

## CHAPTER III

### WATER CRISIS IN THE QUR'AN AND SCIENCE

#### A. Water Quality Criteria

Water quality is crucial to human health. According to a report by the United Nations Environment Program (UNEP), the number of children under five who die from diseases related to poor water quality reaches 1.8 million people every year.<sup>1</sup> According to a 2016 report from the Water Mission organization, around 663 million people struggle to get better quality drinking water, while 1.8 billion people drink microbiologically unsafe water every day.<sup>2</sup>

Governments in various countries determine drinking water requirements for their respective countries. Drinking water requirements may differ from country to country as it depends on each country's ability to provide safe drinking water. Countries that have set provisions on drinking water include the United States with the United States Environmental Protection Agency (USEPA), Australia with the Australian Drinking Water Guidelines (ADWG), New Zealand with the Drinking-Water Standards for New Zealand 2005 (DWSNZ), and France with provisions of The French Ministry of Health.<sup>3</sup>

In Indonesia, water quality standards are regulated in the Regulation of the Minister of Health of the Republic of Indonesia Number 32 of 2017 concerning

---

<sup>1</sup>In Sumbada Sulistyorini, Muli Edwin, and Adriana Sampe Arung, "Analisis Kualitas Air pada Sumber Mata Air di Kecamatan Karang and Kaliorang Kabupaten Kutai Timur," *Jurnal Hutan Tropis* 4, no. 1 (2016): 68.

<sup>2</sup>Team of Writer, "Global Water Crisis," *Water Mission*, 2016, 1.

<sup>3</sup>Budi Iman Santoso et al., *Air Bagi Kesehatan* (Centra Communications, 2011), 16.

Environmental Health Quality Standards and Water Health Requirements for Sanitary Hygiene, Swimming Pools, *Solus Per Aqua*, and Public Baths. Parameters used in assessing water quality standards include physical, biological, and chemical parameters, which can be in the form of mandatory and additional parameters. Mandatory parameters must be checked periodically under the provisions of laws and regulations. In contrast, additional parameters are only required to be reviewed if geohydrological conditions indicate potential pollution associated with additional parameters. Water for sanitation hygiene purposes is used for maintaining personal hygiene such as bathing and brushing teeth, as well as for washing food, eating utensils, and clothes. In addition, water for sanitation hygiene purposes can be used as raw water for drinking.<sup>4</sup>

Several aspects that are assessed as references for water quality standard include:<sup>5</sup>

1. Temperature. The increase in temperature causes several consequences, such as decreasing the amount of dissolved oxygen in the water, increasing the speed of chemical reactions, and disrupting the life of aquatic animals.
2. Acidity (pH). Normal water pH values range from 6-8.
3. Color, smell, and taste. Abnormal water color usually indicates the presence of pollution. Water color is divided into true colors and false colors. True colors due to dissolved materials while false colors caused not only by the

---

<sup>4</sup>“Peraturan Menteri Kesehatan RI Nomor 32 Tahun 2017 Tentang Standar Baku Mutu Kesehatan Lingkungan dan Persyaratan Kesehatan Air untuk Keperluan Higiene Sanitasi, Kolam Renang, Solus Per Aqua, dan Pemandian Umum,” May 31, 2017.

<sup>5</sup>“Standar Baku Mutu Air Bersih,” Indonesian Public Health Portal, accessed June 13, 2022, <http://www.indonesian-publichealth.com/unsur-standar-baku-mutu-air-bersih/>.

presence of dissolved materials but also due to the presence of suspended materials. The smell of water depends on the water source. The emergence of odors in water can be one indicator of a fairly high level of water pollution. Normal water has no taste. If the water tastes, it means that the salt has dissolved.

