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### CASE STUDY

# **“Industrialising” the capacity building of local entrepreneurs. A case study of 1001fontaines’ “4G Project” in Cambodia**

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**Abstract:** In Cambodia, only 16% of the population in rural areas has access to safely managed and clean water supply services, putting the health of 10.12 million people at stake. (Cambodia’s Voluntary National Review 2019 of the Implementation of the 2030 SDG Agenda).

1001fontaines, a community-based enterprise located mainly in Cambodia, responds to this issue by enabling the production of safe drinking water directly in the targeted communities, through the establishment of small water enterprises. These units, called water kiosks, are entrusted to local entrepreneurs and supported in the long run thanks to a franchise model.

In 2014, 1001fontaines suffered from low-performing water kiosks, which impacted the viability of the whole portfolio. As a result, 1001fontaines decided to launch the so-called “4G” capacity building project to upgrade the initial and continuing training of water entrepreneurs, expand distribution channels, and further leverage the local “O-We” brand to reach more beneficiaries.

The “4G project” was implemented from 2014 to 2015, and resulted in the identification of best practices to be followed by every water entrepreneur. Since 2016, 1001fontaines has generalised the use of these best practices to build the capacities of new entrepreneurs.

This case study aims to investigate the impact of the “4G project” and its conclusion on the water kiosks’ performance and on 1001fontaines’ ability to better and faster scale up its approach in Cambodia.

**Keywords:** Capacity building, local entrepreneurs, scale-up, social marketing, sustainability

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## **WATER AS A CRITICAL CHALLENGE FOR THE 21<sup>ST</sup> CENTURY**

The Sustainable Development Goals (SDGs) for 2030 lay the groundwork for more inclusive international development in which social entrepreneurship is now central (George et al., 2016; Günzel-Jensen et al., 2020). At the heart of this case study is SDG 6, whose objective is to substantially improve access to safe water and sanitation, particularly in developing countries.<sup>1</sup>

The management of water seen as a scarce resource is presented as one of the main challenges of the 21<sup>st</sup> century, particularly in the context of global warming. According to the World Health Organization (WHO) and UNICEF, in their 2017 report “Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines”, the only problem regarding access to drinking water on a global scale concerned 2.1 billion people (29% of the world’s population) who lived without easy access to safe water at home. Among them, 844 million did not benefit from a basic drinking water supply service, forcing nearly 263 million people to go to a supply point more than 30 minutes from home and requiring 159 million people to drink untreated surface water – the leading cause of fatal illnesses, especially in young children under 5, with 361,000 children dying each year of diarrhoea.

In total, 4.4 billion people (61% of the world’s population) do not have access to safely managed sanitation services, 2.3 billion do not have access to basic sanitation facilities, and 892 million people, mainly in rural areas, practice open defecation (WHO/UNICEF, 2017).

This question is a particularly topical issue because the management of current epidemics and those that are looming can be contained only with basic facilities allowing handwashing with soap.

For a long time, development aid policies in terms of access to drinking water were limited to the construction of water supply networks for urban areas and the financing of the installation of wells for those not served by the former, particularly in rural areas. From my humanitarian experience in Burkina Faso, I observed in rural villages wells financed by donations and sometimes not exploited, which can be perceived as a “waste” of money.

### **Safe Water Enterprises as a new segment of water supply in rural areas**

According to a study carried out by Dalberg Global Development Advisors (2017), Safe Water Enterprises (SWE) serve a population of 3 million beneficiaries throughout the world.

Their beneficiaries are those who are not served by piped networks or those who do not have access to safely managed services delivering sustainable drinking water.

SWE distinguish themselves from small local operators by providing drinking water previously treated with regard to hygiene standards and marketed in 20-litre canisters directly on the production kiosk or delivered to consumers’ homes.

In line with the recommendation of the World Health Organization (WHO), water is marketed for up to 3% of the total average monthly household income (Dalberg Global Development Advisors, 2017).

