi ndi moyo* (water is life) integrates indigenous lore and religion with science. In their book, *Biological Oceanography: An Introduction* (1997 [2006]), Lalli and Parsons observe that "Water is a fundamental constituent of all living organisms" (1). Protoplasm is largely water and it helps not only in dissolving nutrients but also in communicating various biochemical messages in living cells. *Surah An-Nur*, 24: 45, "And Allah has created every animal from water" and *Surah Al-Anbiyaa*, 21:30, "We made from water every living thing" have been evidenced by modern science. Without drinking water for some days on end, people and animals die. The proverb *Nyama ya liuma inafa ndi ludzu*, (A stubborn animal died of thirst) (Kumakanga 17), predicts the importance of water for saving lives. In the allegory linked to this proverb, when animals gathered at the chief's compound to receive horns, all the animals had their horns pointing backward. Despite being advised of the dangers of its choice, one animal stubbornly insisted that it wanted its horns to point forward. One year, there was a drought in the community and the only water source was a rock in a cave:

Nyama zonse zinapita kukayesa kumwa ndipo zinatha kumwa, koma ija inaumirira nyanga zoyang'ana kumaso inalephera kumwa chifukwa cha nyanga zake, ndipo popita masiku owerengeka inafa ndi ludzu. (All the animals went to drink water from the rock cave and they drank but the animal whose horns pointed frontwards failed to drink; after a few days the animal died of thirst) (Kumakanga 18).

The significance of this allegory is not in the advantages of the animals whose horns point backward over those whose horns are in front like red deer but in the possibility of water being found in tiny rock caves and how it can be accessed. Different animals have different dehydration rates but “a few days” sums up how long animals and humans can live without water. The animal in the allegory died “after a few days” (*popita masiku owerengeka*); thus, folklore carries scientific thought verifiable by modern science. The water in the rock cave creates a spatial metaphor just as it is a sign from which humans learn the laws of nature. Mountains, stones, and rocks are studied in various sciences including geology but these natural phenomena are also associated with water. *Surah Al-Baqarah, 2:74*, “For among rocks there are some from which rivers gush forth; others there are which when split asunder send forth water” (italics mine). There are different types of rocks with different porosity and their water-holding capacity is different. Observation shows that in rivers, rocks that constantly roll from one place to another through water movement do not grow mosses or liverworts. The qualities of rocks not to attract these plants/organisms because they have no fixed places echo the Malawian proverb *Mwala wogubuduzika suyanga ndere* (A rolling rock gathers no moss) (Chakanza 225). Like science, this proverb derives from observation with philosophical syllogism; two premises, and a conclusion:

- a. *Mwala umayanga ndere.* (A rock gathers moss.)
- b. *Mwala umagububuzika.* (A rock rolls.)
- c. *Mwala wogubuduzika suyanga ndere.* (A rolling rock gathers no moss.)

The concern for mosses or liverworts (*ndere*), implies that within indigenous knowledge systems, these organisms/plants are important in their agrarian communities whose desire for undisturbed and unpolluted landscape is pivotal. Mosses, lichens, liverworts, and moulds (collectively, *ndere*) are important for

industrial purposes. In this case, the rolling rock is undesirable. Again, it is significant to note that the rock that gathers mosses is exposed to water or moisture and it has a fixed place as opposed to the rolling rock (*mwala wogubuduzika*) which is continuously displaced. Relatedly, Tally explains that “[s]patial criticism examines literary representations not only of places themselves but also of the experience of place and displacement while exploring the interrelations between lived experience and a more abstract or unrepresentable spatial network that subtly or directly shapes it” (2020: vi). Culture-nature stories occupy spaces and they are interconnected in “unrepresentable spatial network” as in the verb *suyanga* (does not gather) derived from the noun *ziyangoyango* (a mesh of spatial interconnectedness).

The laws of gravitation, salinity, and density explain why saltwater and freshwater remain distinct for some time after mixing. *Surah Al-Furqan, 25:53-54*, illustrates this scientific thought, “It is He Who has let free the two bodies of flowing water: one palatable and sweet, and the other salt and bitter; yet has He made a barrier between them, a partition that is not to be passed. *He who has created man from water*” (italics mine). Fresh river water enters the sea or ocean that contains saltwater at an estuary. Yet, at the estuary, the fresh river water and the ocean salty water remain distinct because there is “a barrier between them.” The “barrier” that separates the two bodies of water could be explained in terms of salinity and density in which salty water is denser than fresh water. The term “salinity” is used to refer “to the salt content of seawater” and it is “determined with a salinometer that measures electrical conductivity, which increases with salt content” (Lalli and Parsons, 1993:25). Thus, fresh water is more buoyant than salty water and salinity increases downwards. Biologically, the differences in salt concentration between saltwater and freshwater play significant roles in marine organisms creating osmotic equilibrium through osmosis, osmoregulation, and active transport (Lalli and Parsons 1993). Thus, increasing salinity increases density while increasing temperature decreases salinity. The metaphor of the “barrier” between salt water and fresh water also recurs in *Surah Al-Rahman, 55:19-20*, “He let free the two bodies of flowing water, meeting together: between them is a barrier which they do not transgress.” Again, this can be explained in terms of ocean currents that create different geographic spaces in the bodies of water due to differences in salinity, density, temperature, and pressure.