4. **Hardness.** The total hardness standard is 500 mg/l. If it exceeds, it can cause several risks such as reducing the effectiveness of soap, forming a layer of scale on kitchen utensils, the possibility of an explosion in the boiler, to blockages in the water pipes.
5. **Iron (Fe).** The body needs small amounts of iron to form red blood cells. Iron content in the water that exceeds the limit will cause interference. The quality standard is set at 0.1-1.0 mg/l.
6. **Manganese (Mn).** Manganese is toxic to the respiratory organs. The quality standard is set at 0.05-0.5 mg/l in water.
7. **Nitrite (NO<sub>2</sub>) and Nitrate (NO<sub>3</sub>).** Large amounts of nitrate in the body tend to turn into nitrite and form methemoglobin so that it can inhibit the passage of oxygen in the body. Nitrite is toxic, so the presence of this material in drinking water is not allowed.
8. **Cadmium (Cd).** Cadmium is a toxic substance that accumulates in body tissues that can cause kidney stones, gastric disorders, bone fragility, reduced blood hemoglobin, and tooth pigmentation. Cadmium is also carcinogenic.
9. **Lead (Pb).** Lead is very dangerous for health because it tends to accumulate

in the body and poison nervous tissue.

10. Turbidity. Turbidity can be caused by many factors, including insoluble materials such as dust, clay, organic and inorganic materials, and water microorganisms. As a result, the water becomes dirty and unclear so that pathogenic bacteria can take shelter in or around the material that causes turbidity.
11. Coli bacteria. The measurements use bacteria-coli as an indicator organism. Pathogenic organisms in waters indicate water pollution, so their presence must be known. The coli standard in clean water is set at ten coli/100 ml of water.

## **B. Water Crisis in the Qur’anic and Scientific Perspective**

Water crisis generally means water shortage, a condition when the available water is insufficient for human needs. In addition, water scarcity also often occurs at the quality level, namely the lack of good quality water even though in quantity, water is abundant in the area.<sup>6</sup>

Signs of a water crisis in an area include:<sup>7</sup>

1. Difficulty in getting drinking water of adequate quality.
2. Difficulty in getting water for sanitation and waste management or disposal.
3. Excessive groundwater extraction causes the groundwater level to decrease or the wells to dry up.
4. Water pollution inhibits plant growth and threatens biodiversity.

---

<sup>6</sup>Team of Writer, *Air dalam Perspektif Al-Qur’an dan Sains (Tafsir Ilmi)*, 112.

<sup>7</sup>Team of Writer, 113.

5. Outbreaks of diseases spread through the medium of water, such as skin diseases.

In the Qur'an, there are many verses in the form of stories or descriptions of the water crisis, using the term water, rivers, seas, and springs. The water crisis is mentioned explicitly or implicitly, either in the form of a water quantity crisis such as drought or a water quality crisis such as water pollution.

1. Water Quantity Crisis

- a. Drought/Water Scarcity

Drought is a long period when an area lacks water supply. Drought generally occurs when an area does not continuously receive rainfall or less than usual. A prolonged drought can damage and endanger an area's economy, even if it only occurs for a year.<sup>8</sup>

Water scarcity can mean scarcity in the physical availability of water sources. It can also mean a scarcity of access due to the failure of institutions to shut off regular water supplies or a lack of adequate infrastructure.<sup>9</sup> The idea that water availability is abundant on earth, which is about 70% of the earth, is wrong. This is because only 2.5% of the total water on earth is usable (freshwater).<sup>10</sup>

Human activities can directly trigger drought, such as irrigation and intensification of agriculture on a large scale, forest logging, and erosion that causes a decrease in the land ability to capture and hold water. When a

---

<sup>8</sup>Team of Writer, 106.

<sup>9</sup>Team of Writer, "Water Scarcity" (UN Water, n.d.), 2.

<sup>10</sup>Lisa Guppy and Kelsey Anderson, *Global Water Crisis: The Facts* (Hamilton: UNU-INWEH, 2017), 3.

drought occurs, the surrounding environmental conditions will deteriorate, and the impact on the local population will gradually increase. Severe drought can trigger forest and land fires.

