



VCU

Virginia Commonwealth University
VCU Scholars Compass

Theses and Dissertations

Graduate School

2022

Less Water, More Holy: Tools for Sustainable Ablution

Faheem Khan

Follow this and additional works at: <https://scholarscompass.vcu.edu/etd>



Part of the [Art and Materials Conservation Commons](#), [Glass Arts Commons](#), [Graphic Design Commons](#), [Industrial and Product Design Commons](#), and the [Interdisciplinary Arts and Media Commons](#)

© The Author

Downloaded from

<https://scholarscompass.vcu.edu/etd/6907>

This Thesis is brought to you for free and open access by the Graduate School at VCU Scholars Compass. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of VCU Scholars Compass. For more information, please contact libcompass@vcu.edu.

Less Water, More Holy: Tools for Sustainable Ablution

vcuarts
QATAR



—
Faheem Ahmed Khan

Less Water, More Holy: Tools for Sustainable Ablution

Table of Contents

04	Abstract	36	Outcomes
05	Introduction	36	• <i>Wudu Deconstructed</i>
07	Literature Review	46	• Tools for Sustainable Ablution
11	Precedent Studies	51	Conclusion
11	• <i>Mudd</i>	52	Future Directions
13	• Fancy Cup	53	Exhibition
14	• A-F Vinegar Flask	67	Acknowledgements
15	• Cloth	71	Special Thanks
16	Investigations	74	List of Figures
16	• Islamic Artifact Research	77	Works Cited
18	• <i>Mudd</i> — Ergonomic Studies		
20	• Deconstructing <i>Wudu</i>		
28	• Reconstructing <i>Mudd</i>		
31	• Found <i>Mudd</i>		

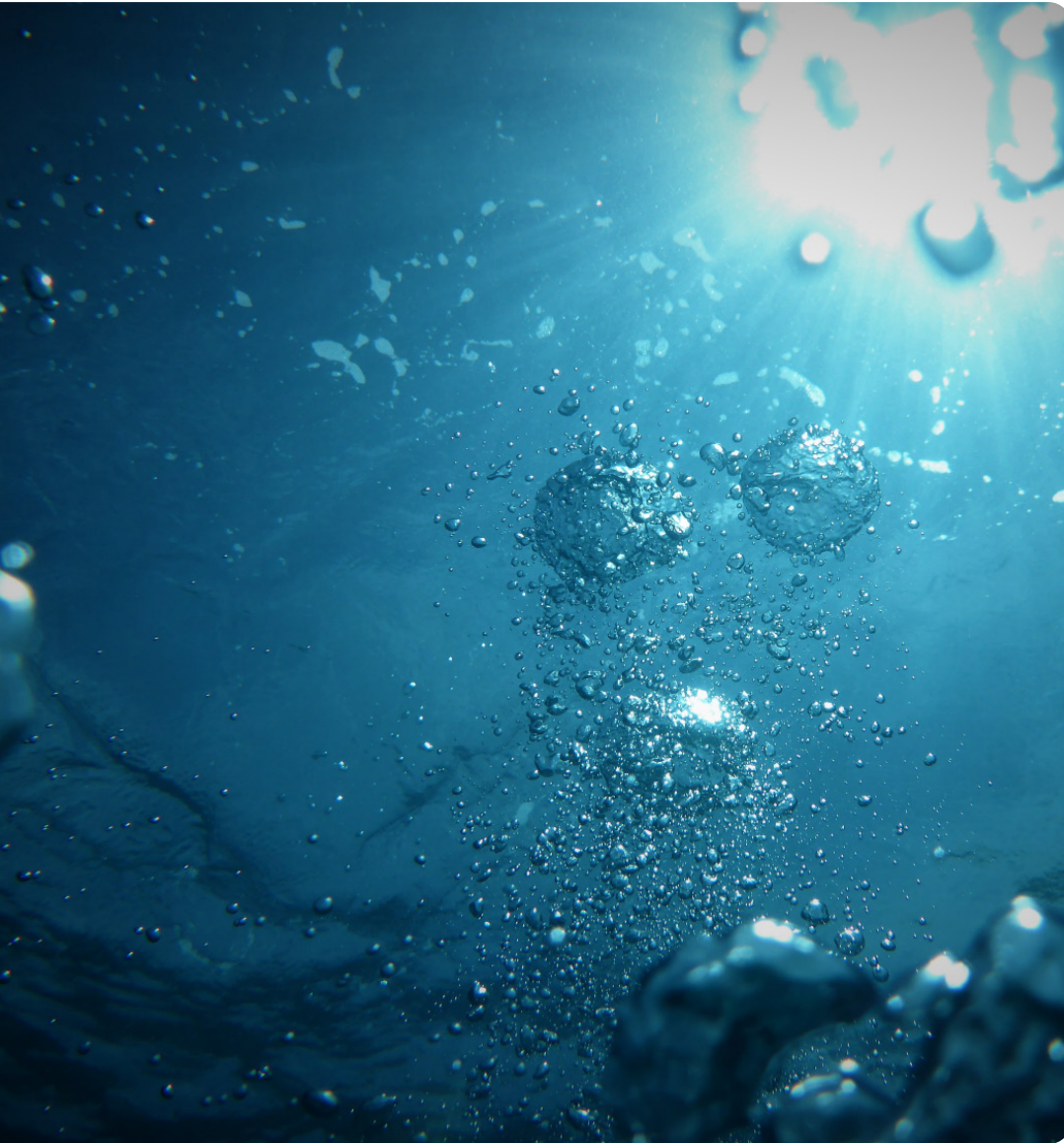
Abstract

Prayer is an important part of life for many people, whether it takes the form of meditation or talking to God. Muslims pray five times a day, and before each prayer, they first clean themselves by performing ritual ablution (*wudu*). The eight-step purification process of *wudu* cleanses the body from head to toe. The *Hadiths* of Sahih al-Bukhari and Sahih Muslim tell us the Prophet Muhammad ﷺ needed just one *mudd* of water (650ml) to complete *wudu*, but most people consume many times that amount—four-to-seven liters is more common today.

To visualize and better understand the nature of performing *wudu* with just one *mudd* of water, this thesis includes a two-part research investigation. A first part proposes eight individual artifacts—each one designed to analyze and illustrate the process of *wudu*, showing how little water is needed for each step of the process. Next, lessons extracted from this analytical phase inform a series of contemporary artifacts, designed to guide users toward a more reflective and sustainable *wudu*, modeled on and inspired by the teachings of the Prophet ﷺ.

Note: ﷺ is Arabic calligraphy meaning, “May the Blessings and Peace of Allah be upon him.” It is customary to say this after mentioning the name of the Prophet Muhammad ﷺ. This mark of respect will be used throughout.

Figure 4



Introduction

Water plays an integral part in Islam, and Muslims regard it as a gift that, “... gives and sustains life, and purifies mankind and the Earth.”¹ The Arabic term for water, *ma’*, is mentioned 63 times in the Qur’an and is a recurring theme in several of the Prophet Muhammad’s ﷺ sayings.² Water is not only appreciated for its life-giving and sustaining capabilities, but it is also crucial in a Muslim’s everyday existence. A believer must complete ablution five times a day before performing prayer. According to a *Hadith* given by Hazrat Abu Huraira, this pre-prayer ritualistic cleansing represents the attainment of cleanliness and purity of the body and spirit (Sahih al Bukhari, Vol. 1, Book 4).³ Through ritualistic ablution, the Prophet Muhammad ﷺ demonstrates the logical approach to sustainable water management. The notion of water conservation is eloquently exemplified by the guideline stating that during *wudu* we should be frugal with water, even if we have a river at our disposal.⁴

Religion is a spiritual force that connects humans with divinity through ceremonial and spiritual experience as a stimulant for creativity and culture. Religion is a sensitive topic because it is at the heart of our beliefs and informs how we perceive the cosmos. As designers, despite its sensitivity, we should be encouraged to embrace religion, not only to understand the religious significance of designed objects, but to take a first step toward a broader understanding of our faith, the faith of others and faith itself.

Some of the essential components of learning and conveying religious truths are systems of symbols and pictures composed in a certain ordered and determined connection to the form, content, and intention of presentation. Such systems also help maintain and enhance the bonds between humans and the sacred or holy realm (the transcendent, spiritual dimension). The symbol is the mediator, presence, and genuine depiction of the holy in conventional and established forms.⁵

A comprehension of rituals and their underlying symbolism fosters consciousness in worldly and holy realms. The significance of gestures is relevant since rituals contain a variety of performative characteristics, whether they be transforming, socially reinforcing, or something more ambiguous that relates primarily to a user's own internal intentionality. Ritualistic gestures are multifaceted; they are a process of symbolic expression that necessitates a deep understanding of the believer's intention. Hence designing artifacts that can sustain all these beliefs and values can be highly beneficial to a believer.⁶

When it comes to tangible objects that dwell within the religious realm, who designs them? Why do more significantly designed creations, such as religious architecture, get more emphasis? Are religious objects meant to be mundane with practical and commercial value, or should there be a deeper meaning behind such artifacts?

The purpose of this investigation is to qualitatively explore how symbolic actions can be transformed into objects that accentuate religious ritualism. This investigative design research conceptualizes religious rituals, where religion is defined as adherence to a formal belief system in which practices are associated with tradition. This research explores an alternative approach and builds on religious artifacts by making a series of designed objects to deconstruct the process of ablution and then recombining those deconstructive insights to provide a more practical approach in today's world.



