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Water law, human health and the human right to water and sanitation

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It is the poor who are most likely to depend upon unimproved water and sanitation services and thus are most likely to suffer from water insecurity at the household level. This paper explores how the human rights to water and sanitation are addressed in the national water laws of two countries (Ethiopia and Kenya) where water and sanitation systems fail to achieve universal coverage. There are varying degrees of access to water and sanitation and thus in many developing country cities it is difficult to determine whether individual households have achieved their human right to safe water and sanitation. In the immediate future, water security at the household level in sub-Saharan Africa can perhaps most effectively be advanced through education and training programmes to improve household water management practices when water is stored by households. Similarly, where independent and intermediate water suppliers operate they need to be formally recognised and regulated so uncertainty about the safety of the water they supply can be reduced, thus improving access to safe water even if this water is not supplied directly via a piped network.

Introduction

According to the Joint Monitoring Programme of the World Health Organisation (WHO) and United Nations Children's Fund (UNICEF), in 2010 89 percent of the world's population had access to an improved water source and 54 percent had access to a piped water supply on their premises but 11 percent or 780 million people globally lacked access to improved water supplies. Sixty-three percent of the global population were served by improved sanitation systems (WHO / UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2012). Looking regionally, while developed countries had achieved near universal coverage of improved water and sanitation services, in sub-Saharan Africa only 61 percent of people had access to improved water supplies, and a mere 16 percent to piped water, while only 30 percent had access to improved sanitation (WHO / UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2012). Although the world appears to have met the Millennium Development Goal of halving by 2015 the proportion of people lacking access to safe drinking water globally, it is likely to fail to achieve the equivalent sanitation target globally (United Nations, 2011a). It will almost certainly fail to meet both the water supply and sanitation targets in sub-Saharan Africa. Thus, despite considerable progress being made, meeting water and sanitation needs presents a considerable challenge for many people at the household level.

Most assessments of the extent to which the world is achieving universal access to safe water supply and sanitation focus upon “improved water supply” and “improved sanitation” as these are the terms adopted by Joint Monitoring Programme of WHO / UNICEF, the key body monitoring progress towards meeting the Millennium Development Goals relating to water and sanitation. Technologies which are defined as “improved drinking water sources” include piped water connections inside the user’s dwelling, plot or yard, public taps and standpipes, tube wells and boreholes, protected dug wells and springs, and rainwater collection (WHO / UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2011). Unimproved drinking water sources include unprotected dug wells or springs; water delivered by cart or truck, surface water and bottled water. While measuring “improved water supply” as a proxy for safe water supply allows progress to be assessed over time, the provision of improved water sources does not necessarily mean that the water supplied will be safe for potable use, the service reliable nor that the water will be affordable (WHO / UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2011). A recent, comparative analysis of data from the JMP and national representative surveys of the microbial and chemical quality of the water in five countries (Bain *et al.*, 2012) demonstrates a significant reduction in the number of people with access to safe water compared to the reported figures of the number of people with access to improved water supplies. In this report safe drinking water was defined by reference to microbiological and chemical water quality parameters set by the WHO (World Health Organization, 2004). Based on this data, Payen (2011) estimates that at least 1.9 billion people lack access to safe water rather than the 780 million figure of the JMP who lack access to improved water supplies, and as many as 3.9 billion people lack permanent and satisfactory safe drinking water supplies in their homes.

It is the poor who are most likely to depend upon unimproved water and sanitation services. Whereas 36 percent of the lowest income quintile in urban areas of Africa rely on unimproved water supplies, only 6 percent of the highest income quintile are forced to use these poor-quality water sources (WHO / UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2012). Conversely, whereas 62 percent of the highest quintile in urban areas of Africa have their own piped water connection, only 5 percent of the lowest quintile achieve this. While evaluating access to safe drinking water by the proxy of measuring access to improved water services is imperfect, it is clear that the poor suffer disproportionately in terms of their access to safe drinking water and sanitation. As a result they suffer unduly in terms of time required to meet household water and sanitation needs but also in terms of health impacts that result in lost income due to the inability to work, and loss of life, particularly through increased rates of infant mortality.