One of the drought events in the Qur'an is what happened when the Prophet Yûsuf was in Egypt. Before the drought occurred, the King of Egypt dreamed of seeing seven fat cows being eaten by seven skinny cows. Prophet Yûsuf is the only person who can interpret this dream. This story is mentioned in Q.S. Yûsuf/12: 46-49.<sup>11</sup>

يُوسُفُ أَيُّهَا الصِّدِّيقُ أَفْتِنَا فِي سَبْعِ بَقَرَاتٍ سِمَانٍ يَأْكُلُهُنَّ سَبْعٌ عِجَافٌ وَسَبْعِ سُنبُلَاتٍ خُضْرٍ

وَأُخْرٍ يَابِسَاتٍ لَعَلِّي أَرْجِعُ إِلَى النَّاسِ لَعَلَّهُمْ يَعْلَمُونَ قَالَ تَزْرَعُونَ سَبْعَ سِنِينَ دَأْبًا فَمَا حَصَدْتُمْ

فَذَرُوهُ فِي سُنْبُلِهِ إِلَّا قَلِيلًا مِمَّا تَأْكُلُونَ ثُمَّ يَأْتِي مِنْ بَعْدِ ذَلِكَ سَبْعَ شِدَادٍ يَأْكُلْنَ مَا قَدَّمْتُمْ لَهُنَّ

إِلَّا قَلِيلًا مِمَّا تَحْصِنُونَ ثُمَّ يَأْتِي مِنْ بَعْدِ ذَلِكَ عَامٌ فِيهِ يُعَاثُ النَّاسُ وَفِيهِ يَعْرِضُونَ

“‘O Joseph!’ (he said) ‘O man of truth! Expound to us (the dream) of seven fat kine whom seven lean ones devour, and of seven green ears are corns and (seven) others withered: That I may return to the people, and that they may know. (Joseph) said: “For seven years shall ye diligently sow as is your wont: And the harvests that ye reap, ye shall leave them in the ear,-Except a little, of which ye shall eat. Then will come after that (period) seven dreadful (years), which will devour what ye shall have laid by in advance for them,-(all) except a little which ye shall (specially) guarded. Then will come after that (period) a year in which the people will have abundant water, and in which they will press (wine and oil).”<sup>12</sup>

<sup>11</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 108.

<sup>12</sup>Yûsuf 'Alî, *The Holy Qur'an*, 642-43.

In the series of verses above, Prophet Yûsuf interprets seven fat cows as a year in which the people continue to reap good crops, while seven lean cows are seven years of drought. A wheat hoe is likened to an annual yield. After seven fertile years, there was a seven-year drought, so the plants could not survive, so the people ate what was stored as the harvest of the previous seven years.<sup>13</sup>

Allah also hints at dryness in the form of rhetoric as contained in Q.S. al-Mulk/67: 30.

فُلْ أَرَأَيْتُمْ إِنْ أَصْبَحَ مَاؤُكُمْ غَوْرًا فَمَنْ يَأْتِيكُمْ بِمَاءٍ مَّعِينٍ

“Say. ‘See ye?-If your stream be some morning lost (in the underground earth), who then can supply you with clear-flowing water?’”<sup>14</sup>

The word *ghauran* in the context of the verse means the disappearance or drying of water because the soil absorbs it.<sup>15</sup> In the previous verse, Allah ordered the disbelievers to put their trust in Him. In verse above, Allah explains the signs of His greatness and power in the form of water sources. If the water source has dried up, no one can bring water back except Allah. Surah al-Mulk as a whole shows evidence of the greatness and power of Allah in the universe and recommends that people pay attention to it so that they believe in Him. If people deny it, Allah will inflict punishment on them, one of which is drought or water scarcity, as mentioned in the verse above.<sup>16</sup>

<sup>13</sup>Muhammad Hasbi ash-Shiddieqy, *Tafsir Al-Qur'anul Majid an-Nuur*, vol. 3 (Semarang: Pustaka Rizki Putra, 2000), 2003–4.

<sup>14</sup>Yûsuf 'Alî, *The Holy Qur'an*, 1790.

<sup>15</sup>al-Râzî, 15:77.

<sup>16</sup>Team of Writer, *Al-Qur'an dan Tafsirnya*, vol. 10 (Jakarta: Departemen Agama RI, 2004), 259–61.

b. Flood

A flood is a puddle or flow of water over land that is not usually flooded. Floods are generally caused by overflowing water through the edge of a water body such as a river or lake so that it inundates or flows beyond its usual boundaries. Floods often cause great damage and losses if they hit residential areas in lowlands prone to flooding.<sup>17</sup> The Qur'an tells of the greatest flood in human history that occurred during Noah's time. The flood drowned and wiped out the entire human civilization at that time. This story is mentioned in Q.S. al-Qamar/54: 11-12.<sup>18</sup>

