Chapter 13
Nestlé and Its Response to Megatrends in Water

Paul Bulcke

Abstract Over the past 15 years, several water megatrends have accelerated and been accentuated, challenging societies and economies across the world. These include growing water shortages stemming from overuse, increasing risk of political and/or societal tensions around water access and use, heightened risks for the water supply security of private companies, and, last but not least, the deterioration of water infrastructure (municipal, other) due to insufficient investment. Water is not a new concern for Nestlé. From the very start of Nestlé's industrial activities, 150 years ago, water has been central to the company. Today, three concerns are at the forefront: will there be enough water to grow the food needed both to feed people directly and as an input for its production; will there be the necessary water security (supply and quality) for the operations of its factories; and, finally, will there be safe water for its consumers to prepare their meals? As these new megatrends were emerging, the company took a closer look at its overall water strategy. This resulted in a comprehensive water stewardship approach covering four strategic impact areas—factories, watersheds, agriculture supply chain and communities—and including collective action such as joining and setting up overarching alliances amongst stakeholders in local watersheds and providing support for the strategic approaches of governments to address water challenges, particularly overuse, in a relevant and cost-effective manner.

Keywords Water resources strategy · Creating shared value · Collective action Social development · Corporate actions · Water stewardship

P. Bulcke (✉)
Nestlé SA, Vevey, Switzerland
e-mail: paul.bulcke@nestle.com

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13.1 A Look Back: Water as a Priority for Nestlé Since the Beginning; Evolving Discussion, Main Decisions and New Steps Taken in the Early Twenty-First Century

Water has been central to Nestlé from its' very beginnings. Figure 13.1 shows the very first Nestlé factory that was built right next to a river. On the occasion of the company's 150th anniversary, in June 2016, this site was re-opened as a visitor centre for the general public to discover Nestlé, describing its historic roots, as well as providing a vision into the future around the complex relationships between nutrition, health and wellness.

Until the 1990s, and in many cases subsequently, all major factories of the Nestlé Group have been located next to water sources (rivers, canals, underground aquifers), typically within a water-rail-road triangle. Water matters for the company, even if its factories are not big water users.

Besides access and withdrawal, Nestlé's first wastewater treatment plant became operational as early as the 1930s. Right across the world today, we do not leave our wastewater untreated, even where conditions make this difficult. An example of this is the wastewater treatment plant set up in the early 1990s in one of our factories in northern China that needs heating due to the often very cold climate. Indeed, Nestlé's comprehensive view of, and sense of responsibility for, water is not just a recent phenomenon but is one that is well-rooted in the company's history and culture and one that has deepened further throughout its 150 years of existence.

The first acquisition of a bottled water company in the 1970s added a new dimension to Nestlé's approach. Steps to protect the quality of groundwater became an integral part of the Nestlé philosophy. One example of this is Agrivair, an initiative set up at the end of the 1980s in cooperation with the local farming community (including paying those farmers who reduced their use of pesticides, artificial fertilisers and manure for their 'environmental services') to protect the entire water catchment area in and around Vittel (Institut National de la Recherche Agronomique 2006).

At the beginning of the twenty-first century, it became clear that the world of water and the world around water were undergoing quicker and more profound changes than ever. At a Nestlé executive board strategy retreat in Glion, Switzerland, on 5 November 2002, a discussion on the terms of reference for a new and broader corporate approach to water was initiated. Subsequently, Nestlé's then Chief Executive Officer (CEO) and subsequent Chairman, Peter Brabeck-Letmathe, defined water as the biggest long-term challenge for the existence of the company. Notwithstanding some initially differing views internally, Nestlé decided to take a pro-active and publicly visible role on water issues around the world. This has continued ever since.

