



LEADING BY EXAMPLE

REPLICABLE BEST PRACTICE IN INDUSTRIAL WATER MANAGEMENT

NESTLÉ KENYA

“Water conservation is an important part of our business, from the shop floor through all levels of management. Water stewardship has become a culture.”

Kenneth Emase, Factory Manager
Nestlé Kenya Limited



SECTOR	Food and beverage
EMPLOYEES	53 full-time and 40 temporary
CONSUMPTION	
○ Public Service Provider	• 39 m ³ per day
○ Borehole	• 39 m ³ per day (only for backup)
○ Rainwater harvesting	• 0m ³
INVESTMENT IN WATER USE EFFICIENCY	<ul style="list-style-type: none"> • Pressure guns • Rainwater tanks
REDUCED WATER CONSUMPTION	<ul style="list-style-type: none"> • 22% per day • >50% per ton of production
WATER RECYCLING	Under development
WASTE WATER MANAGEMENT	Advanced effluent treatment plant with 300m ³ per day capacity
SAVINGS THROUGH INVESTMENTS	KES 168,960 per year (water only)

ABOUT NESTLÉ KENYA

Nestlé Kenya Limited is the local branch of Nestlé S.A., the largest food and beverage company in the world with over 2000 brands globally. Nestlé Kenya, based in Nairobi's industrial area, started operations in 1975 and produces four different product lines: infant cereals (Cerelac), beverages (MILO), culinary (Maggi) and soluble coffee (Nescafé). It employs about 53 permanent and 40 temporary staff and supplies products to six countries in the East African region.

NESTLÉ KENYA AND WATER USE

Nestlé Kenya's water needs are relatively small as the factory produces only dry products which are manufactured using dry processes. Nonetheless water plays a critical role in its every-day operations, and the company has made water stewardship a priority at all levels of the organization.

The factory consumes a total of about 39m³ of water per day, the bulk of which – 63 percent - is used for processing (i.e. roller drier). The remaining water is

used for cleaning (20 percent) and for supplying the social blocks (17 percent).

Most of this water is supplied by Nairobi City Water and Sewerage Company (NCWSC), however Nestlé also operates a borehole which provides back-up water to the social blocks as well as for cleaning. In addition, the factory collects rainwater in two storage tanks of 400m³ and 20m³ which is reserved exclusively for use at the car-wash and watering the gardens.



Local water scarcity is a key driver of Nestlé's efforts to reduce their overall water consumption by increasing water use efficiency, rainwater harvesting and recycling of treated trade effluent in their washrooms. Unreliable water supply from the utility has severely affected the operations and production of the factory in the past. Relying completely on water from the borehole is not possible because the quality of the water would require expensive treatment with reverse osmosis to be clean enough for use in production.

The factory's push to reduce its environmental impact is underpinned by two key policies: The Kenyan Water Stewardship Policy and the ZERO campaign, which includes five key pillars of (i) environment, (ii) safety, (iii) quality, (vi) cost and, (v) delivery.



Nestlé Kenya Water Stewardship Policy

- Work to achieve water efficiency across our operations
- Advocate for effective water policies and stewardship
- Treat the water we discharge effectively
- Engage with suppliers, especially those in agriculture
- Raise awareness of water access and conservation
- Report publicly on regular basis on the progress of meeting this commitment

INNOVATION AND INVESTMENT IN WATER USE

Employee Engagement

The engagement, participation and recognition of water stewardship achievements by local staff is an integral part of Nestlé's commitment to continuous improvement. Nestlé Kenya assigns dedicated staff to monitor and address water issues within its factory. All staff members are encouraged to provide suggestions for improvements to advance the efficiency of the operations and reduce environmental impacts. Additionally, managers established a focus group on water conservation. Employees are encouraged to present and discuss ideas that can be brought to the monthly forum in which all managers participate.