فَفَتَحْنَا أَبْوَابَ السَّمَاءِ بِمَاءٍ مُّثَمَرٍ وَفَجَّرْنَا الْأَرْضَ عُيُونًا فَالْتَقَى الْمَاءُ عَلَىٰ أَمْرٍ قَدْ قُدِرَ

“So We opened the gates of heaven, with water pouring forth. And We caused the earth to gush forth with springs. So the waters met (and rose) to the extent decreed.”<sup>19</sup>

The term *bi mâ'in munhamir* means very heavy water. The word *munhamir* comes from the word *al-hamru*, meaning pouring water or shedding tears profusely. One of the derivations of the word *al-hamru* is *inhamara*, which means water that pours down heavily. In the context of the verse above, Allah answered Noah's prayer in the previous verse<sup>20</sup> so that Allah punishes his people who deny His message by pouring out very heavy

<sup>17</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 91.

<sup>18</sup>Team of Writer, 93.

<sup>19</sup>Yûsuf 'Alî, *The Holy Qur'an*, 1650.

<sup>20</sup>Noah's people denied and expelled him, then Noah prayed to Allah that they would be punished for their disobedience, as mentioned in Q.S. al-Qamar/54: 9-10.

كَذَبَتْ قَبْلَهُمْ قَوْمُ نُوحٍ فَكَذَّبُوا عَبْدَنَا وَقَالُوا مَجْنُونٌ وَازْدُجِرَ فَدَعَا رَبَّهُ أَنِّي مَغْلُوبٌ فَانْتَصِرَ

“Before them the people of Noah rejected (their messenger): They rejected Our servant and said. ‘Here is one possessed!’, and he was driven out. Then he called on his Lord: ‘I am one overcome: Do thou then help (me)!’”



water from the sky which doors have been opened widely.<sup>21</sup>

Another flood described in the Qur'an is the flash flood that befell the Saba` people. The flood occurred due to the dam's collapse, originally used as a water source and as a means of irrigation for the people's agriculture. One of the Queens of the Saba`, Queen Bilqis, believed in Allah through the Prophet Sulaimân. After the time of Queen Bilqis, the people of Saba` again disobeyed, so Allah punished them by bringing a flood. The agricultural lands of the Saba`, which were originally fertile, were immediately destroyed by the flood. This story is mentioned in Q.S. Saba`/34: 15-16.<sup>22</sup>

لَقَدْ كَانَ لِسَبَإٍ فِي مَسْكَنِهِمْ آيَةٌ جَنَّتَانِ عَنْ يَمِينٍ وَشِمَالٍ كُلُوا مِنْ رِزْقِ رَبِّكُمْ وَأَشْكُرُوا لَهُۥ بَلَدَةَ

طَيِّبَةَ وَرَبِّ غَفُورٌ فَأَعْرَضُوا فَأَرْسَلْنَا عَلَيْهِمْ سَيْلَ الْعَرِمِ وَبَدَّلْنَاهُم بِجَنَّتَيْهِمْ جَنَّتَيْنِ ذَوَاتِي أُكُلٍ حَمْطٍ

وَأَثَلٍ وَشَجَرٍ مِّن سِدْرٍ قَلِيلٍ

*“There was, for Saba, aforetime, a sign in their home-land—two gardens to the right and to the left. ‘Eat of the Sustenance (provided) by your Lord, and be grateful to him: a territory fair and happy, and a Lord Oft-Forgiving! But they turned away (from Allah) and We sent against them the flood (released) from the dams, and We converted their two Garden (rows) into ‘gardens’ producing bitter fruit, and tamarisks, and some few (stunted) lote-trees.”<sup>23</sup>*

The term *sail* is taken from the root word *sâla-yasîlu-sailan* which means to flow. *Sail* is a form of gerund (*mashdar*), which becomes a noun

<sup>21</sup>Team of Writer, *Al-Qur'an dan Tafsirnya*, vol. 9 (Jakarta: Departemen Agama RI, 2004),

<sup>22</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 95.