In January 2005, at the World Economic Forum (WEF) Annual Meeting in Davos, Nestlé invited a group of experts, diverse enough to fully represent the complexity of the water issue (including soft issues like spirituality, emotions, etc.),

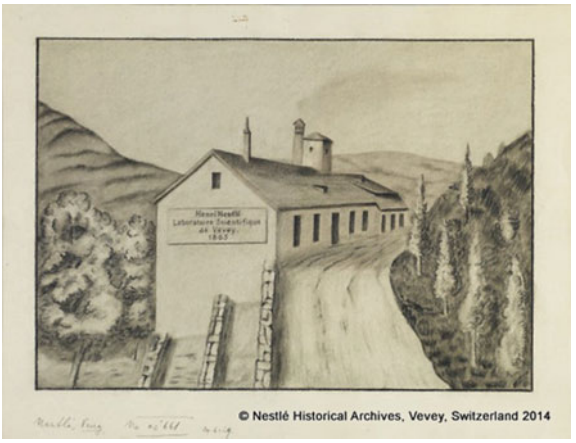

Fig. 13.1 First Nestlé factory built next to a river

to further develop the factual base for our future strategy (Bravermann et al. 2005). It was also the first time that, on behalf of the company, Mr. Brabeck publicly subscribed to the concept of water as a human right (Brabeck-Letmathe 2005). Together with the strong support provided by Professor Klaus Schwab, Founder and Executive Chairman of the WEF, this Nestlé event put water firmly on the WEF agenda as a priority theme.

From there followed several phases of reflection and the identification of forward-looking steps to develop and build Nestlé's position and to take actions to meet the water challenges. Among the main actions were the following:

- In 2007, Nestlé joined the UN Global Compact CEO Water Mandate, designed to assist companies in the development, implementation, and disclosure of corporate water stewardship practices and policies.
- In 2008, water became one of the three pillars of Creating Shared Value (CSV),[1] Nestlé's fundamental guiding principle to how Nestlé does business responsibly.
- In 2008, a small group of manufacturers together with the International Finance Corporation (IFC) of the World Bank Group and McKinsey established the 2030 Water Resources Group (WRG) as an ad hoc platform to tackle the challenge of water overuse. In November 2009, the WRG published 'Charting Our Water Future', which put watersheds at the centre of the analysis and proposed tools to stimulate cost-effective and relevant action for policymakers and stakeholders (2030 WRG 2009). Based on the conclusions of the report, Nestlé and other WRG members expressed reservations on the concept of water

[1]Definition of 'Creating Shared Value': We believe we can make an important contribution to society, by going a step beyond corporate social responsibility to create value through our core business both for our shareholders and society. We prioritise the areas of nutrition, water and rural development to create shared value; this requires long-term thinking.

neutrality for specific actors and the use of 'water footprints' as effective policy drivers and key policy performance indicators.

- In January 2010, the 2030 WRG was formalised, initially hosted within the WEF, and then, from 2012, within the World Bank Group. Nestlé's then Chairman, Mr. Brabeck, chaired the WRG Governing Council until mid-2017 (IFC 2011) and, I, in my capacity as Chairman of Nestlé since April 2017, have recently taken over the position of Co-Chair alongside a senior representative from the World Bank Group.
- In 2011, Nestlé received the Stockholm Industry Water Award for its management practices for water (Stockholm International Water Institute 2011).
- In 2012, the first CSV report with a focus on water—Meeting the Global Water Challenge—was published as part of Nestlé's 2011 Annual Report. This further refined the systematic measurement of water use and disposal by the company (Nestlé Public Affairs 2012).
- In 2014–2015, Nestlé's then Chairman, Mr. Brabeck, participated in the work of the High Level Panel on Financing Infrastructure for a Water-Secure World (World Water Council 2015). This is just one example of Mr. Brabeck's active involvement in broad public policy discussions on water on a global scale. Another example was his role as the private sector 'water ambassador' for the UN Eminent Persons Group tasked with setting the 2015 UN Sustainable Development Goals (SDGs). In this process, and together with others, Nestlé strongly and successfully advocated for water to become a stand-alone goal within the SDGs, with clear and specific targets, including a specific target devoted 'to bringing freshwater withdrawals back into line with sustainable supply' (Brabeck-Letmathe 2014).
- In 2015, following the WEF Africa Summit in Cape Town in June, Mr. Brabeck joined in campaigning for the G77 Urban Water Alliance proposed by the South African government (Brabeck-Letmathe 2015).
- In 2017, Nestlé launched its guidelines on the human right to water, which commit the company to respect the do-no-harm principle.