Figure 6: People praying in congregation



Literature Review

Prayers have personal meanings that stem from a person's religious history or spiritual practice. Some regard prayers as sacred words, while others regard them as a method of speaking with or listening to God or a higher authority. Prayer is based on the principle that a power higher than oneself could impact one's life.⁶

The emphasis on daily ritual prayer, known as *salat*, which is performed five times each day, is one of the fundamental pillars of Islam. After reaching adolescence, Muslims are obligated to complete the five daily prayers. *Salat* punctuates the whole day. The first prayer (*Fajr*) occurs before sunrise, followed by a prayer at midday (*Zuhr*); the third prayer (*Asr*) occurs in the mid-afternoon, followed by another after sunset (*Maghrib*), and the fifth prayer occurs as the sky darkens (*Isha*). Millions of Muslims perform *salat* regularly five times a day. *Salat* is a physical activity and involves recitations of various Qur'anic verses and the performance of certain postural positions.

The total cleanliness and purity an individual achieves are some of the most significant benefits of *salat*. It always maintains one's physical purity. Before each *salat*, ablution (*wudu*), or washing the hands, mouth, nose, face, arms, scalp, ears, and feet, is required. Not only is this a requirement for *salat*, but it is also supported with scientific benefits for the body.⁷ Ablution maintains a continual level of cleanliness, resulting in better skin and overall good hygiene. It cleanses the body of bacteria, allergies, and different illnesses and disorders caused by improper hygiene.⁸ This ritual is documented in the Holy Book of Qur'an, the prophetic traditions known as *sunnah* or *hadith*, and the consensus of Islamic scholars. Since 14 centuries ago, general standards of ablution have been defined and inherited based on the Qur'an, *sunnah*, and scholars' agreement.⁹

Outside of the Muslim world it is not immediately obvious to most people what Islam might have to do with sustainability and sustainable development. *Tawhid* and *fitra* are two critical concepts in Islamic water management theory. While *tawhid* urges people to use natural resources (such as water) reasonably and sustainably, *fitra* encourages individuals to collaborate at the basin and inter-basin levels. Allah has warned humanity of the repercussions of over-exploitation of water resources in the Holy Qur'an. "*Mischief has appeared on land and sea because of what the hands of men have done, that Allah may give them a taste of some of their deeds, so that they may turn back,*" Allah states (Qur'an, 30:41). This verse gives insight into the harmful effects of the over-consumption of water resources on human survival on Earth.¹⁰

Muslims believe that nature belongs to God and that humans must demonstrate their gratitude by learning how to use and manage it properly so that it might benefit humanity. Exploiting nature, as taught by Islam, is based on the use of responsibility; this gives an advantage not only for its content but also for its intact and sustainable prospects. Muslims are expected to have particular perspectives toward nature, including coping with nature while ensuring sustainability. As a result, God provides clues to help individuals regulate themselves in exploiting natural resources, which causes depletion that can damage, if not destroy, human existence.¹¹

Water accessibility has reduced considerably as the human population has grown. Climate change, increased water use, infrastructure, and general waste contribute to the present worldwide water crisis. How many of us consider the Prophet's example of not wasting water? Nonetheless, it is part of our Islamic tradition. "*And waste not by excess, for Allah loves not the wasters*" (Qur'an 7:31)¹²

Religious artifacts can assist in achieving such ritualistic pursuits. Sacred elements take different forms in different religions, such as crosses, statues, jewelry, candlesticks, garments, shrines, and graves. These religious artifacts reflect people's religious convictions and have been influenced by the diversity of faiths. The most significant ways of understanding and communicating religious truths are symbols and representations composed in a particular organized and specified connection to the presentation's form, substance, and aim. Such systems also help maintain and deepen the bonds between humans and the world of the sacred or holy.¹³

The formation of religious symbols, which arise when unconscious ideas are awakened or when a process of consciousness takes place, is primarily a matter of religious experience. Such symbols are often intellectual acquisitions, and when religious conceptions are further developed, the symbols may eventually become issues of serious theological discussions.¹⁴ Religious symbols have an inextricable link to their meaning. They must show respect for a notion that is difficult to grasp in its entirety.¹⁵ Thus, it is vital to consider the design of religious objects that embody such beliefs and notions.

Almost every religious symbol and image is directly or indirectly associated with sensations and artifacts in the human environment. Many are taken from objects found in nature, while others are created intentionally through intuitive perception, emotional experience, or intellectual contemplation. Most of the time, the constructs are linked to items by sensory perception.¹⁶ There is a trend toward simplicity, abbreviation into signs, abstraction from sensory objects, and a tendency to consolidate numerous processes into a single symbol. An example of this can be seen in early Christian depictions of the triumphant cross against a background of a star-filled sky, which can be found in the apses of many Basilican churches.¹⁷ The Crucifixion, Resurrection, Ascension, Exaltation, and Transfiguration of Christ are related in these depictions to apocalyptic conceptions (centered on abrupt interventions by God into history) inherent in the belief of the Last Judgment.¹⁸

The conscious and unconscious, experience and cognition, sensory perception, intuition and imagination all serve as the basis of the symbolization process. The structure of religious symbolism emerges from these.¹⁹ The creation of the symbol structure is influenced by sensation as well as physiological and psychological processes. On the other hand, the symbol is meant to be an objective concentration of transcendent world experiences rather than a subjective product of a personal creative process.²⁰

The act of touching an object symbolically translates into a perceived mental connection with the purpose of the object. Physically connecting to an object, in particular, leads to a more significant psychological connection to the relevant service the object offers, which promotes behavioral intentions. A study also found that such tangible objects had a profound influence only when the object had a high visual appeal.²¹

Likewise, symbolic artifacts can be found in Islam. Some of the most commonly known artifacts are the Qur'an, skull-cap and *tasbeih* (rosary). Other objects do not directly relate to Islam, but their regular use within the context of Islam has made them recognizable as a religious accessory, such as book rests, flip-flops for ablution, prayer mats, and ablution jugs.



Precedent Studies

Mudd

According to a highly reputable Islamic scholar and collector of *hadith*, Al Tirmidhi, Prophet Muhammad ﷺ stated, “Do not waste [water] even if performing ablution on the bank of a fast-flowing large river.” This *hadith* emphasizes Islam’s teachings on taking a rational approach to sustainable water usage.²² The Prophet ﷺ would do full-body cleansing with one *saa’* or five *mudd* of water, and ablution with one *mudd* of water, according to the *Hadith* of Sahih al-Bukhari.²³

Ablutions are defined in the Oxford Dictionary of World Religions as, “...ritual cleansings to remove impurity and to mark transitions from profane to sacred states.”²⁴ Five times a day, a follower is expected to complete ablution before prayer. This ritualistic cleaning symbolizes the fulfillment of cleanliness and purification of the body and soul before prayer. No prayer is acceptable without ablution, according to a *Hadith* narrated by Hazrat Abu Huraira (Sahih al Bukhari, Vol. 1, Book 4).²⁵ In Islam, the act of washing oneself is referred to as *wudu*, *ghusl*, or *tayammum*.²⁶

Research had been conducted by the Saudi Organization of Standards (SASO) to define a *mudd*. Using a sample of 40 men, they estimated the average volume of water one could hold in their palms. According to the findings of this investigation, one *mudd* contains 628 milliliters of water.²⁷ The Council of Senior Scholars of the Kingdom of Saudi Arabia define a *saa’* to be equivalent to be four *mudds*.



Figure 9: Man filling up one *mudd* of water



As Muslims regard the Prophet ﷺ as a role model and try to follow his teachings, a *mudd* for performing an ablution should be plentiful. In the arid climate of the Middle East, it is a moral responsibility to conserve water. A traditional vessel containing a *mudd* of water (Figure 9) is simple but can be improved for a better user experience. The value of this measurement has a psychological appeal for Muslims, because the Prophet ﷺ used it to set a sustainable example. With 1.9 billion Muslim adherents worldwide, an ablution vessel designed to contain just one *mudd* of water would save tens of billions of liters of water every day.

A standard swimming pool holds 13,500 gallons (~61,000 liters) of water. 97,134 individuals can perform ablution with that amount of water if they follow the prophetic teachings and use only one *mudd* each. Instead, on average, people today use anywhere from 4-7 liters of water for ablution. Statistically speaking, at today's levels, a swimming pool full of water would provide ablutions for only nine to fifteen thousand people .

Fancy Cup A-F

Masahiro Mori, a well-known Japanese porcelain designer, created Fancy Cups. His ground-breaking designs merge traditional elements with a modern look, resulting in exquisite but simple, creative yet utilitarian items. When Fancy Cup was first released in 1969, it was touted as a high-end design item. The collection's thin, light porcelain bodies, smoothness, shine and distinctive profiles have made it a famous example of quirky design.²⁸

Mori's line of cups was developed and manufactured in Japan by Hakusan Porcelain. Because of its thin porcelain, it is ideal for cold drinks, but it may also be used as a vase or a decorative object. Mori initially meant these cups to be appreciated by the blind; hence there are six distinct designs in the range. Each cup has a distinct tactile feel in hand, allowing the sight-impaired to appreciate the beauty of their cup by feeling its distinctive surfaces in their hands. The cups were made in six distinct patterns: A, B, C, D, E, and F.²⁹

Although intended for the blind, these ergonomic cups provide a range of possibilities for different cup users. Even though traditional cups have a handle, users have their approach to holding their cups. People can choose a cup that they feel more comfortable holding. The amount of surface area that contacts one's fingers ranges from one cup to another. Mori's cups lend a varied experience for different drinks, depending on temperature or mood.