<sup>23</sup>Yûsuf 'Alî, *The Holy Qur'an*, 1278–79.

and means flood. *Al-'arim* comes from the word *'aruma-ya'rumu-'arâmatan*, which means to get out of the flow with greatness.<sup>24</sup> Etymologically, *sail al-'arimi* means abundant water.<sup>25</sup> The word *sail al-'arimi* in the verse above describes the flood that caused the Saba' dam to collapse.<sup>26</sup>

The snippet of the verse “*fa arsalnâ 'alaihim sail al-'arimi*” explains the flood that occurred to the Saba` hundreds of centuries ago was a flood that God brought to humans. This indicates that sometimes floods can be natural disasters and not caused by human actions. However, the flood as a disaster cannot be separated from the human attitude, which in the verse above is indicated by the people of Saba's disobedience to Allah's commandments.

#### c. Seawater overflow and tsunami

Seawater overflows caused by tides and river discharges are generally not very large and constitute a natural cycle that can be predicted before it occurs. An overflow of seawater or tidal waves with very large destructive power and low predictability is a tsunami which triggered by an earthquake or volcanic eruption at sea.<sup>27</sup>

A tsunami is a displacement of a water body caused by a sudden vertical change in sea level. These sea-level changes can be caused by earthquakes centered under the sea, underwater volcanic eruptions, underwater

<sup>24</sup>Team of Writer, *Al-Qur'an dan Tafsirnya*, vol. 8 (Jakarta: Departemen Agama RI, 2004),

<sup>25</sup>Ibnu Manzhûr, *Lisân al-'Arab*, vol. 2 (Kairo: Dâr Ibn Jauzî, 2014), 255.

<sup>26</sup>Wahbah al-Zuhailî, *Tafsîr Al-Munîr*, vol. 11 (Damaskus: Dâr al-Fikr, 2009), 497.

<sup>27</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 96–97.

landslides, or meteor strikes at sea. Tsunami waves can propagate in all directions. The tsunami damaged everything in its path and caused casualties, inundation, and saltwater contamination of agricultural land, soil, and clean water sources.<sup>28</sup> The Qur’anic verse that indicates a tsunami is in Q.S. al-Takwîr/81: 6 below.

وَإِذَا الْبِحَارُ سُجِّرَتْ

“When the oceans boil over with a swell.”<sup>29</sup>

From the linguistic aspect, the word *sujjirat* comes from the word *sajara*, which means to fill, flood, inundate, and overflow.<sup>30</sup> Al-Râzî interpreted this verse with an explanation of the disappearance of seawater due to the drying of all the water vapor in it.<sup>31</sup> In *Tafsîr al-Kasysyâf*, the verse above is interpreted with the meaning of the sea becoming full and bursting with one another so that the ocean returns to one without being separated.<sup>32</sup> This verse is closely related to Q.S. al-Thûr/52: 6.

وَالْبَحْرِ الْمَسْجُورِ

“And by the ocean filled with swell.”<sup>33</sup>

Regarding this verse, 'Alî bin Abî Thâlib once was asked by a Jew about

<sup>28</sup>Team of Writer, 96.

<sup>29</sup>Yûsuf 'Alî, *The Holy Qur'an*, 1905.

<sup>30</sup>Ibnu Manzhûr, *Lisân Al-'Arab*, 2:562.

<sup>31</sup>al-Râzî, 16:69.

<sup>32</sup>Maḥmûd bin 'Umar al-Zamakhsyarî, *Tafsîr Al-Kasysyâf*, vol. 20 (Beirut: Dâr al-Ma'rîfah, 2009), 1182.

<sup>33</sup>Yûsuf 'Alî, *The Holy Qur'an*, 1633.

the location of hell. He replied that it was in the ocean.<sup>34</sup> In addition to the two verses above, the tsunami is also implicitly mentioned in Q.S. al-Infithâr/82: 3.