This paper focuses upon water security at the household level. Grey and Sadoff (2007, p548) define a general definition of water security as “the availability of an acceptable quantity and quality of water for health, livelihoods, ecosystems and production, coupled with an acceptable level of water-related risks to people, environments and economies”. Applying the concept of water security at the household scale would suggest that water security means ensuring households have a sufficient quantity of water of sufficient quality to maintain the health of household members. Household water security is closely tied to sanitation provision since achieving household access

to acceptable quality water for health and livelihoods generally requires sanitation provision also. Water security at the household level is tied to the concept of human rights since human rights deal with the maintenance of individual health and well-being, and now also include access to water and sanitation. The concept of a human right denotes an entitlement that is fundamental and inalienable. It is universal to all – everyone is entitled to human rights simply by virtue of being human. A human right can only be disregarded in law when it conflicts with other, very limited, duties on a state such as when there is a state of emergency. The modern concept of human rights goes beyond classical ideas of justice or political or cultural legitimacy and thus elevates the status of water security to a right which states have a duty to protect regardless of other factors.

This paper begins by addressing the issue of household water security as a human right in international law, expressed as a right to water and sanitation. Then, via the case studies of Kisumu, Kenya and Addis Ababa, Ethiopia, it explores how these human rights are addressed in the national water laws of two countries where water and sanitation systems fail to achieve universal coverage. The paper then goes on to examine how households in these case study countries meet their water and sanitation needs despite the poor quality of services received. The paper concludes by asking how the legal systems in the case study countries can practically facilitate better water security at the household level for the poor.

Kisumu, Kenya, and Addis Ababa, Ethiopia, were chosen as case studies because they show how the human right to water is being dealt with in two low income developing countries where available resources for investment in the water sector are limited but where both countries have explicitly acknowledged that there is a right to water and sanitation either in their constitution or in key national legislation. Kisumu is a city of approximately half a million people on Lake Victoria, while Addis Ababa is a city of three million built on hilly terrain. Both Kenya and Ethiopia are classified as having a low level of human development (United Nations Development Programme, 2010) while according to the World Bank, Kenya and Ethiopia are classed as low income countries (World Bank, 2011). Kisumu and Addis Ababa are examples of two contrasting poor cities where the right to water and sanitation is acknowledged by government but both struggle to realise this right.

The right to water and sanitation

While a range of human rights have been formally identified through an extensive body of international agreements and resolutions, the most important of which is the *1948 Universal Declaration of Human Rights*, none of these early classical expressions of human rights (with the possible exception of the later African Charter on Human and Peoples' Rights) have contained explicit statements of rights pertaining to the environment in general, or water and sanitation in particular. The African Charter, developed and agreed by the African States which are members of the African Union, declares in Article 24 that 'all peoples shall have the right to a general satisfactory environment favourable to their development.' (African Commission on Human and People's Rights, 1981). By contrast, the 1948 Universal Declaration on Human Rights states that "[e]veryone has the right to a standard of living adequate for the health and well-being of himself and of his family, including

food, clothing, housing and medical care and necessary social services” (United Nations, 2011b). The right to an adequate standard of living has been further affirmed by subsequent United Nations declarations and treaties. The most notable of these is the 1966 International Covenant on Economic, Social, and Cultural Rights. Article 11 of this convention provides for a right to an adequate standard of living, while Article 12 establishes a right to health. So, it can be argued that the right to water and sanitation are implied within the content of these rights since access to both are key determinants of health and well-being. Additionally, the majority of states which ratified the International Covenant on Economic, Social and Cultural Rights have subsequently reaffirmed in political declarations that the right to an adequate standard of living necessarily also includes water and sanitation.

The first formal direct recognition of a right to water came in 1977 at the United Nations Water Conference when it was stated in the Conference’s Action Plan that all people “have the right to have access to drinking water in quantities and of a quality equal to their basic needs” (UN-Water Decade Programme on Advocacy and Communication, 2011). The United Nations General Assembly in its resolution A/Res/54/175 “The Right to Development” in 2000 affirmed that the right to clean water was a fundamental human right and in General Comment No 15 (2002) formulated this right under Articles 11 and 12 of the International Covenant on Economic, Social and Cultural rights . But it was on the 28th July 2010 that the United Nations General Assembly took the important step of directly recognising that the human right to water and sanitation were fundamental human rights in its resolution 64/292 “The human right to water and sanitation” (United Nations General Assembly, 2010). Two months later the United Nations Human Rights Council adopted Resolution 64/292 “The Human Right Water and Sanitation” and clarified the foundation for recognition of the right and the associated legal obligations which relate to this right (United Nations Human Rights Council, 2010). Thus it is clear that the human rights to water and sanitation are fully accepted under international law as basic human rights.