Figure 11: Vinegar Flask by Aldo Bakker



Vinegar Flask

Aldo Bakker, an Amsterdam-based designer, created a line of porcelain dinnerware: the Vinegar Flask. Organic shapes and movements that transcend time, zeitgeist, usefulness, and purpose are of particular appeal to Bakker. This captivating and exciting time is significant to the designer, who grew up in the intellectual family of two Dutch design superstars, Gijs Bakker and Emmy Van Leersum.³⁰

Every item of Bakker's dinnerware collection began with a movement and a serving ritual that formed a shape and invited a gesture associated with fluid or powder. The Vinegar Flask is a one-of-a-kind take on how to pour vinegar. Pouring may be done precisely due to an unusual spout made of a cup that acts as a holding place for the vinegar.³¹

Frans Ottink, a Dutch ceramicist, created this tableware. The collaboration between Bakker and Ottink began with the manufacture of the Porcelain Tableware series for Thomas Eyck, a Dutch publisher, and distributor of design objects. Since then, Ottink has been in charge of the porcelain products that have emerged from the studio.³²

Cloth

Cloth is a minimalist jug designed for OTHR by Stockholm-based designer Luca Nichetto. Cloth is a streamlined, multi-purpose design that may be used as an oil jug, creamer dispenser, or soy sauce dispenser. It is a numbered edition made of 3D printed porcelain that comes with or without a lid.³³

Cloth was inspired by the idea of combining an oil jug's spout with its body. Its form, which is only achievable with 3D printing, enables a seamless connection between the spout and the container. The shape is draped around the liquid it discharges, acting as a porcelain cloth.³⁴

Oil jugs, also known as "*Oliera*" in Italian, are a standard table item in Italy, as many meals are dressed with extra virgin olive oil after they are served. Cloth is energized by its angles and lines, giving the impression of perpetual motion.³⁵



Figure 13: Illustration of collection of objects found in a mosque



Investigations

Islamic Artifact Research

Before focusing my topic on the use of water for ablution, I initially analyzed a collection of objects found within the mosque space. The illustrations in Figure 13 depict objects commonly placed or used, while praying, in a mosque, or used while preparing for worship. Although the majority of these objects are common items that would not otherwise be considered holy or sacred, their existence within a spiritual space conveys religious, symbolic meaning.

Following the examination of found objects, I focused on the process of ablution. Even though ablution is a universal practice of cleansing oneself before prayer, methods vary from region to region. People in developed nations, with abundant water, enjoy well-maintained ablution rooms, while people living in developing nations, or praying at home, more commonly use a vessel (*lota*) to perform ablution. Because a *lota* was among the found objects in this initial exercise, it sparked my curiosity to explore ablution and the history behind it.



Figure 15: Measuring instrument (*mudd*)



Mudd — Ergonomic Studies

Following the previous artifact examination, I decided to explore the act of ablution. Upon reaching this decision, I came across a *hadith* from Sahih al-Bukhari and Sahih Muslim; “The Prophet ﷺ, would perform ablution with one *mudd*, or half of a litre, and would perform a ritual bath with one *saa'*, or two litres, up to five *mudd*.”³⁶ Figure 15 is an example of a *mudd* held in the National Museum of Antiquities and Islamic Arts in Algeria. This *mudd* dates between Hegira 731 and 749 / AD 1331 and 1348. It is made from yellow copper, engraved, and incised. The dimensions of this vessel are 10 cm high, 11.6 cm wide base, and an opening of 8.1 cm. This artifact roughly holds up to 780ml of water.³⁷ Upon further research, there is disagreement among scholars about the exact measure of a *mudd*. However, it is approximately agreed upon that it holds around 650ml of water. Islam discourages any form of wastage³⁸, and, as mentioned in Sahih al-Bukhari, scholars discouraged excess in ablution, and advised following the Prophet’s ﷺ example.³⁹

The first phase of my research sought to develop a well-designed vessel containing one *mudd* of water. Looking back to my precedents, I incorporated ergonomic features to improve the look and feel of the vessels. With a bulbous form, the vessel naturally fits the hand, but I added distinct features to distinguish each iteration. From left to right in Figure 16, the first iteration had finger dents to hold the vessel from beneath, while the second had a spout, providing directed water flow. The third version had an built-in, handle-like thumb hole, to allow the user to hold the *mudd*, like a mug, while the final example had finger dents on its surface for improved grip.



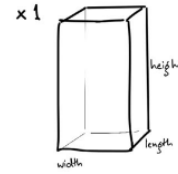
Figure 17: Volumetric deconstruction

1. Hands	20%	130 ml
2. Mouth	20%	130 ml
3. Nose	5%	32.5 ml
4. Ear	5%	32.5 ml
5. Face	10%	65 ml
6. Arms	10%	65 ml
7. Head	5%	32.5 ml
8. Feet	25%	162.5 ml
		<hr/>
100%		650 ml

$$\begin{array}{r}
 162.5 \text{ ml} \times 1 \\
 130.0 \text{ ml} \times 2 \\
 65.0 \text{ ml} \times 2 \\
 32.5 \text{ ml} \times 3 \\
 \hline
 650 \text{ ml} / 8
 \end{array}$$

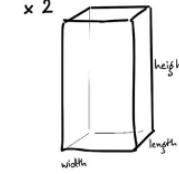
$$1 \text{ cm}^3 = 1 \text{ ml}$$

Volume Dimensions



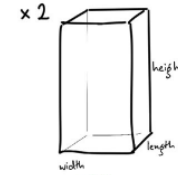
$$2 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \sim 162.5 \text{ ml}$$

$$\begin{array}{l}
 18 \cdot 3 \cdot 3 \\
 2 \cdot 9 \cdot 9 \\
 27 \cdot 3 \cdot 2 \\
 6 \cdot 9 \cdot 3
 \end{array}$$

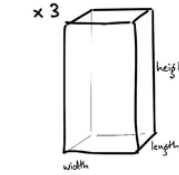


$$13 \cdot 5 \cdot 2 \sim 130 \text{ ml}$$

Height (divide by 2 or 4)



$$5 \cdot 13 \cdot 1 \sim 65 \text{ ml}$$



$$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \sim 32.5 \text{ ml}$$

$$\begin{array}{l}
 4 \cdot 4 \cdot 2 \\
 8 \cdot 2 \cdot 2 \\
 16 \cdot 2 \cdot 1
 \end{array}$$

Deconstructing Wudu

After exploring ergonomics, a next phase of my research speculated on ways to perform ablution with much less water. By self-testing and observing my family perform ablution, I was able to allocate quantities to each step of the ablution process. As depicted in Figure 17, I performed calculations to determine how one *mudd* of water (650ml), could be assigned to each of the eight steps of ablution, based on the percentage of surface area of the body parts associated with each step. With those percentages assigned, I calculated a specific volume for each step.

Next, I designed individual vessels for each body part and step. This produced eight vessels (Figure 18), which correspond to the hands, mouth, nose, face, arms, scalp, ears, and feet. These vessels support the physical movements that make up the choreography of ablution.

Each one responds to the physical gestures needed to cleanse each body part, ergonomically responding to existing actions and methods of traditional *wudu*, so users experience the familiarity of a known ritual (Figures 19-26).



Figure 19: *Wudu* deconstructed, Hands



Figure 20: *Wudu* deconstructed, Mouth



Figure 21: *Wudu* deconstructed, Nose



Figure 22: *Wudu* deconstructed, Face



Figure 23: *Wudu* deconstructed, Arms



Figure 24: *Wudu* deconstructed, Head



Figure 25: *Wudu* deconstructed, Ears



Figure 26: *Wudu* deconstructed, Feet



Figure 27: Thesis review exhibition, Fall 2021



Figure 28: Thesis review exhibition, Fall 2021



Figure 29: Thesis review exhibition, Fall 2021



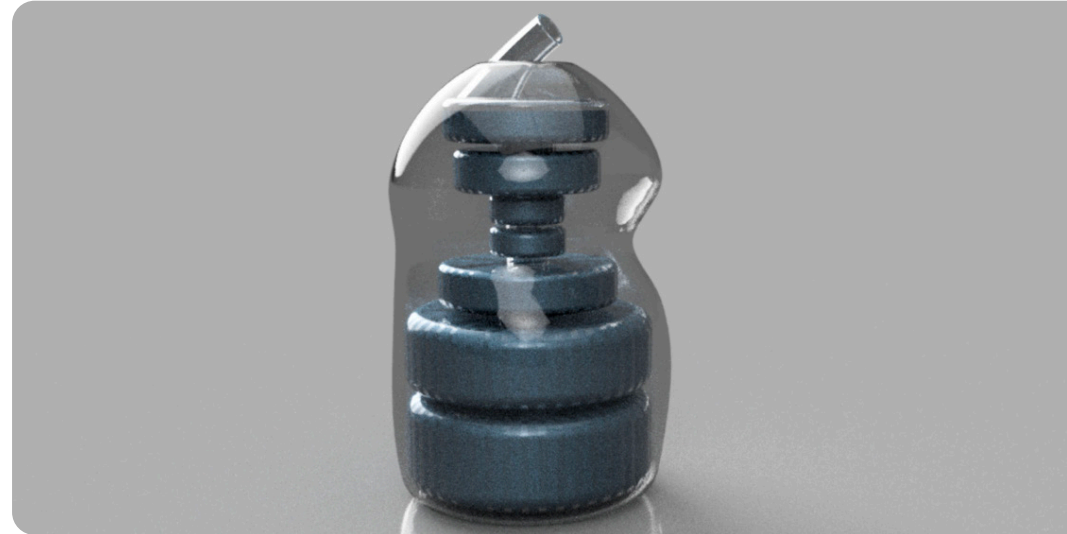
Figure 30



Figure 31



Figure 32



Reconstructing *Mudd*

Having performed a didactic deconstruction of the ablution process, I next sought to combine lessons from the earlier exercises and create a more practical, user-friendly vessel.

Figure 30 shows a reductive attempt to make a single, convenient, all-in-one solution. A central hole in the lid allows users to easily fill the vessel. Two spouts at opposing ends—one wide and the other narrow—offer the user two different pour rates. Figure 31 illustrates a version inspired by contemporary oil and vinegar containers, with the body of the vessel holding water for ablution steps dedicated to larger surface areas, and a smaller, internal chamber for cleaning smaller body parts.