وَإِذَا الْبِحَارُ فُجِّرَتْ

“When the Oceans are suffered to burst forth.”<sup>35</sup>

Al-Râzî interprets the word *fujjirat* with several meanings. First, it means the deep seawater is stagnant or does not flow, so if it explodes, the water will disappear because it is separated from each other. Second, the water is dry. Some of the meanings of these interpretations refer to the change of the ocean from its original form and nature.<sup>36</sup>

The word *fujjirat* is a passive form of the verb (*fi'il mâdhî majhûl*), which means to be sprayed and emitted everywhere. In the context of the verse above, Allah states about the Day of Judgment, including the seawater overflow to the mainland.<sup>37</sup> When the sea is tossed and cracked, the sea also vomits its water onto the land so that the dry sea becomes a sea of fire.<sup>38</sup>

## 2. Water Quality Crisis

### a. Erosion

Natural erosion or also known as geological erosion runs slowly, not exceeding the speed of the soil formation process. Naturally, erosion is part

<sup>34</sup>Muhammad bin Jarîr al-Thabarî, *Jâmi' al-Bayân fî Ta`wîl Al-Qur`an*, vol. 11 (Beirut: Dâr al-Kutub al-Ilmiyyah, 2009), 482.

<sup>35</sup>Yûsuf 'Alî, *The Holy Qur'an*, 1911.

<sup>36</sup>Muhammad al-Râzî, *Mafâtîh Al-Ghaib*, vol. 16 (Beirut: Dâr al-Fikr, 1995), 77–78.

<sup>37</sup>Team of Writer, *Al-Qur'an dan Tafsirnya*, 2004, 10:573.

<sup>38</sup>Muhammad Hasbi ash-Shiddieqy, *Tafsir Al-Qur'anul Majid an-Nuur*, vol. 5 (Semarang: Pustaka Rizki Putra, 2000), 4514.

of the rock weathering process. Meanwhile, erosion caused by human activities, also known as accelerated erosion, runs much faster than the process of soil formation, transporting all layers of soil, leaving only the weathered rock exposed to the surface. Some of the losses caused by erosion include:<sup>39</sup>

- 1) Loss of fertile soil layers.
- 2) Reduced water recharge capacity in the soil and the capacity of the soil to store water.
- 3) The higher the surface runoff area, the more destructive power of the water flow increases.
- 4) Decreased water quality due to high levels of dissolved mud in the water.
- 5) Siltation and blockage of waterways causing flooding.

In the Qur'an, Allah gives an example of giving charity accompanied by *riyâ'* and swearing, like soil erosion on a rock. Erosion is the process of soil loss from the surface in general because the water flows transport it. The greater the rainfall, the more and faster the soil particles will erode. The process of soil formation on rock occurs for a long time, but by heavy rain, the soil layer can be easily and quickly transported and lost from the rock surface. If the soil on the rock has been removed, then the rock is a particle that cannot grow plants.<sup>40</sup> This parable is mentioned in the following Q.S.

---

<sup>39</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 101–2.

<sup>40</sup>Team of Writer, *Al-Qur'an dan Tafsirnya*, vol. 1 (Jakarta: Departemen Agama RI, 2004),

al-Baqarah/2: 264.

يَا أَيُّهَا الَّذِينَ ءَامَنُوا لَا تُبْطِلُوا صَدَقَاتِكُمْ بِالْمَنِّ وَالْأَذَى كَالَّذِي يُنْفِقُ مَالَهُ رِثَاءَ النَّاسِ وَلَا يُؤْمِنُ

بِاللَّهِ وَالْيَوْمِ ءَآخِرٍ فَمَثَلُهُ كَمَثَلِ صَفْوَانٍ عَلَيْهِ تُرَابٌ فَأَصَابَهُ وَابِلٌ فَتَرَكَهُ صَلْدًا لَا يَقْدِرُونَ عَلَىٰ

شَيْءٍ مِّمَّا كَسَبُوا ۗ وَاللَّهُ لَا يَهْدِي الْقَوْمَ الْكَافِرِينَ

*“O ye who believe! Cancel not your charity by reminders of your generosity or by injury-like those who spend their wealth to be seen of men, but believe neither in Allah nor in the Last Day. They are in parable like a hard, barren rock, on which a little soil: on it falls heavy rain, which leaves it (just) a bare stone. They will be able to do nothing with aught they have earned. And Allah guideth not those who reject faith.”<sup>41</sup>*

#### b. Water Pollution

Water is an absolute necessity for every living thing. Ecologists claim that the life of organisms is highly dependent on environmental conditions. Decreasing the water quality will affect its benefits for humans. Cloudy or dirty water will interfere with human health, either as drinking water, cooking, or washing. If dirty water contaminates groundwater, it will make well water no longer usable for daily needs.<sup>42</sup>

Many things cause water pollution, but in general, it can be categorized into two, namely direct and indirect sources of contaminants. Direct sources include effluent (solid waste) from industry, landfills, and others. Indirect sources are contaminants that enter water bodies from the soil, groundwater,

<sup>41</sup>Yûsuf 'Alî, *The Holy Qur'an*, 120–21.