The study refers to the 2017 aforementioned WHO/UNICEF report but excludes MENA countries (600 million of the aforementioned 4.4 billion people) because data on

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<sup>1</sup> Sustainable Development Goal N°6 from United Nations <https://sdgs.un.org/goals/goal6>

poverty was not available. It estimated that SWE would need to allocate \$65.9 billion per year to address a market of 3.8 billion people without access to safely managed sanitation services. In total, 2.16 billion people could afford this water and could be considered potential consumers, allowing SWEs to make their activity sustainable.

The remaining share of 1.7 billion people unable to pay to respond to this essential natural need would require the provision of \$14.4 billion in donations and subsidies to SWE to enable them to deliver water for free or at a lower price.

## METHODOLOGY

We opted for a longitudinal case study with an embedded design (Yin, 2012) of a Community Based Enterprise (CBE) (Peredo & Chrisman, 2006) that has created a network of 237 social microfranchises (Christensen et al., 2010; Kistruck et al., 2011) in Cambodia.

Our comprehensive approach (Dumez, 2016; Eisenhardt, 1989; Yin, 2012) sought to capture the complexity of the context (Liu & Vrontis, 2017, p. 3) with a multi-level analysis (micro: villages, meso: districts and provinces, macro: countries bordering the Mekong River).

Our collection system revolved around several axes: the study of internal documents of the organisation, observation not participating in internal meetings, a one-week mission within the NGO Teuk Saat, local partner of 1001fontaines, and on two kiosks in Cambodia, conducting interviews and collecting information on the Cambodian environment (districts and provinces).

## THE HISTORY OF 1001FONTAINES IN CAMBODIA

1001fontaines' objective is to "enable small, isolated communities to meet, by themselves and without infrastructure or specific skills, their drinking water requirements." (Extract from the document "The Values of 1001fontaines").

1001fontaines was born from the unique combination of three social identities: François Jaquenoud, a former partner at Accenture; Chay Lo, a Cambodian and rural engineer; and Virginie Legrand, a former international marketing manager at American Express and involved in humanitarian aid in Cambodia.

Chay Lo explained that the Cambodian villagers have no choice but to drink the water from the pond, leading to high infant mortality and diarrhoea in children – the leading cause of absenteeism from school.

After testing the model in three villages in Cambodia in 2005, which demonstrated its viability, 1001fontaines aimed to design:

"a solution that is as generic as possible and as deployable as possible not only in Cambodia but in all countries [...] a model which while relying on an associative mode and on donations at a given moment can free itself from them. [...] Hence the idea of the hybrid model [...] to finance the initial investment. What is needed above all is that this activity become self-financing once that it is launched and [...] that if we disappear, this new activity continues to function *ad vitam*." (François Jaquenoud, Co-founder and executive director, interview).

## **Cambodia: Difficulties in recovering from the Khmer Rouge regime period**

The population of Cambodia is 15.848 million people, with 3.801 million living in urban areas and 12.047 million in rural areas (National Institute of Statistics, Ministry of Planning, Kingdom of Cambodia, 2018). Only 16% of the population in rural areas has access to safely managed and clean water supply services, putting the health of 10.12 million people at stake (Cambodia's Voluntary National Review 2019 of the Implementation of the 2030 SDG Agenda).

The Khmer Rouge Regime (1975-1979) had a negative impact on the education system in Cambodia and particularly on men (Damien de Walque, 2006). The period of reconstruction that followed was funded by international aid, resulting in a strong giving culture that is unfavourable to the development of entrepreneurship.

## **The Mekong as a geopolitical issue in the sub-region**

Cambodia is subject to a tropical climate with two seasons: a rainy season from May to mid-November and a dry season from mid-November to the end of April.

Moreover, Cambodia is one of the countries in the world that is the most sensitive to climate change. It is impacted by floods and severe and exceptional droughts.

The half-century of war in South East Asia has delayed the construction of dams around the Mekong, the twelfth largest river in the world, making it a preserved river, favourable to fishing activity. It is one of the most abundant in Asia, and agriculture has benefited from the quality silt (Pearce, 2018).

The construction of hydroelectric dams upstream of the Mekong gorges in China over the past 30 years now threatens this ecosystem (Pearce, 2018), which puts the lives of 60 million people in the sub-region at stake.