Brooks (2007) points out that much of the discussion relating to the human right to water is trivial in the sense that it belabours the obvious while ignoring what is difficult to deal with. While the goal of ensuring universal access to water and sanitation is not trivial, Brooks (2007) argues that the discussion itself is trivial because very few people deny that access to water and sanitation at a household level are not human rights, with only the most extreme market-focused economists arguing that the market alone should determine household access to water and sanitation for meeting basic needs. While many governments fail to achieve universal access to water and sanitation, virtually all governments agree in principle that the right exists.

The real issue according to Brooks is whether the right to water and sanitation is being construed too narrowly. Ensuring that all people have access to 20 litres per capita per day (from a source using an approved technology), the amount which is specified by the WHO and UNICEF in their global assessment of water supply as the minimum amount required for a person to be deemed to have access to improved water supply, is insufficient for enjoying other basic human rights, such as the right to work and the right to sufficient food, both human rights specified in the 1948 Universal Declaration of Human Rights. Chenoweth (2008) argues that estimates of minimum basic water requirements must consider minimum requirements for

domestic household use for activities such as drinking, cooking and washing, as well as minimum water requirements for water-efficient economic activities to provide employment and thus permit the purchase of food.

Clearly, there are debatable issues concerning the status and implication of access to water as a human right, but the effect of elevating it to a direct and express right has clarified the rights of the poor (who frequently lack effective advocates) to a basic level of household water security. In the debate about what this right precisely entails, it should not be forgotten that the poor in developing and low-income countries frequently lack anything approaching such a basic level of access.

Case studies of national law on water, sanitation and human rights

Given that virtually all governments accept in principle that there is a human right to basic water and sanitation, it is not surprising that this right is specified legally in some countries, either in the constitution or via key national legislation. The South African constitution, for example states in Section 27.1 (b) that everyone has the right to have access to sufficient food and water (Republic of South Africa, 2009). The South African Water Services Act (1997) expands on the constitution by stating in section 3 that “Everyone has a right of access to basic water supply and basic sanitation” and that “Every water services institution must take reasonable measures to realise these rights” (Republic of South Africa). Thus, a duty to ensure the realisation of the human right to water and sanitation in South Africa is placed upon the water services institutions of the country.

Kenya and Ethiopia are two other countries which have acknowledged the right to water and sanitation. The 2010 constitution of Kenya states in Article 43 that “[e]very person has the right...to reasonable standards of sanitation.... [and] to clean and safe water in adequate quantities” (Government of the Republic of Kenya, 2010). However, the current legal regime for water resources management in Kenya dates back to reforms that began with the publication of the National Policy on Water Resources Management and Development as Sessional Paper No. 1 of 1999 (Ministry for Water Development, 1999). The significant reform proposed in this water policy paper was changing the focus of government away from being a direct provider and developer of water resources to that of regulator and policy maker. This policy paper led on to the creation of the Water Act 2002, which has been in force since 18 March 2003.

Section 49 of the Kenyan Water Act 2002 requires the Minister for Water to publish a National Water Services Strategy, with one of the objectives of the strategy “(a) to institute arrangements to ensure that all times there is in every area of Kenya a person capable of providing water supply and (b) to design a programme to bring about progressive extension of sewerage to every centre of population in Kenya” (Government of Kenya, 2002). The National Water Services Strategy is required to document areas underserved with water and sanitation services and to contain details of plans for extension of services to these areas, including timeframes and investment plans.