<sup>42</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 103.

or the atmosphere in the form of rain. Soil and groundwater contain residues from agricultural activities such as fertilizers and pesticides. Contaminants from the atmosphere also come from human activities, namely air pollution that produces acid rain.<sup>43</sup>

Pollution of seawater by chemicals or petroleum has even more fatal consequences. These materials can kill fish and shrimp on the beach and interfere with the breeding or reproduction of marine life.<sup>44</sup> Allah hints at water pollution in the Q.S. al-Wâqi'ah/56: 68-70.

أَفَرَأَيْتُمُ الْمَاءَ الَّذِي تَشْرَبُونَ ءَأَنْتُمْ أَنْزَلْتُمُوهُ مِنَ الْمُزْنِ أَمْ نَحْنُ الْمُنزِلُونَ لَوْ نَشَاءُ جَعَلْنَاهُ أُجَاجًا

فَلَوْلَا تَشْكُرُونَ

*“See ye the water which ye drink? Do ye bring it down (in rain) from the cloud or do We? Were it Our Will, We could make it saltish (and unpalatable): Then why do ye not give thanks?”<sup>45</sup>*

The salty water referred to in the verse above is the water that cannot be used.<sup>46</sup> The word *ujâjan* means very salty and bitter water that burns the stomach, like seawater.<sup>47</sup> Al-Râzî said the meaning of the word *ujâjan* is bitter water with high salt content.<sup>48</sup> Al-Hasan stated that the water in question is bitter water that cannot be used for drinking, plants, or anything

<sup>43</sup>Erma Suryani Sahabuddin, “Cemaran Air dan Tercapainya Lingkungan Sumber Daya Alam yang Berkelanjutan,” *Publikasi* 11, no. 2 (2012): 107.

<sup>44</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 103.

<sup>45</sup>Yûsuf 'Alî, *The Holy Qur'an*, 1680–81.

<sup>46</sup>Muhammad Mutawallî al-Sya'râwî, *Tafsîr Al-Sya'râwî*, vol. 21 (Kairo: Dâr Ikhbâr al-Yaum, 1991), 14876.

<sup>47</sup>M. Quraish Shihab, *Tafsir Al-Mishbah: Pesan, Kesan, dan Keserasian al-Qur'an*, vol. 13 (Jakarta: Lentera Hati, 2002), 373.

<sup>48</sup>al-Râzî, *Mafâtîh Al-Ghaib*, 1995, 15:184–85.

else. Although there are many other benefits of water, in this verse, Allah only mentions its function as drinking water because it is the greatest benefit and is felt by humankind the most.<sup>49</sup>

If the water becomes salty, then the water is undrinkable. Undrinkable water is not just salt water because it has dissolved salts in high concentrations. Water that has dissolved substances of any kind when the concentration is high so that it cannot be drunk or even cannot be used for just washing is called polluted water. Water pollution causes water to lose its usefulness, especially chemically and biologically.<sup>50</sup> The term salty, which is used to test the eligibility criteria for water, is in line with the words of the Prophet Muḥammad.

أخبرنا أبو القاسم الحرثي، أخبرنا أحمد بن سلمان، حدثنا عبد الله بن أبي الدنيا، حدثنا

علي بن الجعد، أخبرنا فضيل بن مرزوق، عن جابر، عن أبي جعفر قال: كان رسول الله

صلى الله عليه وسلم إذا شرب الماء قال: الحمد لله الذي جعله عذباً قرأناً برحمته، ولم

يجعله مالحاً لجأنا بذنوبنا (رواه البيهقي)

*“Abu al-Qâsim al-Harfî told us, Ahmad bin Salmân told us, 'Abdullah bin Abi al-Dunyâ told us, 'Alî bin al-Ju'di told us, Fudhail bin Marzûq told us, from Jâbir, from Abî Ja'far, he said: The Prophet shallallahu 'alaihi wa sallam once drink water and say: 'All praise is due to Allah, Who through His Mercy, has granted us sweet and pleasant water to*

<sup>49</sup>Muḥammad Amîn al-Harârî, *Tafsîr Hadâ'iq al-Rauḥ wa al-Raiḥân*, vol. 28 (Beirut: Dâr Thauq al-Najâh, 2001), 396–97.