Encouraging Innovation

To encourage innovation, Nestlé Kenya has developed various processes for identifying and implementing water-efficiency improvements on the factory floor. 'Do It Yourself' (DIY) improvements are initiatives that can be implemented without requesting approval as they are tested and proven



interventions across Nestlé facilities globally. Such projects include the assessment of steam leakages at pipes, joints or steam valves. A survey at the Nairobi facility concluded that about 40 percent of all pipes and systems contained leakages which could be easily fixed through replacements of broken equipment. By addressing these steam leakages and making straightforward and relatively low-cost improvements to water fixtures in the factory; replacing normal taps with controlled push taps, ordinary flush toilets with conservatory flushing units and installing high-pressure water guns on hoses for cleaning, the factory succeeded in reducing water use per ton by an average 10% year on year, in line with Nestlé's 2020 environmental sustainability commitments.

Other water conservation projects are addressed through the company's 'DMAIC' approach: **Define, Measure, Analyze, Improve and, Control.**

This approach is used to support activities that will assist in reducing the water footprint of the factory. One such initiative, which yielded the highest individual water saving among all initiatives and accounts for about 50% of all savings, resulted from standardizing the cleaning procedures at the roller driers at the end of the run.

Managing Industrial Effluent

In 2017, Nestlé completed construction of a KES 50 million state-of-the-art waste water-treatment plant which treats all factory effluent prior to discharge. The treatment plant has a capacity of about 300m³ per day with an average throughput of about 14m³ per day.

The Nairobi factory plans to expand the capacity of the plant as part of Nestlé Kenya's Circular Water Management Program, which puts emphasis on a circular approach consisting of the 5 R's: Reduce, Reuse, Recycle, Restore and Recover. The upgrade will make it possible to reuse the treated water for non-manufacturing purposes across the facility and thereby save almost 300m³ per month by providing an alternative water source.

Water Stewardship Beyond The Factory Floor

As part of Nestlé Kenya's Creating Shared Values (CSV) initiative, the company supports portable water treatment and heating systems for rural households, and the construction of sand dams to capture and store rainwater which now impacts the lives of more than 340,000 Kenyans.

CURRENT SITUATION AND THE WAY FORWARD

Nestlé Kenya has achieved remarkable improvements in water-saving, bringing down water-use from 14.3m³ per ton of product in 2015 to about 6.5m³ per ton, which is a reduction of more than 50 percent. Its internal benchmark for water savings is 5 percent annual reduction, which will be within reach for 2019 once the proposed implementation of wastewater reuse is concluded.

But even then, Nestlé Kenya remains committed to further improvements. In the pipeline is the development of a comprehensive water map to benchmark water-use in different processes. This will provide the factory with a better understanding of their process-level water-use and enable the identification of potential improvements. Through all these initiatives Nestlé Kenya aims to conserve water and at the same time address the challenge of unreliable water supply from the utility by making itself less dependent on high volumes of water; currently the Nairobi factory can store enough water for up to ten days of production. The more the overall consumption can be reduced, the more resilient Nestlé Kenya becomes.

Beyond these initiative, Nestlé Kenya will continue to promote water conservation awareness, share their experiences and participate in benchmarking of industrial water management.

Key Water Conservation Initiatives

- Standardization of cleaning procedures (end of run) at the roller dryer
- Rain water harvesting
- Installation of sensors at social blocks
- Introduction of pressure taps/guns
- Circular water management programmes
- Water conservation campaigns
- DIY and DMAIC projects

KENYA INDUSTRIAL WATER ALLIANCE

Launched in September 2016, with support from Kenya 2030 Water Resources Group (2030 WRG) and the International Water Stewardship Program (IWaSP), the Kenya Industrial Water Alliance (KIWA) is a partnership of public, private and civil society organizations collectively addressing major water-related risks to industrial growth.

Spearheaded by the Kenya Association of Manufacturers (KAM) and the Water Resources Authority (WRA), KIWA provides an action-oriented forum for stakeholders to discuss, plan, design and implement activities to increase water security, initially in the Nairobi sub-catchment. The partnership is developing initiatives aimed at addressing water security risks for business and reducing water wastage

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