Alongside these actions, at the highest level of the company, many Nestlé colleagues at headquarters and across the world have embraced the water challenge agenda and been actively and deeply involved in water-related discussions and initiatives such as Caring for Water. The initiative, relayed in markets through local water plans, builds upon existing water efficiency interventions in factories and sets an emphasis on water stewardship activities outside the factory walls, meaning in watersheds, in the agricultural supply chain and in communities.

13.2 Scenarios 2030: A Global/General View on Some Major Water Megatrends and Challenges

Let me outline some of the major trends, interrelated and, at times, re-enforcing that may become more relevant as we move towards the year 2030 and beyond.

First and foremost, there is a growing water use/overuse challenge, resulting in increasing shortages. For the year 2015, estimates by the 2030 WRG suggest that withdrawals exceeded sustainable supply (natural renewal minus environmental flows and needs) by close to 20%, i.e. a deficit of 800 km^3. Scenarios for 2030 show that this gap could increase to 2700 km^3, i.e. withdrawals that are more than 40% in excess of sustainable supply. Often this overuse is visible (drying rivers, e.g. the Aral Sea being transformed into a sand desert); more often it is not, reflected rather in water tables of underground aquifers in both developed and developing countries sinking at an alarming rate (Parker 2016a). As the former Chairman of Nestlé has said on several occasions (including when the oil price was much higher than today): 'we will run out of clean water long before we run out of oil'.

With growing overuse comes increasing imbalances in the exposure of countries to water risks from such unsustainable practices. As water is local, problems will not emerge in all countries simultaneously. People may therefore have difficulties to understand and estimate reliably the global nature and repercussions of the current developments. Fragmented availability of data and transparency and, in some cases, even absence of national water accounting (including, but not exclusively, in cross-border river basins) will further exacerbate the risks.

As water is key for individual life and for societies, the political dimension of these trends is particularly delicate. We are already witnessing increasing water conflicts, particularly within countries, between various water users. Unless there are major changes in water management practices, the situation is likely to worsen further.

Companies may be held responsible or at least accountable (Scientific American 2014) for the overuse, pollution and other water-related issues far beyond their operations and their areas of influence. These and other factors combined may lead to an increased risk of arbitrary re-allocation of water which may not be justifiable or equitable (Parker 2016b).

In parallel, there is a widening investment gap in common water infrastructure, (public water supply, wastewater collection and treatment) including in advanced economies, with an order of magnitude of up to 50% of actual needs. This leads to the erosion of both the quality and quantity of municipal water that actually reaches consumers (OECD 2006).

13.3 Areas of Concern

Global food supply risks are being affected in a very significant manner by water overuse. If no measures are taken, the world may face shortfalls due to water security in the order of 30% in cereal production by 2030 and, in particular, may risk the overuse of buffers (groundwater and lakes that are in excess of renewal) that should be protected for use in times of droughts (2030 WRG 2009).

From a broader vantage point, water may no longer act as a driving force behind societal prosperity and economic growth as we have seen in the past. This may significantly affect the operations of companies like Nestlé in water scarce regions.

To illustrate the risks from water scarcity for broader wellbeing, let me describe the reverse picture. Until now, increasing water availability (when and where needed) and increased withdrawals have been an integral part of development process and societal progress.

Figure 13.2 shows the strong positive impact that water has had on societal prosperity since 1950.