China is also planning the construction of new dams that will capture half the flows of the Mekong in its upper part. Thus, the annual monsoon flood in this area will flow in the future according to China's electricity needs, threatening the region's natural ecosystem and agricultural and fishing activity (Pearce, 2018).

In Cambodia, Tonle Sap Lake, which represents 50% of the national fishing, runs the risk of no longer being supplied by the waters of the Mekong (60% of the origin of the water flows), with, as a corollary, a drop in the migration of fish (Ono, 2018).

The drought episodes that are new to the region are a matter of great concern to the riparian countries of the Mekong. Cambodia has set up a "National Disaster Management Committee" to collect data on all natural disasters that occur in the territory.

In January 2020, in Thailand and Cambodia, the waters dropped considerably just as China was testing the hydroelectric facilities. Likewise, flooding can result from the uncontrolled release of water upstream of the Mekong (Sivasomboon & Phaicharoen, 2020).

The riparian countries of the Mekong, Cambodia, Thailand, Laos, and Vietnam established the "Mekong River Commission" (MRC) in April 1995, following the end of the cooperation agreement for the sustainable development of the Mekong basin. The MRC is responsible for managing the water resources of the Mekong in a logic of sustainable development.

Laos and Cambodia have also recently launched or completed the construction of dams, often financed by Chinese funds<sup>2, 3</sup>.

In October 2020, a historic agreement was signed between China and the MRC. China committed to providing hydrological data throughout the year to allow countries bordering the Mekong River to better prevent droughts and floods.

### **A business model based on a “new what” and two “new hows”**

In this context, the conditions for an organisation to achieve competitive advantage are to address the 4As (Anderson & Markides, 2007; Prahalad, 2010) while being resilient to natural disasters resulting from climate change: affordability of water to the most unprivileged people; availability of water by addressing the challenges to deliver it in the most remote areas; acceptability by the population of the benefit of consuming paid water; and awareness among the population that safe drinking water significantly reduces diseases.

1001fontaines in Cambodia is based on a “new what” and two “new hows” (Martin et al., 2019) as defined by Anderson and Markides (2007).

A first “new what” consists in meeting the essential daily needs for drinking water, that is to say 1.5 litres per day and per person delivered to the beneficiaries in 20-liter containers, which makes it possible to eliminate the main diseases caused by untreated water. This strategic dimension responds to SDG 6 – clean water and sanitation.

A first “new how” which consists in producing water directly in the villages.

This production is based on a water treatment system using solar-powered UV-ray-based disinfection. The creation of a kiosk in the villages makes it possible to address only local demand and to limit distribution costs. Thus, the water produced is sold at 0.02 euros per litre.

A second “new how” aims to ensure the longevity of the kiosk by associating a water entrepreneur who generates enough income to maintain the production tool while paying a salary for them and other operators of the station. This strategic dimension also responds to SDG 8 - Decent work and economic growth.

It is structured around three players: the NGO 1001fontaines capable of formulating strategic intentions; the local NGO Teuk Saat embedded locally and acting as a subcontractor in the field; and local entrepreneurs who are agents of their community, in charge of producing and delivering water to villagers.

1001fontaines in Cambodia has built an economic model that has freed itself from donations after 15 years of existence; these donations cover its operating costs by raising a total of 10 million euros to serve more than 400,000 beneficiaries per year (Interviews with Jean-François Rambicur, 1001fontaines' President and Executive Director).

This leverage effect of the donation (25 euros per beneficiary with a durability of the water kiosks of around 70%) prompted a research team<sup>4</sup> to carry out a longitudinal

<sup>2</sup> Among the 11 dams planned downstream of the Mekong, six are financed by Chinese funds according to the NGO International Rivers (NGO International Rivers [www.internationalrivers.org](http://www.internationalrivers.org)).

<sup>3</sup> In 2014, China created the “Lancang-Mekong River Cooperation framework” which aims to financially support the countries bordering the Mekong (Ono, 2018).

<sup>4</sup> A PhD candidate and two supervisors (a professor and a PhD).

case study of this organisation with a view to drawing lessons from both empirical and theoretical points of views.

### **Creating something from nothing<sup>5</sup> and responding to a natural need that would have been unavailable to the community**

For the purposes of our research, 1001fontaines drew up an inventory for each of the sites under study of the water supply sources according to the three existing connection possibilities of a 1001fontaines station: surface water, wells and “water system”.