Figure 32 articulates the different volumes dedicated to each step of ablution. The segmented chambers offer users a visual sense of how much water remains, step-by-step.

Figure 33

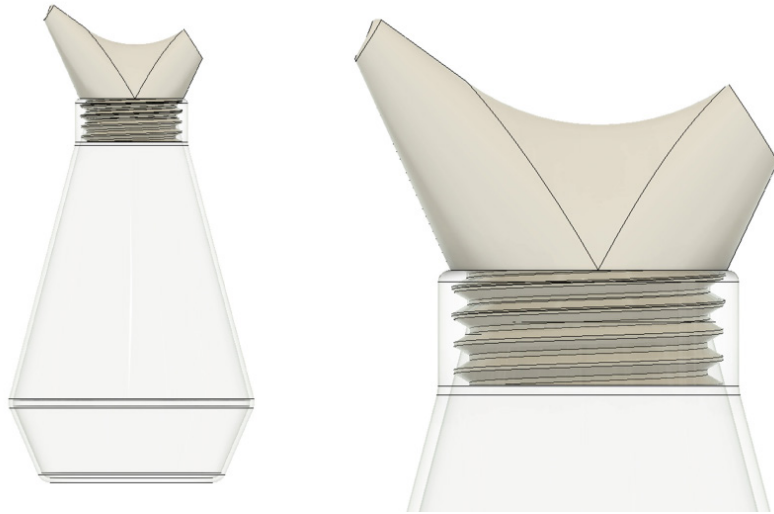


Figure 34



Figure 35



In the next series of studies, vessels are tapered, to depict the increased quantity of water used in each sequential step of ablution. Figures 33-35 study various ways to control the pour of water. Figures 33 and 34 work similarly, each with two spouts—one wide and one narrow. Figure 35 has perforations in its lid for a controlled pour.

Each of these studies incorporates a manual pressure-lock mechanism, allowing a user to stop flow by covering one spout/hole to stop the flow of water from the other. Once the second hole is released, the water is free to flow.

Figure 36



Figure 38



Figure 37

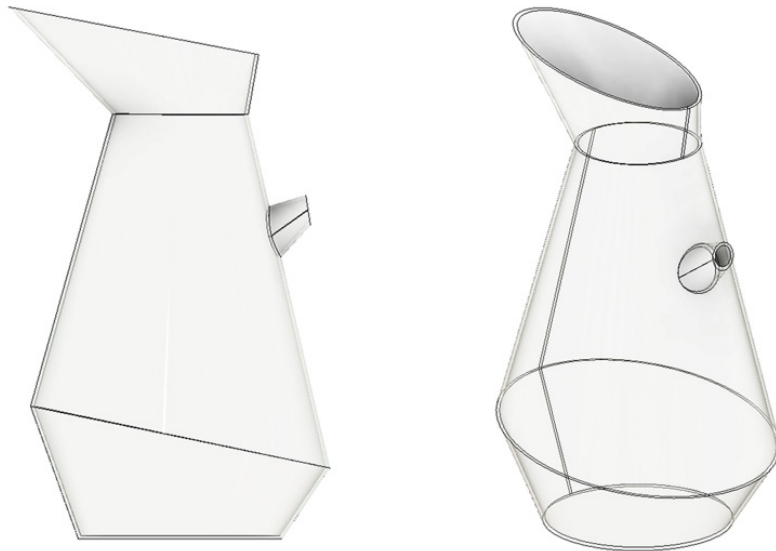
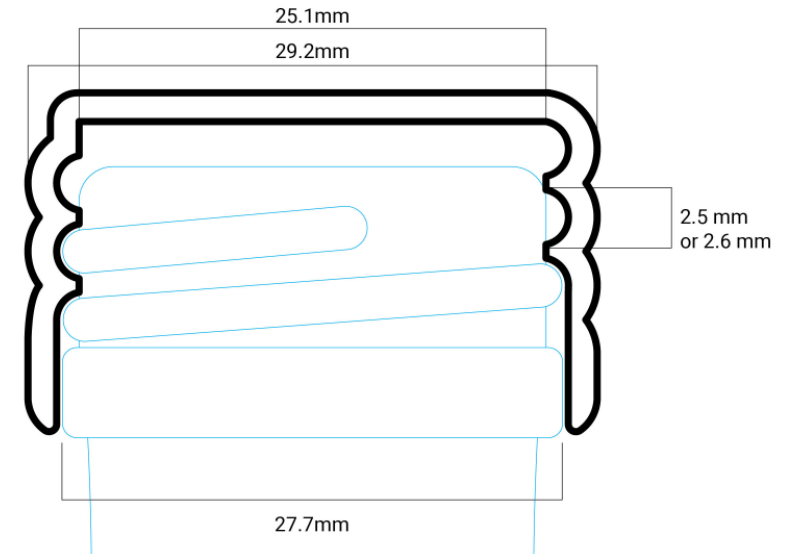
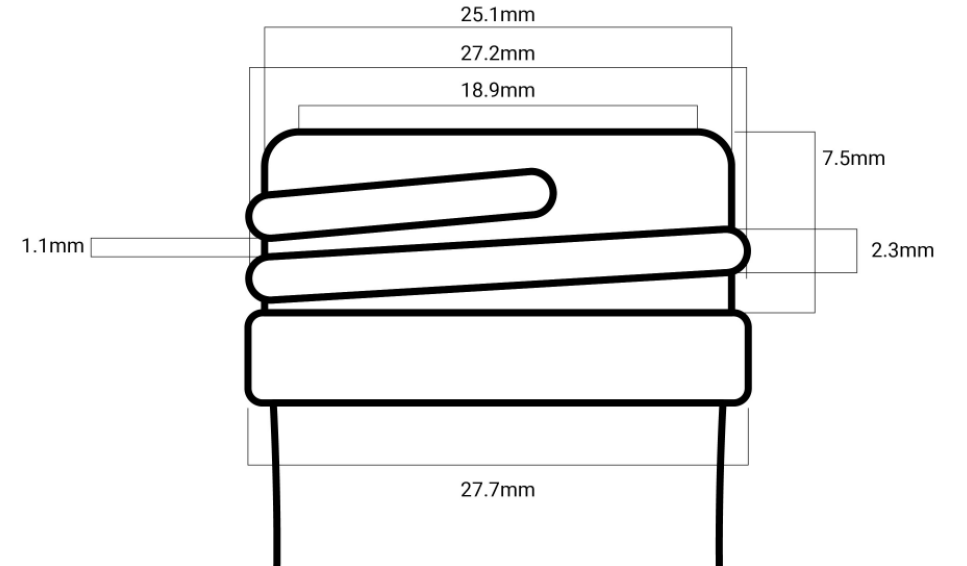
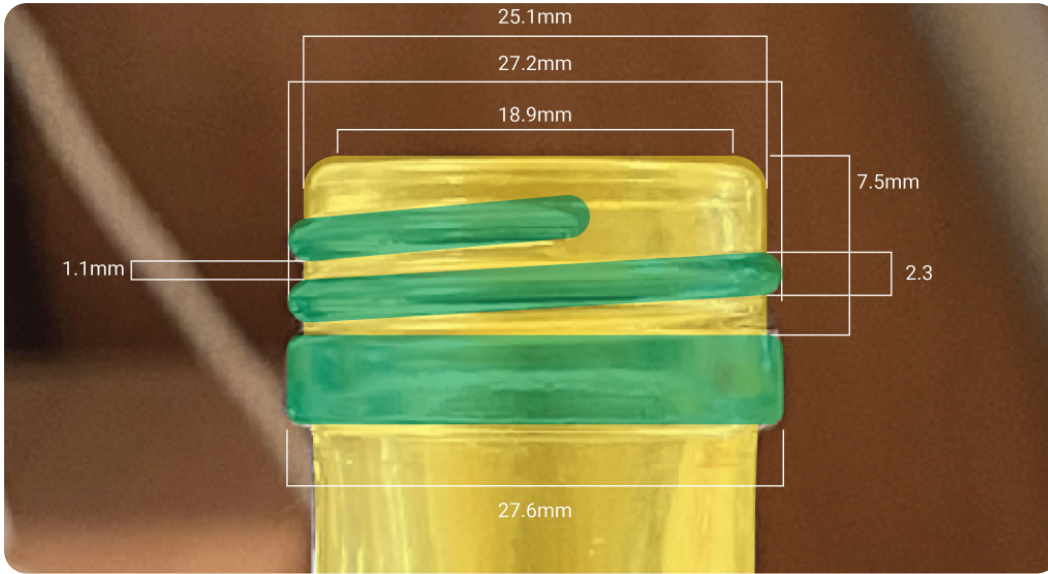


Figure 36 incorporates ergonomic bumps on one side of the surface for grip, with a small spout on the opposite side, for a more controlled pour. The small spout serves double duty, acting as a thumb support when pouring from the large spout.

Figure 37 is inspired by Aldo Bakker's water carafe⁴⁰ where the left side of the vessel can be held with both hands or the smaller spout acts as a grip for the fingers or thumb.

Figure 38 pays homage to Aldo Bakker's Vinegar flask (Figure 11). It is designed to pour a small amount of water at a time into the protruding container to break the process of *wudu* into steps, encouraging users to perform ablution patiently and reflect on its meaning.