Between 1950 and 2005, world grain output increased at a much higher rate than world population, driven by increased water withdrawals, and also greater water efficiency. Improvements in the supply of safe water for households were one of the major drivers of the increase in life expectancy from an average of some 45 years in 1950 to more than 65 years in 2005 (Fig. 13.2).

For a company like Nestlé, it is of strategic and existential importance that this positive process continues.

Year	World population (million)	Water for house-holds (km^3)	Water for agri-culture (km^3)	World grain output (million tons)	People getting enough to eat (million)
1950	2,556	204	1,080	631	1,100
2005	6,473	600	3,100	2,145	5,620
multiplier	x 2.5	x 2.9	x 2.9	x 3.4	x 5.1

Global life expectancy
from **47 years** in 1950 **to 68 years** in 2005

Fig. 13.2 Mobilising water for social development, 1950–2005. *Source* IEA (1999)

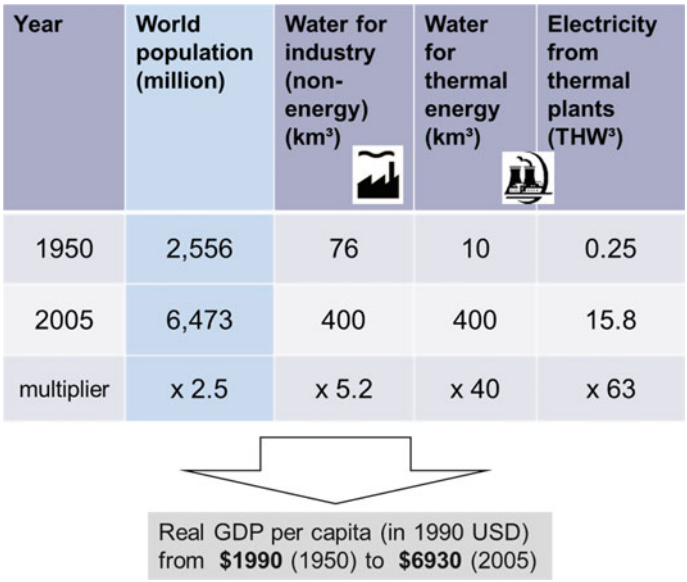

Fig. 13.3 Mobilising Water for Economic Growth, 1950–2005. *Source* IEA ((1999))

At the same time, water matters for economic growth driven by industry.

We need water for our operations. As for many other sectors of industry, freshwater availability and efficiency of its use must continue to be able to act as drivers of economic prosperity.

Nestlé is, given its less than 1.5 litres of freshwater withdrawals per US$ of sales, a very small user, but water is essential for a number of processes.

Indeed, companies from diverse sectors must also consider the indirect impact of water availability, that is, water availability for functions that are not directly linked to their operations. A particularly important example of this is illustrated by the fact that more than half of the water withdrawn for industry is used for the generation of thermal power. Fresh water is also needed for the generation of solar power (Carter and Campbell 2009) (Fig. 13.3).

As water scarcity increasingly becomes a reality in most parts of the world, there is an urgent need for better management practices and processes. This should probably start with the proper valuing of water and comprehensive water accounting/monitoring (withdrawal/use/return flows/quality levels/etc.) together with tools for value-maximisation of available water resources (societal value,

utility, etc.). This has been a long-term demand of the proponents of Integrated Water Resources Management (IWRM).[2]

13.4 Addressing the Challenges from Water Megatrends

Water-related megatrends need a corporate response and, in the context of the Caring for Water Initiative referenced above, Nestlé has identified four strategic impact areas: factories, watersheds, agriculture supply chain and communities. Each impact area is necessary but not sufficient, i.e. each needs to be understood and developed in the context of the others.

We must look for ways to mitigate the direct risks to the company emanating from water shortages and quality failures and to protect our operations at relevant levels (factories, administration, sales, etc.). One way this can be done is by steadily reducing water requirements and extending wastewater treatment (quantity and quality) as well as reuse.