Based on scientific data, Lalli and Parsons have observed that “[t]he vast majority of the marine environment is in perpetual darkness, yet most animal life in

the sea depends either directly or indirectly on plant production near the sea surface” (2). This implies that the rays from the sun do not reach the depths of seas and oceans. Sunlight makes zooplankton, phytoplankton, plants, and various forms of life flourish near the surface of seas and oceans. The local expression *Pansi pa nyanja, kumidima* (At the depths of oceans, the place of darkness), as embedded in Malawian indigenous lore, connotes the absence of light. In religious realms, light opposes evil. *Surah An-Nur, 24:40*, “Or (the unbeliever’s state) is like the depths of darkness in a vast deep ocean, overwhelmed with billow topped by billow, topped by (dark) clouds: depths of darkness, one above another: If a man stretches out his hand, he can hardly see it! For any to whom Allah gives not light, there is no light!” Considering that water is translucent rather than opaque, one would think sunlight easily reaches the bottom of oceans but this is not the case. Despite the ubiquity of light, there are spaces where it does not penetrate and where the human being does not even see their hand.

In Malawian politics, the 2020 voters were promised three meals a day, *dziko la mkaka ndi uchi* as echoed in Qur’anic literature, *Surah Muhammad, 47:15*, “(Here is) the description of the Garden which the righteous are promised: In it are rivers of water unstaling; rivers of milk of which the taste never changes; rivers of wine, a joy to those who drink; and rivers of honey pure and clear.” Water is used not only for drinking but also for recreation and entertainment. Milk, wine, and honey are recommended for good health and enjoyment when taken in measured quantities. *Mkaka ndi uchi* is an expression symbolic of agreeability and sound health. Two reasons may be used to illustrate why we do not pay attention to scientific thought in the Qur’anic literature and Malawian folklore. First, due to underlexicalisation, concepts used in modern science can only be inferred. Such inferences about science transcend religious and proverbial lore’s scope. The second reason is that science is not the domain of religious literature and proverbial lore. Qur’anic literature and Malawian folklore focus on natural laws in culturally sign-mediated contexts to impart wisdom to the people. Interestingly, both the Qur’anic literature and folklore derive from primitivised societies. In *Culture and Anarchy* (1869), Arnold observes that:

[...] our poor culture, which is flouted as so unpractical, leads us to the very ideas capable of meeting the great want of our present embarrassed times! We want an authority, and we find nothing but jealous classes, checks, and a deadlock; culture suggests the idea of the State. We find no

basis for a firm State power in our ordinary selves; culture suggests one to us in *our best self* (99).

Culture has been vilified for its so-called lack of pragmatism. The colonial discourse of science, for example, thwarted people's environmental bondedness by primitivising their culture. Culture appeared as containing nothing wholesome. Religious environmental consciousness and indigenous environmental consciousness can be harnessed with modern science for environmental restoration. Getting rid of cultural prejudices and ethnocentric views is vital to allow us penetrate to the pearls of knowledge hidden in other cultures. Multiculturalism and cross-cultural disciplines of study increase our knowledge horizon like a baobab tree around which the politics of power and culture act within itself. While it is significant to understand our own culture, we should not lose the sense of other cultures. Habib observes that in today's world "it has become more important than ever that we understand the various voices crying from afar in other languages [...]. We need to look critically at the various documents, cultural, political, and religious, which furnish our identity, which tell us who we are, who we should be, and what we might become" (2005:1). The integration of Qur'anic literature with Malawian folklore for the search of scientific thought is not fortuitous. Both of them are pre-modern literature. Religious literature and indigenous people's knowledge have been othered and relegated to the periphery for want of practicality.

Conclusion

The foregoing paragraphs reveal that despite the sciences and humanities divisions, scientific thought in the arts and humanities is astounding. Openness to diversity entails paying attention to othered voices and from therein discerning perspicuity that suits our tastes rather than vilifying a whole gamut of a people's cultural heritage. Hydrological, geological, and oceanographical ideas are embedded in the premodern kinds of literature of the Qur'an and Malawian folklore. This demonstrates that although people's embeddedness in their environments is culturally oriented, it is constituted through the perception of natural phenomena. The behaviour of water in its different states, places, and conditions has attracted not only scientists but also religious and indigenous societies in their mythopoeic imagination in which ideality, language, nature, and culture are enmeshed. From the perspective of ecological semiotics (ecosemiotics), the study has revealed that ecological entities are interrelated. Signs from natural phenomena communicate messages understood

in religio-cultural contexts. That water is the basis of life is echoed in premodern religious literature and Malawian folklore but evidenced by modern science. Since hydrology, geology, and oceanography are natural sciences whose entry point is the observation of natural phenomena and drawing conclusions based on data, the metaphorical constructs involving water also sum up water's universally generalised behaviour. The spatial and temporal metaphors created by different spaces/places water occupies at different times play significant roles in geocriticism (geographical criticism) or literary geography which marries geography and literature in its essayist approach to earth writing and conclusions drawn from the laws of nature. The ubiquity of water metaphors in the Qur'anic literature and Malawian folklore does not only mean its centrality as the basis for life but also the unique properties that enable it to exist in different states and behave differently under different physical conditions. The attainment of development goals for any society rests on curbing environmental ruin and the provision of clean water remains key. It is a well-considered conclusion of this study that water metaphors in Qur'anic texts and Malawian folklore are tinged with scientific thought. In this era of openness to diversity and cross-disciplinary studies, science is not the monopoly of a single discipline called 'science.'

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