The founders of 1001fontaines refused to enact limitations by establishing a water kiosk model at a time (15 years ago) when the dominant doctrine of access to drinking water was to deliver 50 litres per day, per person at the point of consumption to cover all needs (drinking water, cooking, hygiene). This doctrine implies that groundwater is chemically treated and distributed through pipes, explaining that the most remote areas do not have access to clean water.

To address this institutional void, 1001fontaines partially redefined market architectures (Mair et al., 2012) with the redefinition of local mechanisms through the constitution of an O-We community ensuring the management of the water as a common good, the creation of spaces for interaction within this community where local water entrepreneurs act as agents of their community, advisors who manage the relationship with these later by visiting them on a monthly basis, the creation of a small network of distributors (“shopkeepers”) and links with the Cambodian Ministry of Rural Development which is in charge of the general coordination of water supply projects.

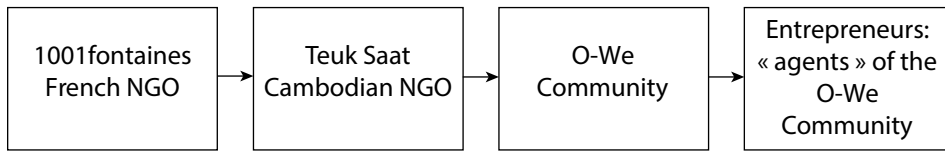
The local NGO Teuk Saat is attached to this Ministry because the project is considered to be community-based. It facilitates relations with local authorities which are composed of the village heads, representatives of the ministry, or other NGOs present in the same locations.

The O-We community initially helps 1001fontaines to manage the construction of the kiosk on the land allocated for the project. It plays a role in selecting the local entrepreneur in charge of managing the kiosk and identifying the source of the water supply. The community is also present at site openings and thus guarantees the promotion of the project when it is launched among the population, which helps to improve the effectiveness of the entrepreneur in their mission. The O-We community is also responsible for monitoring the project on a monthly basis. It can be called upon for strategic decisions such as reinvestment in the kiosk, the implementation of a new business plan and especially when it is necessary to define the price of water.

“Our projects are first and foremost community projects, and initially we deal with the community to do the project where they are located. It is usually them who choose the entrepreneur and we always need to find a balance between the personal interests of the entrepreneur and the social interests of the whole community, so for example when the entrepreneurs want to increase their price, they must do so with the agreement of the community and we sometimes act as an arbitrator.” (François Jaquenoud, interview).

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<sup>5</sup> This formulation is that of Baker and Nelson (2005).

**Figure 1: Network ties mobilised by 1001fontaines**

1001fontaines relies on three forms of capital from the community as defined by Ansari et al. (2012): a structural social capital, a relational social capital, and a cognitive social capital.

Structural capital ("network ties and network features") is characterised by the relationship nodes between 1001fontaines, the local NGO Teuk Saat, the local community, and the entrepreneurs (Figure 1). Every actor of this structure has a function, and the relationship between members has been built on purpose by 1001fontaines itself and did not previously exist.

The relational social capital ("trust and the type of relationship") is materialised by an agreement between the community and the entrepreneur. (Teuk Saat is a witness to the agreement.)

The cognitive social capital ("shared language, identities, beliefs, and norms") is materialised by the brand O-We. 'The 'O' stands for water and the Asian Lucky Circle and the 'We' reflects 1001fontaines' commitment to community development.' (internal documents of 1001fontaines).

By relying on these three forms of capital, 1001fontaines can get value from its social embeddedness.

1001fontaines legitimises and relies on new players in the community (Mair et al., 2012).

"It's part of our mission and it's our ambition to perpetuate a structure and grow a team, even if it means growing less quickly. It guarantees us local roots, community membership, and sustainability over time." (Julien Ancele, Managing Director of 1001fontaines).

The local entrepreneurs are responsible for managing the facility as a micro-enterprise for the production and distribution of water. They can be considered "bricoleurs agents." They are the "agents" of the principal (the community) because their mission is to produce drinking water with the social objective of allowing as many community members as possible to have access to this water at a minimum affordable price.