We must commit to strategically act and invest in resources outside our factories, through collective action. In this perspective, we can advocate and, importantly, help develop, collectively, comprehensive solutions within watersheds and countries through coherent and credible government-led multi-stakeholder action. This commitment must be made within a global perspective—i.e., not just in those countries and river basins where we operate—because of the generalised risk of global food shortage from water overuse/shortfalls. This also includes participation in the public policy dialogue both at the international and local levels.

While focus is given to our operations, this may, at least partly, be extended to the agriculture supply chain, to make it more resilient (see Sect. 13.4.1). The agricultural sector is a large user of water. We need to look to contribute to improvements in water resource management in the agricultural supply chain to ensure that, collectively, we become more efficient.

Finally we must also invest in communities, certainly in terms of the activities of our operations and the immediate communities surrounding these, including rural communities, but also along our entire value chain, because healthy communities are the basis of economic development. We must put a particular focus on the agricultural sector as a large user of water, and look to contribute to improvements in water resource management in the agricultural supply chain to ensure that, collectively, we become more efficient.

[2]IWRM is hence a 'process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner, without compromising the sustainability of vital ecosystems.' Global Water Partnership (2004).

13.4.1 Some Key Corporate Initiatives and Projects

Let me illustrate a few examples of concrete action taken by Nestlé:

- In line with our commitment, Nestlé has actively sought, and will continue to seek, new opportunities to reduce, reuse and recycle water in our operations. Water withdrawals per tonne of product have been reduced by 39% between 2006 and 2016. Our local master plans in key markets contain documented responsibilities, targets and deadlines that will drive further improvements. Today, Nestlé is delivering over 516 water-saving projects in Nestlé's factories, intending to save around 3.7 million m^3 of water a year. Our achievements include the first zero water technology project implemented at a factory located in the central, water-stressed state of Jalisco in Mexico. We have similar plans for facilities in South Africa, India, Pakistan, China, the Philippines, Brazil and California. In 2016 alone, we reduced direct water withdrawals per tonne of product by 4%. We have set ourselves a new, stretching 10-year target for 2020 with a 2010 baseline. It is worth noting that, as we make our processes more efficient, it becomes increasingly more challenging to improve at the same rate. Nevertheless, our target is a 35% reduction per tonne of product.
- We have identified and prioritised 24 high-priority manufacturing facilities that are located in areas of severe water stress and/or represent a significant portion of our water withdrawals. By the end of 2016, we have decreased water withdrawals and improved efficiency (against 2013 levels) in 21 of these facilities, saving 1.8 million m^3 of water. These are, from my perspective, good examples of CSV. By reducing water intake, we provide value for society and, by reducing risk, we provide value for our shareholders.
- Water, Sanitation and Hygiene (WASH) considerations are being integrated into the process. We continue to work with expert partners, including the World Business Council for Sustainable Development (WBCSD) and the International Federation of Red Cross and Red Crescent Societies (IFRC) to improve access to water and sanitation. In 2016, we implemented the WBCSD self-assessment WASH tool at key manufacturing sites and were able to confirm that more than 500,000 people had access to water, sanitation or hygiene around our manufacturing facilities and in Farmer Connect areas, thus surpassing our 2016 target (350,000).
- The huge amount of food lost or wasted globally contributes significantly to water overuse. In 2016, in my capacity as CEO, I joined Champions 12.3, a coalition of government, industry and NGO influencers dedicated to accelerating progress towards halving food waste by 2030. Also, as Nestlé, we have guided the Consumer Goods Forum to adopt the public resolution of halving food waste from its members own operations by 2025, five years ahead of UN SDG number 12.3.
- Through education initiatives, we are helping our employees, suppliers and consumers improve their understanding of the importance of water conservation and stewardship. In addition to supplier activities, we have continued our

sponsorship of the global water education programme, 'Project WET', also in countries such as Nigeria.