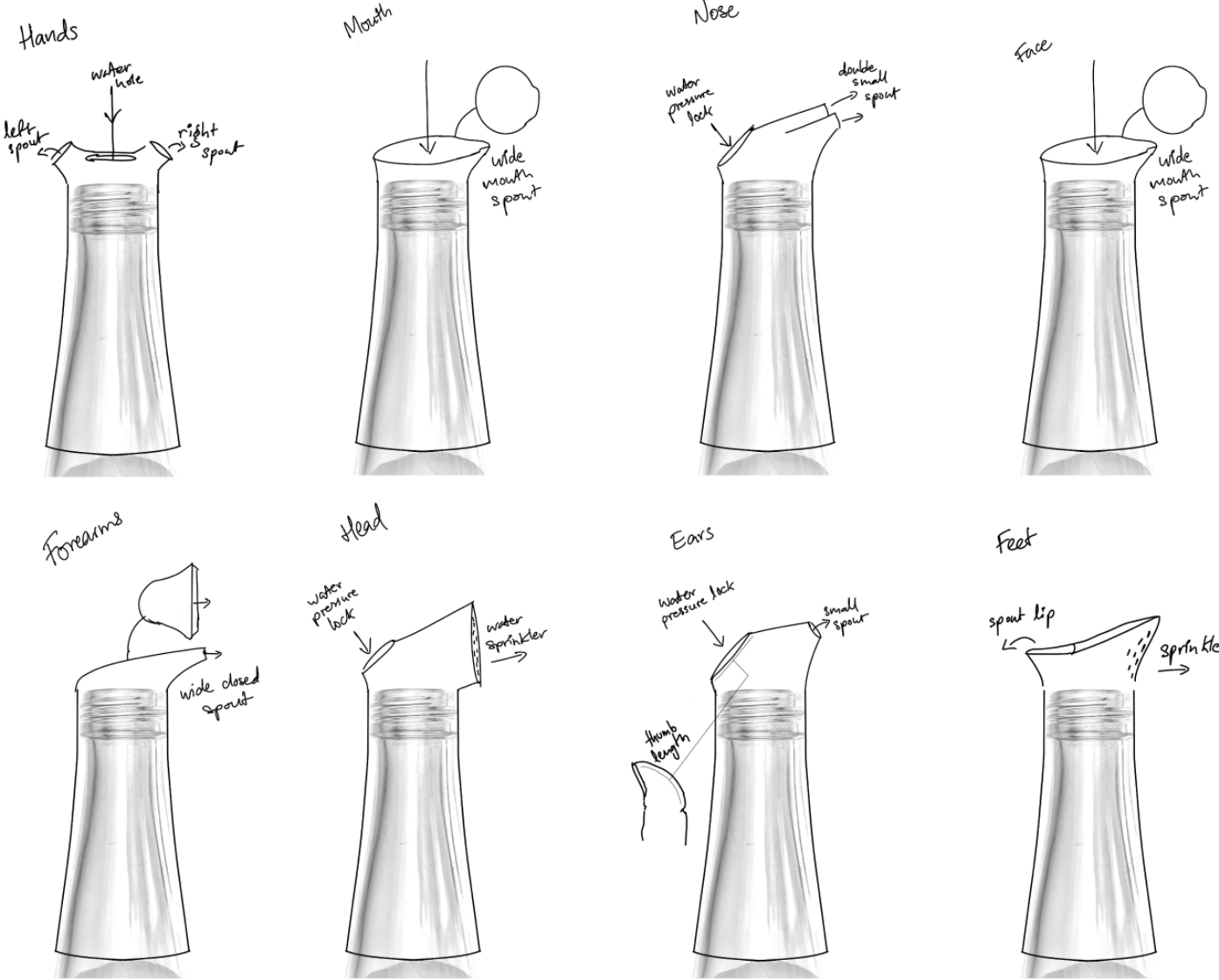
Figure 39



Found *Mudd*

After the sequence of studies reconstructing *mudd*, my research narrowed to a focus two project components; a lid, designed to pour water in specific ways, and a vessel capable of holding one *mudd* of water. Rather than design the vessel from scratch, I decided to embrace the sustainable solution of upcycling found glass bottles. Specifically, I chose a unique type of tapered vessel that comfortably holds 650ml of water—a glass Rayyan water bottle.

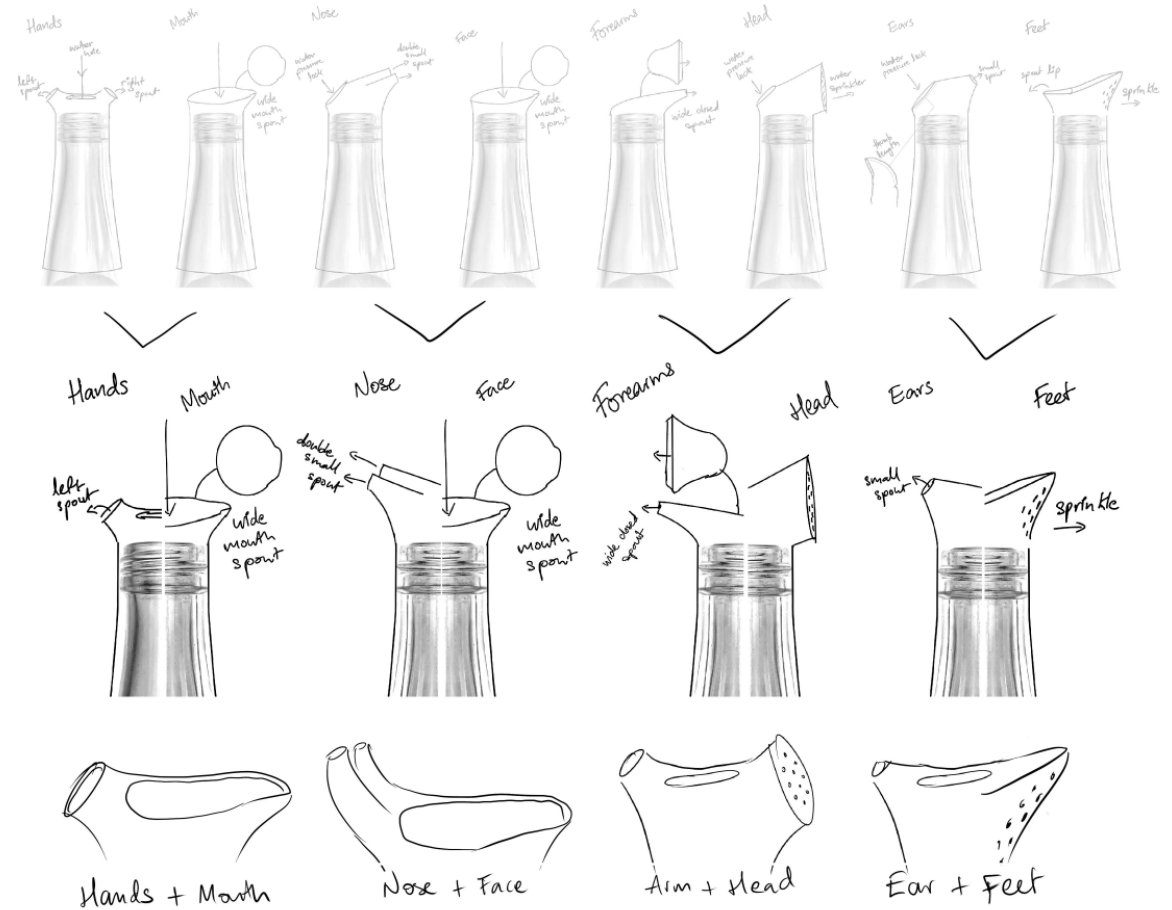
Figure 40



I accepted the technical challenge of creating a threaded lid that would fit perfectly onto the found bottle. After careful measurements (Figure 39) and multiple prototypes, I achieved a water-tight fit to match the Rayan bottle threads. Next, I developed eight individual caps/spouts, reviving the poetic and symbolic lessons from the *mudd* deconstruction exercise (Figure 40).

Figure 41: Prototyping





The final step leading to my thesis outcomes was to reduce the number of lids required for ablution by strategically combining and pairing sequential steps, converting pairs of pouring actions into one dual-functioning cap (Figure 42). By reducing eight vessels to four, I was able to reduce the number of tangible objects required for ablution, while retaining the symbolic and poetic link to each physical gesture of ablution. The collection of four caps allows a user to perform ablution sequentially, while intentionally slowing down and ritualizing the process, allowing believers to more thoughtfully connect with this holy practice.