The National Water Services Strategy (2007-2015) produced by the Kenyan Ministry of Water and Irrigation states that the overall goal of the strategy is “to ensure sustainable access to safe water and basic sanitation for all Kenyans” (Ministry of Water and Irrigation, 2007, p13). The strategy states that sustainable access to safe water and sanitation is a human right, with water and sanitation provision for the poor to be enabled by social tariffs ensuring at least 20 litres per person per day. In terms of specific targets, the strategy sets as goals to be achieved by 2015 to increase access to safe drinking water from 60 to 80 percent of the population of urban areas and from 40 to 75 percent in rural areas, and to increase access to waterborne sewage services from 30 to 40 percent in urban areas, and five to ten percent in rural areas (Ministry of Water and Irrigation, 2007). Access can be via communal access points as well as private connections.

One of the major reforms of this Act was the separation of water resources management and water services supply, with the establishment of Water Services Regulatory Boards, which were charged with regulating the supply of water, and Water Services Boards, which own the supply system within their specified jurisdictions (Government of Kenya, 2002). According to Section 55 of the Water Act 2002, a Water Services Board may exercise its powers and functions under licence via one or more Water Service Providers. Thus, delegation to municipal authorities and commercially orientated autonomous bodies as part of a strategy for increasing access is permitted under the Kenyan Water Act 2002 and is also encouraged by the 2007 National Water Services Strategy.

In the city of Kisumu, Kenya, the Kenyan government has established the Lake Victoria South Water Services Board, which is a public corporation established to develop water supply facilities in the Lake Victoria South basin and is a licensee of the Water Act 2002. In line with this Act, the Lake Victoria South Water Services Board has contracted the Kisumu Water and Sewerage Company (KWASCO) to operate the water and sewerage system and thus provide water and sewerage services to residents. It was estimated that in 2008-09 KWASCO had achieved 29 percent coverage with its water supply network, up from 26 percent in 2006-07 and six percent coverage for sanitation, up from 5 percent in 2006-07 (Water Services Regulatory Board, 2008, 2010).

KWASCO is estimated to provide water services to 153,083 people out of a population of 525,313 via 14,084 connections, thus, an average of 10.9 people are being served by each KWASCO water connection, receiving an estimated 42 litres per capita per day (excluding unaccounted for water) (Water Services Regulatory Board, 2010). Accurately estimating water coverage is problematic as surveys of households in Kisumu show that most households without a direct water connection to KWASCO’s network get their water from a variety of sources (Okotto *et al.*, 2010).

According to Article 90 of the Ethiopian Constitution “[t]o the extent the country’s resources permit, policies shall aim to provide all Ethiopians access to..... clean water” while Article 92 states that the “[g]overnment shall endeavour to ensure that all Ethiopians live in a clean and healthy environment” and “[g]overnment and citizens shall have the duty to protect the environment” (Government of the Federal Democratic Republic of Ethiopia, 1994).

The Water Resources Management Policy reiterates the aim that every Ethiopian citizen should have access to sufficient water of acceptable quality to satisfy basic human needs; it also prioritises water for domestic water supply and sanitation above other water uses (Ministry of Water Resources, 2001). The overall objective of the policy is the provision of adequate, reliable and clean water supply and sanitation services to the Ethiopian people, as well as the provision of water for economic uses. The Ethiopian Water Resources Management Proclamation 2000 also declares that water resources of Ethiopia are to be used for their highest social and economic value, with domestic use having priority over any other use (Government of the Federal Democratic Republic of Ethiopia, 2000).

Within Addis Ababa, the Addis Ababa Water and Sewerage Authority (AAWSA) is the department of the Addis Ababa city government responsible for water supply and sanitation within the city. It was re-established in 1995 with the purpose of supplying safe and adequate water and sanitation to the city (Government of the Federal Democratic Republic of Ethiopia, 1995). It has been estimated that 98 percent of the water consumed in Addis Ababa can be traced back to water provided by AAWSA, however, the proportion of households with their own connection to AAWSA's network is estimated to be around 39 percent. Seventy-four percent of households in Addis Ababa rely on a pit latrine, with only 17 percent having a flush toilet, and seven percent defecating in the open (Central Statistical Authority, 2005).

Water, sanitation and human health impacts in Kisumu and Addis Ababa

We have known for a long time that water can be a vehicle for the transmission of disease, and there is ample evidence to show that the supply of water that meets certain standards (often termed “safe” water) can reduce the risk of contracting waterborne disease (Clasen *et al.*, 2007). In this context, waterborne disease will refer to both the consequences of infection with a pathogen and toxicity from exposure to chemical contaminants. Nevertheless, waterborne pathogens and toxic chemicals still contribute significantly to the global burden of disease, particularly in developing countries where access to safe water is severely restricted by its availability (Fewtrell *et al.*, 2007).