Let me inject one word of caution at this point. Since food manufacturing, and Nestlé in particular, are relatively small water users, the impact of our actions on the overall water situation must not be overstated. We must caution against exaggerated expectations by society as to what Nestlé alone can achieve, even if our actions remain important in terms of, for example, risk reduction or demonstration of good corporate practice. In some circumstances, it may be that the most cost-effective actions within a watershed are those that need to be taken by other actors (2030 WRG 2009).

13.4.2 Comprehensive Action: 2030 Water Resources Group

As I have noted, there is a crucial need for a broader perspective, i.e. initiatives to contribute to comprehensive and credible and often disruptive solutions (in the sense of Schumpeter and Christensen) to overcome water overuse. The most important initiative for us in this respect is the 2030 WRG that Nestlé has been chairing since its creation (Fig. 13.4).

The 2030 WRG starts from the premise that government is the ultimate custodian of water and is essential for comprehensive strategies in watersheds. The 2015 UN SDG on Water and the High Level Panel on Water announced at the 2016 Annual Meeting of the WEF (Brabeck-Letmathe 2016) provides a framework to deliver the six targets of the Water Goal in individual countries, breaking down silos at the highest level, building on existing partnerships and initiatives to bring efforts to scale and transforming the water agenda, in cooperation with the private sector and others.

Fig. 13.4 2030 WRG: donors and partners (https://www.2030wrg.org/who-we-are/partners/)

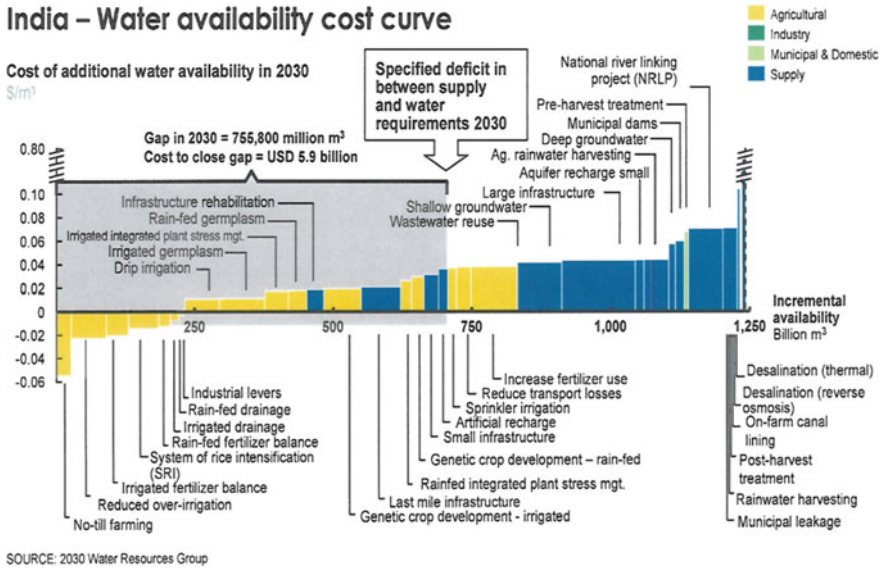

Fig. 13.5 India-water availability cost curve (2030 WRG (2009), Charting our Water Future)

The 2030 WRG is one of the partnerships that will step in. It provides the analytic tools for a relevant, cost-effective approach to improved water efficiency in areas with water overuse, helps with the convening of concerned stakeholders in a watershed, and supports, in some instance even drives, the necessary transformation. As it aims for comprehensive, credible local action, it also strives to overcome the 'tragedy of the commons' in watersheds.

One tool for this is the water availability cost curve; see Fig. 13.5 for the Indian case. This summarises the status of the country's 19 major river basins and underground aquifers with an eye on the deficit between water supply and requirements in 2030.

This tool helps guide governments and stakeholder groups towards those measures that will deliver the highest return per invested dollar (the levers situated on the left-hand side of the chart), and it helps avoid 'make-believe' actions that do not contribute a significant amount to closing the actual water gap (measured as the distance on the *x*-axis).