<sup>50</sup>Team of Writer, *Air dalam Perspektif Al-Qur'an dan Sains (Tafsir Ilmi)*, 102–3.



*drink and did not make it bitter and salty due to our sins.*” (H.R. Baihaqî no. 4162)<sup>51</sup>

The ideal criteria for water are also mentioned in the Qur'an, one of which is that it is suitable for human and livestock consumption and can be used to irrigate crops and gardens. These criteria are mentioned explicitly in the Qur'an an-Nahl/16: 10.

هُوَ الَّذِي أَنْزَلَ مِنَ السَّمَاءِ مَاءً لَكُمْ مِنْهُ شَرَابٌ وَمِنْهُ شَجَرٌ فِيهِ تُسِيمُونَ

*“It is He who sends down rain from the sky from it ye drink, and out of it (grows) the vegetation on which ye feed your cattle.”*<sup>52</sup>

Apart from being suitable for human and livestock consumption as well as being able to fertilize plants, the Qur'an also implicitly mentions the ideal water criteria based on its taste and smell, namely its taste which does not change, is delicious and fresh, and its smell does not change due to contamination, as stated in Q.S. Muḥammad/47: 15 and Q.S. Fâthir/35: 12.

مَثَلُ الْجَنَّةِ الَّتِي وُعدَ الْمُتَّقُونَ فِيهَا أَنْهَارٌ مِنْ مَاءٍ غَيْرِ آسِنٍ وَأَنْهَارٌ مِنْ لَبَنٍ لَمْ يَتَغَيَّرَ طَعْمُهُ

وَأَنْهَارٌ مِنْ خَمْرٍ لَذَّةٍ لِلشَّارِبِينَ وَأَنْهَارٌ مِنْ عَسَلٍ مُصَفًّى وَلَهُمْ فِيهَا مِنْ كُلِّ الثَّمَرَاتِ وَمَغْفِرَةٌ

مِنْ رَبِّهِمْ كَمَنْ هُوَ خَالِدٌ فِي النَّارِ وَسُقُوا مَاءً حَمِيمًا فَقَطَّعَ أَمْعَاءَهُمْ

*“(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. In it there are for them all kinds of fruit; and forgiveness from their Lord, (Can those in such Bliss) be*

<sup>51</sup>Aḥmad bin Ḥusain al-Baihaqî, *Al-Jâmi' li Syu'ab al-Îmân*, vol. 6 (Riyâdh: Maktabah Rasyîd, 2003), 273.

<sup>52</sup>Yûsuf 'Alî, *The Holy Qur'an*, 733.

*compared to such as shall dwell for ever in the fire, and be given, to drink, boiling water, so that it cuts up their bowels (to pieces)?”<sup>53</sup>*

وَمَا يَسْتَوِي الْبَحْرَانِ هَذَا عَذْبٌ فُرَاتٌ سَائِغٌ شَرَابُهُ وَهَذَا مِلْحٌ أُجَاجٌ وَمِن كُلِّ تَأْكُلُونَ

لَحْمًا طَرِيًّا وَتَسْتَخْرِجُونَ حِلْيَةً تَلْبَسُونَهَا وَتَرَى الْفُلْكَ فِيهِ مَوَاحِرَ لِيَتَّبِعُوا مِنْ فَضْلِهِ

وَلَعَلَّكُمْ تَشْكُرُونَ

*“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 ye eat flesh fresh and tender, and ye extract ornaments to wear; and thou seest The ships therein that plough the waves, that ye may seek (thus) of the Bounty of Allah that ye may be grateful.”<sup>54</sup>*

---

<sup>53</sup>Yûsuf 'Alî, 1562–64.

<sup>54</sup>Yûsuf 'Alî, 1301.