From the first announcement of the Millennium Development Goals there has been substantial investment internationally in the provision of improved water supplies, which is evident from the trends reported by the JMP. Yet it is now widely acknowledged that the full benefits to human health (and the realisation of the universal human rights to health, water and sanitation) cannot be achieved without the provision of hygienic sanitation, but here the investment has been limited in comparison to water supply, and current projections indicate that the global target for access to sanitation will be missed by a long way. The importance of hygienic sanitation for human health cannot be underestimated. In a recent survey carried out by the British Medical Journal, its readers voted the “sanitary revolution” as the greatest medical advance since 1840, ahead of the discovery of antibiotics (Ferriman, 2007).

In the low-income and high-density suburbs of Kisumu, hand dug wells are a major source of water, and pit latrines are the predominant form of sanitation. The

groundwater level in these suburbs rises and falls with the different seasons, but at no time is it particularly deep. As a consequence, the vertical separation between the bottom of the pit latrines and the groundwater is very small even when the groundwater level is at its lowest. During the rainy season the groundwater level rises by enough to inundate the latrines, which creates a pathway for the contents of the latrine to diffuse into the groundwater and then disperse over a wide area. Since the distance between the latrines and the wells can be very small – often just a few metres – the latrines represent a significant contamination risk (Wright *et al.*, 2011). But subsurface transport of contaminants is not the only risk to point water supplies in Kisumu; the poor quality of construction and lack of adequate protection around the wells makes surface contamination of the water inevitable. Surveys of the water quality confirmed these assumptions, recording levels of contamination by faecal indicator bacteria several orders of magnitude above the most relaxed water quality guideline value of the WHO. The incidence of water-related diseases in these suburbs is thus high, and the population are particularly vulnerable to sudden and widespread outbreaks of waterborne disease.

Water usage studies

A water usage study was conducted in Kisumu and Addis Ababa between 2007 and 2009. The study involved a household survey, semi-structured interviews, sanitary inspection and water quality monitoring in a range of poor and non-poor neighbourhoods (Ayalew *et al.*, under review)¹. The survey and interviews were conducted in the local language. In Kisumu specific survey households were selected using a systematic random sampling procedure while in Addis Ababa, due to greater difficulty recruiting participants, a snowball sampling procedure was followed. Three-hundred and ten households were surveyed, with a range of basic water quality parameters monitored along the supply chain in order to determine where, if at all, water quality deteriorated.

In Kisumu, KWASCO supplies 181,512 people from 15,493 connections (Water Services Regulatory Board, 2011). Thus the majority of the population in the city of half a million rely on some form of intermediate or independent water provider, such as standpipe operators reselling water from KWASCO under licence, resellers operating without a resellers licence, private well and borehole operators who have dug a well or sunk a borehole on their land and sell the water. Standpipe operators, unlicensed resellers and well and borehole operators all sell directly to consumers as well as mobile water vendors who deliver water directly to households either by handcart or tanker-truck. In addition, there is one small mini-utility operating on the edge of Kisumu which is operating under licence for the Lake Victoria South Water Services Board.

With the exception of the licensed standpipe operators and the mini-utility, these independent and intermediate water providers are operating illegally under Kenyan law. The Water Act 2002 does not expressly deal with independent and intermediate

¹ This research was funded by a research grant from the Leverhulme Trust and carried out by this paper's authors.

water sellers but prohibits the supply of water in excess of specified quantities without a licence. The Water Act 2002 in Section 56 (Requirement *for license*) states:

No person shall, within the limits of supply of a licensee (a) provide water services to more than twenty households; or (b) supply – (i) more than twenty-five thousand litres of water a day for domestic purposes; or (ii) more than one hundred thousand litres of water a day for any purpose, except under the authority of a license. A person who provides water services in contravention of this section shall be guilty of an offence.

Given these limits, most well and borehole operators, as well as mobile water resellers operate illegally. Inevitably due to the illegal nature of their operation, the quality or price of water supplied by intermediate and independent water vendors is not regulated and thus the safety of the water supplied is uncertain.