Water issues are always local. In the approach proposed by the 2030 WRG, therefore, action is driven by local stakeholder groups, under the leadership of governments. Strategies build on a growing set of locally driven initiatives and programmes with the ambition to ultimately impact the global situation.

In a world characterised by scenarios featuring increasing numbers of occurrences of water overuse/shortage, themselves triggering a global food crisis (possibly by 2025 or 2030), it is clearly in the interest of Nestlé that the 2030 WRG also works in regions where we do not have a direct supply chain. Indeed, the indirect

impact of turmoil resulting from a significant global food crisis would affect the company beyond its supply links.

The 2030 WRG works with a lean and global institutional structure, even if it is local action and priority-setting that matters, and its Secretariat is embedded in the World Bank Groups. Indeed, there are certain activities that may benefit from global structures and networks, such as developing catalogues of good practice to exchange and disseminate learnings discovered in individual countries/watersheds (2030 WRG 2012, 2013).

13.4.3 Outlook on Possible Further Concrete Action—At Company Level and in Partnership

As I believe I have emphasised, the challenges relating to water are significant, but so is the potential for solutions. First and foremost, existing technologies and well-proven best practices should be implemented much more broadly. But there are also opportunities beyond what is already known and/or being done.

Let me just give very few examples of what should and could be done at many different levels.

At Nestlé, we are making considerable efforts to have zero water waste operations in our factories (e.g. to reuse the water already being used) and, where we can, waste reduction in our value chain. This is highly relevant also to address water overuse, thus reducing the waste of embedded water. We can also contribute to implement aspects of a circular economy, e.g. with bio-digesters for farmers.

We may help in initiating better watershed management, e.g. based on the experience of source catchment protection set up by Nestlé Waters. Here, and in other projects, there may well be potential for innovative technologies.

This article also emphasises the importance of the 2030 WRG as part of the overall strategy. The 2030 WRG activities have moved beyond a pilot phase, but are still limited in their outreach. There is, therefore, a need for deepening and widening these, extending its reach to more countries, including if possible to advanced economies.

Within the 2030 WRG, and beyond, there is no doubt potential for further research and for the use of new technologies in devising solutions, particularly in the sphere of wastewater, but also, e.g. harnessing big data to drive greater efficiency in agricultural water use and looking into the potential of zero-water farming.

Underlying all the above, it remains essential to increase awareness of the water challenge across all segments of the population and to intensify the public policy dialogue on water, involving those directly concerned by today's water megatrends.

13.5 Bringing Together of Megatrends in Water, Concerns and Responses

In closing, here is a summary bringing together the major challenges in the water space, the concerns for a company such as Nestlé and the different levels of action.

Global megatrends in water are a challenge for societies and economies, including:

- Overuse and poor water management, which create and exacerbate water shortages;
- Increased political and/or societal tensions, driven by water scarcity;
- Deterioration of water infrastructure (municipal or other).

There are three major areas of concern for Nestle:

- Water is essential for farmers from whom Nestlé sources its raw materials to add value for consumers;
- Water matters for the company's factories to operate; it must also be available for the daily needs of its workers and their families;
- Safe water is a requirement for the consumers of many, if not most, Nestlé products, i.e. to prepare meals and ensure basic hygiene in the kitchen and beyond; consumers moreover expect safe and high-quality water for healthy hydration.

Nestlé sees a comprehensive action strategy in response:

- Reducing our water withdrawals and use and finding new ways of reusing water to ensure that nothing is wasted, both within our operations but also across those we work with in our supply chain, including agriculture;
- Participating in alliances for comprehensive solutions at the country and watershed levels. A key partnership for us is the 2030 WRG, which seeks to address and redress water overuse/management and other issues in specific watersheds in a relevant and cost-effective manner;
- Working with all parts of the communities around our operations and our supply chain, notably agriculture, to further the understanding of how to take care of available water.

The strategy has a long-term perspective, but the time for action is now!

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