Figure 43: Rendering of final designs

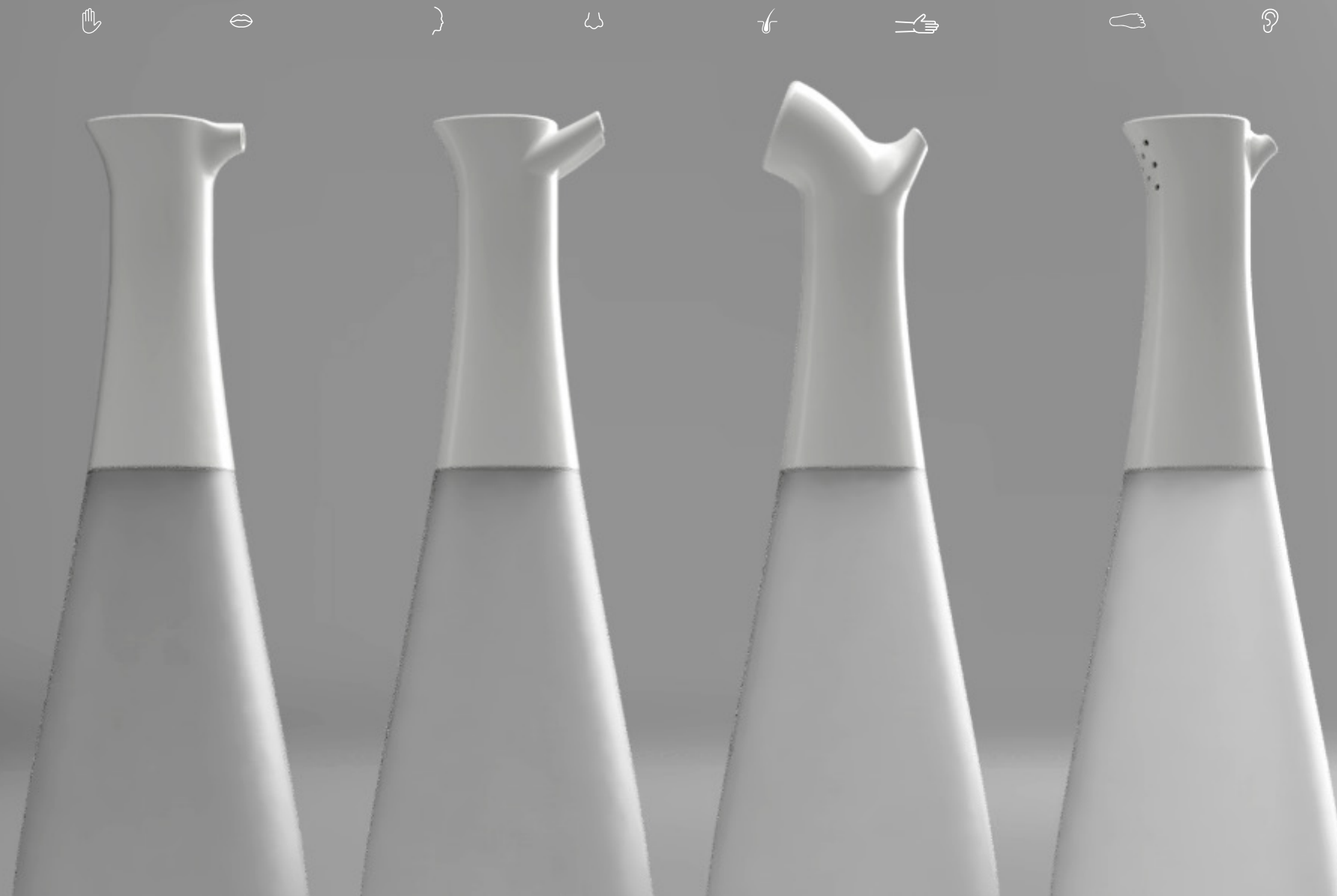


Figure 44: *Wudu* deconstructed



Outcomes

Wudu Deconstructed

The objective of the eight-piece collection called *Wudu* Deconstructed was to not only quantify the amount of water needed for each step of ablution—as a fraction of one *mudd*—it was also to visually articulate how water is used in each step. Practicing Muslims are obliged to follow the teachings of the Prophet ﷺ, and to follow his example of conservation.

Each of these eight pieces is designed to analyze conventional methods of performing ablution under a constant source of water, reinforcing a familiarity of use. The vessels not only serve a didactic purpose; they can also be used for daily ablution. Although it would be time consuming to use each of the eight tools in sequence, doing so would allow the believer to truly act in harmony with and appreciation for the teachings of the Prophet ﷺ.

Figure 45: Lost-wax casting process in Pakistan



These eight pieces were created from brass, using lost-wax casting (Figure 45). Brass was chosen as the final material of production to reflect and pay tribute to the vessels that held one *mudd* during the prophetic era. These eight artifacts are didactic and meant for visual articulation. Additionally, the symbolic pieces serve as a visual reminder of how much water one needs and can also be used to perform the eight-step ritual ablution.

Figure 46: *Wudu* deconstructed, Brass



Figure 47: *Wudu* deconstructed, Brass



Figure 48: *Wudu* deconstructed, Brass



Figure 49: *Wudu* deconstructed, Brass, Hands



Figure 50: *Wudu* deconstructed, Brass, Mouth



Figure 51: *Wudu* deconstructed, Brass, Nose



Figure 52: *Wudu* deconstructed, Brass, Face



Figure 53: *Wudu* deconstructed, Brass, Arms



Figure 54: *Wudu* deconstructed, Brass, Head



Figure 55: *Wudu* deconstructed, Brass, Ears



Figure 56: *Wudu* deconstructed, Brass, Feet





Wudu Deconstructed

Video demonstrating tools for '*Wudu* Deconstructed'

01:10

Tools for Sustainable Ablution

The resulting collection is a culmination of all of the investigations, studies and research discussed and documented above. The project's primary objective is to propose ablution vessels that can be mass-produced and used by every Muslim believer, while expressing the symbolic and poetic characteristics embedded within each step of the ablution process—all while using just one *mudd* of water. A complete set of four lids facilitates ease of use, while reinforcing the thoughtful step-by-step performance of the ablution ritual.

Thoughtful use of water is not exclusive to just ablution. However, there are multiple references to the importance of water in the Holy Qur'an, including: *"Do not the Unbelievers see that the heavens and the earth were joined together (as one Unit of Creation), before we clove them asunder? We made from water every living thing."* (Qur'an, 21-30).⁴¹ Moreover, cleansing is not only a mandatory step before praying; it helps the believer achieve a humble state, as water represents purity in Islam.











Tools for Sustainable Ablution

Video demonstrating 'Tools for Sustainable Ablution'

01:49

Figure 61



Conclusion

If 650ml of water was sufficient for the Prophet ﷺ to perform *wudu*, why is it that contemporary Muslims use many times that amount? As Muslims, are we not supposed to follow the teachings of the Prophet ﷺ?

These questions drove my thesis inquiry and design research. Not only does this work connect to the teachings of Islam and the *sunnah* of the Prophet ﷺ, it also addresses the global impact of wastage and the need for conservation of natural resources. This design research was meant to empower modern Muslims with teachings embedded in their religion and to encourage them to follow in the Prophet's ﷺ footsteps.

The research process of systematically deconstructing and reconstructing the implications of a simple volumetric constraint opened design opportunities to educate, direct and indicate how to go about following the *sunnah* of the Prophet ﷺ while preserving one of nature's most vital and life-sustaining resources: water.

Future Directions

Water is an essential need for all life on Earth. It is utilized for various functions, including drinking, irrigation, energy generation and industrial and commercial uses. Its negligent usage has resulted in a decrease in both its quality and quantity.⁴² With almost two billion Muslims worldwide, Islam is the world's second-largest religion.⁴³

One way to continue building on this research is to identify strategies for mass-producing and supplying these tools for sustainable ablution to densely populated Muslim regions. These tools would reduce the amount of water used for ablution to a fraction of its current use.



Figure 63: BFA+MFA Exhibition, 2022



Exhibition

The exhibition has been designed to provide a linear pedagogical experience. The exhibits have been curated to flow from left to right, starting with the abstract and ending with a video demonstration. The first set of work proposes eight individual artifacts designed to analyze and illustrate the process of *wudu*, showing how little water is needed for each step of the process.

Followed by the lessons extracted from this analytical phase, the second set of work inform a series of contemporary artifacts designed to guide users toward a more reflective and sustainable *wudu*, modeled on and inspired by the teachings of the Prophet ﷺ. The exhibition concludes with a video demonstration of the Tools for Sustainable Ablution in use.

Faheem Khan

Figure 64: BFA+MFA Exhibition, 2022

Less Water, More Holy: Tools for Sustainable Ablution

Prayer is an important part of life for many people, whether it takes the form of meditation or talking to God. Muslims pray five times a day, and before each prayer, they first clean themselves by performing ritual ablution (*wudu*). The eight-step purification process of *wudu* cleanses the body from head to toe. The Hadiths of Sahih al-Bukhari and Sahih Muslim tell us the Prophet Muhammad ﷺ needed just one *mudd* of water (650ml) to complete *wudu*, but most people consume many times that amount—four-to-seven liters is more common today.

To visualize and better understand the nature of performing *wudu* with just one *mudd* of water, this thesis includes a two-part research investigation. The first part proposes eight individual artifacts—each one designed to analyze and illustrate the process of *wudu*, showing how little water is needed for each step of the process. Next, lessons extracted from this analytical phase inform a series of contemporary artifacts, designed to guide users toward a more reflective and sustainable *wudu*, modeled on and inspired by the teachings of the Prophet ﷺ.

Bē www.behance.net/fa7eemkhan

IG [fa7eemkhan](https://www.instagram.com/fa7eemkhan)



MAIN ADVISOR

Rab McClure

ASSOCIATE ADVISOR

Stella Colaleo

READER

Jörg Matthias Determann



Faheem Khan

Less Water, More Holy: Tools for Sustainable Ablution

Prayer is an important part of life for many people, whether it takes the form of meditation or talking to God. Muslims pray five times a day, and before each prayer, they first clean themselves by performing ritual ablution (*wudu*). The eight-step purification process of *wudu* cleanses the body from head to toe. The Hadiths of Sahih al-Bukhari and Sahih Muslim tell us the Prophet Muhammad ﷺ needed just one *mudd* of water (650ml) to complete *wudu*, but most people consume many times that amount—four-to-seven liters is more common today.

To visualize and better understand the nature of performing *wudu* with just one *mudd* of water, this thesis includes a two-part research investigation. The first part proposes eight individual artifacts—each one designed to analyze and illustrate the process of *wudu*, showing how little water is needed for each step of the process. Next, lessons extracted from this analytical phase inform a series of contemporary artifacts, designed to guide users toward a more reflective and sustainable *wudu*, modeled on and inspired by the teachings of the Prophet ﷺ.