In Addis Ababa, while 98 percent of water consumed in the city can be traced to AAWSA, a significant proportion of the city's population rely on intermediate water providers who resell water purchased from AAWSA (Ayalew *et al.*, under review). These intermediate water resellers include city government administered public standpipes and community group owned and operated public standpipes which operate under license from AAWSA. The most common forms of intermediate water providers, however, are neighbour resellers and unofficial water kiosks, who do not operate under a contractual relationship with AAWSA that permits reselling, and mobile water vendors who transport water from areas of the city with running water to areas without.

The study showed that mobile water resellers in either Kisumu or Addis Ababa do not cause significant deterioration in water quality, with any such deterioration occurring primarily during household storage in the case of water sourced from the municipal piped network (Ayalew *et al.*, under review). Water vendors effectively extend the coverage of the municipal water system in both cities into underserved and unserved areas, with the advantage of being able to compensate for the intermittent municipal supply.

In the case of Kisumu, while water drawn from boreholes and wells is significantly lower in quality than municipal supplied water and so not the preferred source for drinking, this well and borehole water plays an important role in bringing total average water consumption in the city up to an acceptable level where it is used for non-consumptive purposes. Thus this water is important for household water security from a quantitative perspective. According to the household surveys, whereas average daily water consumption in Addis Ababa is only 14.6 litres per capita per day, in Kisumu it is 34 litres per capita per day. At the same time, water quality from many of the private wells and boreholes in Kisumu is poor, and since this water is cheaper for mobile water re-sellers to purchase but had the same aesthetic qualities as the municipal water, households face uncertainty about quality and safety of the water they do not purchase personally directly from a public standpipe. Regulation is therefore needed to ensure that water resellers follow best practice guidelines for their operations, with routine water quality testing and random inspections introduced to improve consumer information about the quality of the water supplied and to prevent water resellers passing-off the lower quality but well water as the more expensive but higher quality municipal water. Further, educational information is needed to improve

the householders' understanding of the importance of keeping and storing such water which is bought in to the household in a way which does not further deteriorate its quality, (Waddington *et al.*, 2009).

Conclusion: Improving household water security by bridging the gap between national and international law, and reality on the ground

Kenya and Ethiopia both acknowledge the human right to water and sanitation, placing a duty on their governments to fulfil this right through legislation and policy. The nature of a human right elevates concepts of water security to fundamental, universal and inalienable rights which impose duties on governments. Assessing progress towards fulfilling the human right to safe water and sanitation (or achieving the Millennium Development Goal which represents a step towards the practical realisation of the human right) in Kisumu and Addis Ababa, using the definition of improved water and sanitation adopted by WHO / UNICEF (2008), however, is problematic. Many households use multiple sources of water depending upon availability, distance and cost. Just because a household may be located within a kilometre of a public standpipe or have access to a private water connection to the municipal system (definitions of safe access to water) does not mean it will take most of its water from this source.

The picture on the ground in Kisumu and Addis Ababa, as in many developing country cities, is far more complicated than the assessments relating to achieving the human right to water and sanitation generally suggests. There are varying degrees of access to water and sanitation and thus it is difficult to determine whether individual households have achieved their human right to safe water and sanitation. Looking collectively across households, it is similarly difficult to determine the extent to which household water security is being fulfilled across both cities.

Clearly, the water and sanitation services most residents receive are completely inadequate by developed country standards and in breach of any concept of human rights in practice understood and realised in such countries, and there is no prospect of this changing in the near future. In the immediate future, water security at the household level can perhaps most effectively be advanced through education and training programmes to improve household water management practices when water is stored by households, particularly since point-of-use water quality interventions have been shown to be more effective in terms of health outcomes than water supply interventions (Waddington *et al.*, 2009). Independent and intermediate water suppliers also need to be formally recognised and regulated so uncertainty about the safety of the water they supply can be reduced, thus improving access to safe water even if this water is not supplied directly via a piped network. Increasing the number and distribution of public standpipes so that the average distance to the official water supply points is reduced will also lessen the need for many households to rely on mobile water resellers, and thus increase certainty about water safety.

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