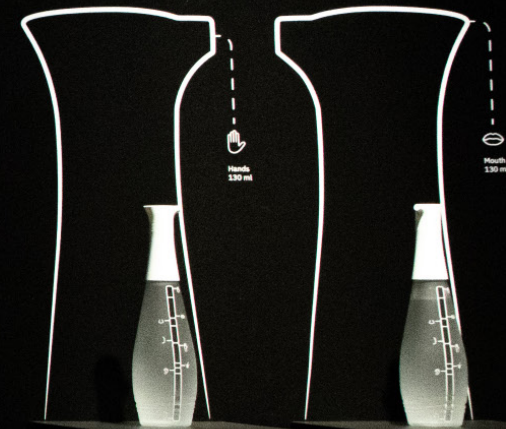
Bé www.behance.net/fa7eemkhan
@ fa7eemkhan



MAIN ADVISOR
Rob McClure

ASSOCIATE ADVISOR
Stelle Colaleo

READER
Jörg Matthias Determann



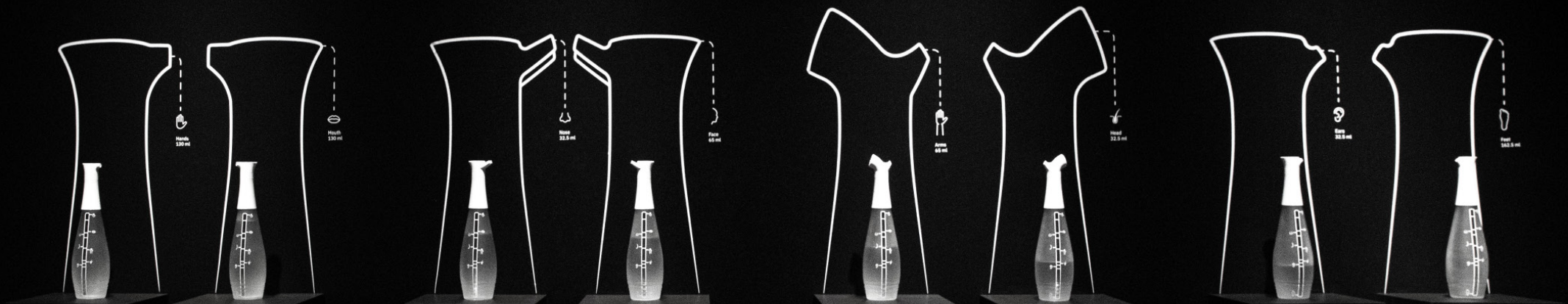


Figure 67: BFA+MFA Exhibition, 2022



Anurag Wallace

Objectified

Domestic violence against women is an epidemic with cases rising year after year. We talk openly about the uncomfortable truths of marriage, which border traditions and often against women. The wedding dress is a symbol of hope, but in the case of abuse, it can become a symbol of oppression. During the research phase of this investigation, I discovered that many brides feel trapped in their marriages. In abusive marriages—marked as often as the silent but deadly form of domestic violence—these everyday objects become silent witnesses. These symbolic objects are understood as a part of a woman's identity and a part of a husband's control. These objects and traditions serve as a call for societal change.

© 2022
ANURAG WALLACE
EXHIBITION DESIGN
ANURAG WALLACE
ANURAG WALLACE
ANURAG WALLACE



Figure 69: BFA+MFA Exhibition, 2022



Figure 70: BFA+MFA Exhibition, 2022





Arms
65 ml



Figure 72: BFA+MFA Exhibition, 2022



Head
32.5 ml



Ears
32.5 ml



Feet
162.5 ml



Figure 73: BFA+MFA Exhibition, 2022



Figure 74: BFA+MFA Exhibition, 2022



Figure 75: BFA+MFA Exhibition, 2022





Acknowledgements

This thesis would not have been possible without the support of many people, including but not limited to the faculty and staff at VCUarts Qatar and my peers. I would like to take this opportunity to express my sincere gratitude to my thesis committee, Rab McClure, Stella Colaleo, and Jörg Matthias Determann, for their constant guidance and support throughout this research.

Rab and Stella have been ideal design mentors and thesis supervisors, offering advice and encouragement with a perfect blend of insight, tough love, and humor. I am humbled and grateful for my time working with both of them. Matthias has always been generous, kind, and respectful with his feedback throughout my writing journey. I am grateful to both Rab and Matthias, who read my drafts and helped make some sense of the confusion.

Lastly, my family deserves endless gratitude—my father for inspiring me to take on this thesis venture, my mother for being my staunch supporter, and my brother for teaching me that an assertion of dominance is not necessarily a bad thing.

Figure 1: Portrait of Rab McClure, Chair of the MFA Department



Rab McClure

Main Advisor

—

Rab McClure’s teaching and creative scholarship mine the sweet spot where design and fine arts overlap. His work, which leverages digital fabrication to amplify analog processes, investigates form, light, space, material, memory and imagination. He has been invited to present papers and exhibit his work most recently in Venice, St. Petersburg, Dubai, Miami, Vancouver, Helsinki, London, Montreal, Kyoto, and the Netherlands.

Rab is an Associate Professor and the Director of Graduate Studies at VCUarts Qatar. He is a registered architect and an NCIDQ certified interior designer. He holds a Master of Architecture degree from Yale University and a Bachelor of Science in Architecture degree from the University of Virginia.

Stella Colaleo

Associate Advisor

—

Stella has a Master in Architecture from the Polytechnic University of Turin with a thesis inquiring about participatory architectural design. She has worked in a studio for several years, moving to her own independent business afterward. She started a long collaboration with a company oriented to designing and producing interactive experiences, objects, and services. The company was also active in education and collaborated with schools and cultural institutions to develop pedagogical programs on new technologies and interactive design.

Twelve years ago, Stella moved with her family to Doha and joined VCUarts Qatar in the fall of 2011. Digital Illustration, Digital Fabrication, and Jewelry Design were the classes she taught for a few years, together with electives and interdisciplinary studio courses.

From 2014 to the end of 2018, she held the position of Head of Design Studio at Qatar Museums (QM). With a team of VCUarts Qatar alumni, the studio designed and developed products for the QM's gift shops inspired by the local culture and by the content of the museums' collections. In 2019, Stella moved back to VCUarts Qatar, where she teaches in the Masters of Fine Arts in Design program.



Figure 3: Portrait of Art History faculty member Jörg Matthias



Jörg Matthias Determann

Reader

—

Jörg Matthias Determann is Associate Professor of History at Virginia Commonwealth University in Qatar. He also serves as an Associate Editor of the Review of Middle East Studies. He holds a doctorate from the School of Oriental and African Studies, University of London, and master's degrees from the University of Vienna.

He is the author of four books including Islam, Science Fiction and Extraterrestrial Life and Space Science and the Arab World. He is currently writing a book about the history of the movement for equity, diversity and inclusion in modern astronomy.

Special Thanks

I want to say a special thank you to my Professor, Giovanni. His support, guidance, and insight during Studio 3 led me to take this thesis direction. If it weren't for him pushing me to approach this topic from a designer's point of view and embracing the symbolic characteristics of religion, I would not have been able to resolve my thesis the way I have.

Last but not least, my sincere gratitude to Amna. She played a crucial role in facilitating the production of '*Wudu Deconstructed*' in Pakistan. Amna worked closely with multiple artisans to ensure the pieces were produced as intended and got them delivered to Qatar promptly.

Figure 77: Giovanni Innella



Giovanni Innella

Assistant Professor, VCUarts Qatar

—

Giovanni Innella (Torino, 1982) is a designer, design researcher, curator and critic, and educator. He holds a bachelor degree in Industrial Design from the Politecnico Di Torino (Italy), a master in Conceptual Design from the Design Academy Eindhoven (The Netherlands) and a PhD in Design Critique from Northumbria University (UK). Through his career, Giovanni exhibited at the Triennale Design Museum of Milan, the International Design Biennale of St. Etienne, Droog Gallery in Amsterdam, among other venues.

He curated exhibitions at The New Institute in Rotterdam, the Shenzhen Bi-city Biennale and other international venues. His work is part of the public collections of the Centre National des Arts Plastiques in Paris and the Design Museum in 's-Hertogenbosch. Giovanni regularly publishes in academic and non-academic contexts. After having worked as an educator in The Netherlands, Japan and USA, he is currently a faculty member at VCUarts Qatar.

Amna Sana

Interdisciplinary Designer

Amna Sana is an interdisciplinary designer with a Master of Fine Arts from VCUarts Qatar and a Bachelor of Design in Jewelry and Accessory Design from Beaconhouse National University Pakistan. Her main focus is product design where she focuses on designs that inhibit strong personal, cultural and/or social narratives. Her work process is directed through digital ideations and prototyping which manifest into tangible creations that highlight materiality and function.

Her professional experience includes running a jewelry startup called 'Saphigo' in Pakistan, where she was the Co-founder and Creative Director. She has collaborated with many national and international brands which include; Rungrez, Miss Veet Pakistan, Saira Rizwan, Kayseria, Crossstitch Official and GT Magazine. Her jewelry has been adorned by many Pakistani celebrities such as Sanam Baloch on the Morning Show ARY News in Pakistan and Mahira Khan for her red-carpet appearance. She has also developed a customized collection for Cross Stitch's debut on the runway for Pakistan Sun silk Fashion Week 2017, where the brand was recognized for its contemporary design aesthetic.



List of Figures

(All images courtesy of the author unless otherwise noted)

Figure 1: Cohen, Raviv. Portrait of Rab McClure. 2019. <https://luna.qatar.vcu.edu/luna/servlet/detail/VCUQcol~43~43~1414145~172031:Portrait-of-Rab-McClure,-Chair-of-t?qvq=q:Rab%20McClure&mi=55&trs=249>

Figure 2: Colaleo, Stella. Self portrait by Stella Colaleo. 2021. <https://luna.qatar.vcu.edu/luna/servlet/detail/VCUQcol~43~43~1414682~178956:Self-portrait-by-MFA-faculty-member?qvq=q:Stella&mi=45&trs=273>

Figure 3: Reshetova, Kateryna. Jörg Matthias Determann. 2021. <https://luna.qatar.vcu.edu/luna/servlet/detail/VCUQcol~38~38~1394009~181282:Portrait-of-Art-History-faculty-mem?qvq=q:Matthias&mi=3&trs=26>

Figure 4: Marshes, Jong. 2017. <https://images.unsplash.com/photo-1511593358241-7eea1f3c84e5?ixlib=rb-1.2.1&ixid=MnwxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8&auto=format&fit=crop&w=2148&q=80>

Figure 5: Dua. screenshot. <https://images.news18.com/ibnlive/uploads/2021/08/muharaam.jpg>

Figure 6: Meir Clancy, Levi. Men praying at London Central Mosque. 2021. <https://images.unsplash.com/photo-1618777362692-b2e4a55d69c4?ixlib=rb-1.2.1&ixid=MnwxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8&auto=format&fit=crop&w=987&q=80>

Figure 7: Dalangan, Masjid Pogung. Al Quran on the wood chair. 2021. <https://images.unsplash.com/photo-1624345690118-d303350f7445?ixlib=rb-1.2.1&ixid=MnwxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8&auto=format&fit=crop&w=987&q=80>

Figure 8: Benbella, Ali. Measuring instrument (mudd). Discover Islamic Art, Museum With No Frontiers. 2022. https://islamicart.museumwnf.org/database_item.php?id=object;ISL;dz;Mus01;7;en

Figure 9: Branding News. Landing page cover. <https://www.branding.news/wp-content/uploads/2020/04/Inherit-His-Name-Inherit-His-Way2.jpg>

Figure 10: Masahiro Mori. Fancy Cup A-F. 1969. Japan. Hakusan Porcelain. <https://sep.yimg.com/ay/yhst-14279124414814/hakusan-six-fancy-cups-designed-by-masahiro-mori-34.png>

Figure 11: Aldo Bakker. Vinegar flask. 2008. Courtesy of Thomas Eyck. Photograph by Erik & Petra Hesmerg. <https://aldobakker.com/media/03%20Tableware/12%20Vinegar%20flask/vinegarFlaskInUse.jpg>

Figure 12: Luca Nichetto. Cloth. 2017. https://design-milk.com/images/2017/03/Luca-Nichetto-OTHR_50-50_2560x1890_03.jpg

Figure 15: Discover Islamic Art. Mudd. https://islamicart.museumwnf.org/database_item.php?id=object;ISL;dz;Mus01;7;en

Figure 61: SeekersPath. HOW MUCH WATER DID THE PROPHET ﷺ USE TO PERFORM WUDU AND GHUSL?. <https://www.seekerspath.co.uk/wp-content/uploads/2017/01/2d7866ebe0f546ab17dc196fa4f699dd-1024x692.jpg>

Figure 62: Quintero, Luis. Photo of Gray Faucet. 2019. <https://images.pexels.com/photos/2339722/pexels-photo-2339722.jpeg?auto=compress&cs=tinysrgb&dpr=2&h=650&w=940>

Figure 77: Innella, Giovanni. Self portrait.

Figure 78: Sana, Amna. Self portrait by Alaa Albarazy. 2021. https://pro2-bar-s3-cdn-cf.myportfolio.com/13a37c87-6e3b-436e-855b-382780518523/8d2ccb31-78cc-4bef-ba9b-e6294fd73e3c_rw_3840.jpg?h=d935ac834ca08e3d4184e71885f4b697

Works Cited

- ¹Jennifer Dargin, “Water Conservation in Islamic Teachings | EcoMENA,” July 4, 2020, <https://www.ecomena.org/water-conservation-islam/>.
- ²Dargin.
- ³Dargin.
- ⁴Dargin.
- ⁵Kurt Goldammer, “Religious Symbolism and Iconography | Description, Meaning, Types, Influence, & Facts,” n.d., <https://www.britannica.com/topic/religious-symbolism>.
- ⁶Goldammer.
- ⁷Catherine Duncan, “Prayer | Taking Charge of Your Health & Wellbeing,” accessed April 10, 2022, <https://www.takingcharge.csh.umn.edu/prayer>.
- ⁸Amna Anwaar, “Scientific Benefits of Salah,” IslamicFinder, accessed October 10, 2021, <https://www.islamicfinder.org/news/scientific-benefits-of-salah/>.
- ⁹Anwaar.
- ¹⁰N. H. Johari, R. Anwar, and O. H. Hassan, “Design Framework of Ceramic Ablution Tub,” in 2012 IEEE Symposium on Business, Engineering and Industrial Applications, 2012, 608–10, <https://doi.org/10.1109/ISBEIA.2012.6422960>.
- ¹¹Najibullah Loodin and Aaron T. Wolf, “Will Islamic Water Management Principles Be Included If the Helmand River Treaty Is Revisited?,” *Water* 14, no. 1 (January 2022): 67, <https://doi.org/10.3390/w14010067>.
- ¹²Mohd Fathil et al., “Islam and Environment: Education Perspective,” *Al-Ta Lim Journal* 22, no. 2 (August 3, 2015): 96–106, <https://doi.org/10.15548/jt.v22i2.128>.
- ¹³Shariq Qureshi, “The Importance of Water Conservation in Islam,” March 31, 2021, <https://themuslimvibe.com/community/charity/the-importance-of-water-conservation-in-islam>.
- ¹⁴Goldammer.
- ¹⁵Goldammer.
- ¹⁶“The Semiotic Characteristics of Religious Symbols,” November 2018, <https://www.ukessays.com/essays/religion/the-semiotic-characteristics-of-religious-symbols-religion-essay.php>.

- ¹⁷Goldammer.
- ¹⁸Goldammer.
- ¹⁹Goldammer.
- ²⁰Goldammer.
- ²¹Goldammer.
- ²²Nora Nägele¹, Benjamin Von Walter, Philipp Scharfenberger, and Daniel Wentzel, “‘Touching’ Services: Tangible Objects Create an Emotional Connection to Services Even before Their First Use,” *Business Research* 13, no. 2 (July 1, 2020): 741–66, <https://doi.org/10.1007/s40685-020-00114-0>.
- ²³Dargin.
- ²⁴“How Much Water Did the Prophet ﷺ Use to Perform Wudu and Ghusl?” n.d., <https://www.seekerspath.co.uk/question-bank/purity/q-id0268-how-much-water-did-the-prophet-%ef%b7%ba-use-to-perform-wudu-and-ghusl/>.
- ²⁵John Bowker, “Ablutions,” in *The Concise Oxford Dictionary of World Religions* (Oxford University Press, 2003), <https://www.oxfordreference.com/view/10.1093/acref/9780192800947.001.0001/acref-9780192800947-e-72>.
- ²⁶Dargin, “Water Conservation in Islamic Teachings | EcoMENA.”
- ²⁷Editorial Team, “Water Conservation Runs Through the Prophet’s DNA,” *Branding.News* (blog), n.d., <https://www.branding.news/2020/04/14/as-muslim-you-also-inherit-the-prophets-commitment-to-bringing-justice-to-nature/>.
- ²⁸Team.
- ²⁹“Fancy Cup A-F by Hakusan Porcelain,” tortoise general store, n.d., <https://shop.tortoisegeneralstore.com/products/200165-fancy-cup-a>.
- ³⁰“Fancy Cup A-F by Hakusan Porcelain.”
- ³¹Atelier Courbet, “VINEGAR FLASK | Les Ateliers Courbet,” n.d., <https://ateliercourbet.com/artworks/aldo-bakker-flask/>.
- ³²Courbet.
- ³³Courbet.
- ³⁴Leo Lei, “Cloth,” accessed November 15, 2021, <https://leibal.com/products/cloth/>.

- ³⁵Jaime Derringer, “Exclusive: Cloth by Luca Nichetto for OTHR,” Design Milk, March 28, 2017, <https://design-milk.com/exclusive-cloth-by-luca-nichetto-for-othr/>.
- ³⁶Derringer.
- ³⁷Abu Amina Elias, “Hadith on Wudu: Amount of Water Used for Ablution, Ritual Bathing,” December 1, 2017, <https://www.abuaminaelias.com/dailyhadithonline/2017/12/01/water-used-wudu-ghusl/>.
- ³⁸“Measuring Instrument (Mudd) - Discover Islamic Art - Virtual Museum,” accessed April 12, 2022, https://islamicart.museumwnf.org/database_item.php?id=object;ISL;dz;Mus01;7;en.
- ³⁹Aisha Abdelhamid |, “Islamic Principles on Waste Minimization | EcoMENA,” December 30, 2021, <https://www.ecomena.org/waste-minimization-islam/>.
- ³⁰Elias, “Hadith on Wudu.”
- ⁴¹“Aldo Bakker,” accessed April 12, 2022, <https://aldobakker.com/work/2007/water-carafe>.
- ⁴²Cherif Abderrahman Jah , “Water in Islamic Culture | EcoMENA,” February 29, 2020, <https://www.ecomena.org/water-islam/>.
- ⁴³Priyank Gupta, Mohd Danish, Javed Alam, and Mohd Muzammil, “Water Conservation: A Global Concern,” 2013.
- ⁴⁴“World Population 2021 | Population Clock Live,” accessed November 16, 2021, <https://countrymeters.info/en/World#religion>.

Credits

COPY EDITORS

Jörg Matthias Determann
Rab McClure

WRITERS

Faheem Ahmed Khan

DOCUMENT DESIGN

Faheem Ahmed Khan

PHOTOGRAPHY

Faheem Ahmed Khan

MODELS

Abdul Rahman Anwar
Mohammed Shahjahan Khan

Less Water, More Holy: Tools for Sustainable Ablution

vcuarts
QATAR



—
Faheem Ahmed Khan