The notion of agent is also derived from the relationship between the franchisor (Teuk Saat) and the franchisee (the entrepreneurs) because the organisation is structured as a social franchise (Burand & Koch, 2010; Lawson-Lartego & Mathiassen, 2020).

The mission of entrepreneurs is fundamental because "traditional contractual and monitoring mechanisms" (Kistruck et al., 2013) are inoperative at the "Base of the Pyramid"<sup>6</sup> and the resulting agency concerns are costly.

<sup>6</sup> As defined by Prahalad and Hart (2010), the four billion people at the base of the pyramid live on less than two dollars purchasing power parity per day.



The notion of “bricoleur” refers to the term “bricolage” (Lévi Strauss, 1967), used in management science, mainly in the context of scarcity of resources (Baker & Nelson, 2005) or following a natural disaster (Johannisson & Olaison, 2007). The “bricoleur agents” face constraints in their natural and cultural environments and make do with the resources “at hand.”

### **Resources “at hand” and bricolage**

In addition to the fixed assets that constitute the water kiosk station, entrepreneurs manage the stations with the resources “at hand.”

The resources “at hand” are composed of the water available in every kiosk, the solar energy produced in the kiosk, the means of transport (“kuyuns” and motorbikes), the “shopkeepers” (small shops) on whom water kiosks rely for the distribution of water, and the local entrepreneurs (and operators) who manage the kiosk.

There is the acceptance of a bricolage within the franchise model. This bricolage is a forum for social skills (Baker & Nelson, 2005) and local capacities.

“François’ engineering has laid down a framework which is also a restrictive environment since our objective is the economic sustainability of the organisation and its water kiosks. Within this framework, while having rules, bricolage is every day. The fact ... that we have this economic constraint leads us to do bricolage [...] we have an economic constraint in the sense that we must succeed with public funding to have the project sustainable. For me, bricolage is rooted in François’ work and engineering framework.” (Amandine Chaussinand, Project Manager at 1001fontaines, interview).

### **1001fontaines relies on a strategic function: Capacity building**

1001fontaines manages an organisational system that improves the productivity of resources. This capacity to orchestrate these resources in a constrained environment is difficult to imitate. To achieve and maintain this performance, 1001fontaines relies on a strategic function: the capacity building or capability building mechanism (Makadok, 2001)<sup>7</sup>.

Capacity building combines internal and external capacity projects for the benefit of the whole organisation.

We can illustrate this mechanism with two recently funded projects. One consisted of investing in the laboratory to be certified to test the quality of the water of other water suppliers, while the second consisted of the digitisation of monthly water kiosk reports for better monitoring of the activity. We can also illustrate this mechanism through 1001fontaines’ ability to train entrepreneurs and make them more efficient.

“The real resource we have today is an academy that allows us to train our water entrepreneurs under the direction of the human resources of 1001fontaines and Teuk Saat” Julien Ancele, Managing Director of 1001fontaines (interview).

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<sup>7</sup> A concept used in strategic management and etymologically close to capacity building (or capacity development), and which has the same meaning in this case study. The capacity building concept is a legacy of humanitarian and aid development that is intended to improve the capacities of local people (beneficiaries or workers) or of the organisation.

"We have a 70-80% success rate. The entrepreneur has our knowledge... that begin[s] with the ability to select the right ones, through the learning period, and the ability to train them well. Our entrepreneurs at the end of a year know how to manage their business." (Jean-François Rambicur, President of 1001fontaines).

The ability to train members of a community to become entrepreneurs is to be emphasised because the organisation relies on human capital with a low level of education and succeeds in transforming it into specific human capital with an entrepreneurial function<sup>8</sup>.

Capacity building is also materialised by building the capacity of water entrepreneurs to reach their beneficiaries. Thus, part of donors' funding is allocated to reinforcing the O-We brand in order to disseminate 1001fontaines' social mission to the villagers.

## **THE "4G PROJECT" – "INDUSTRIALISING" THE CAPACITY BUILDING OF LOCAL ENTREPRENEURS**

In recent years, a longitudinal project is particularly revealing of the philosophy of 1001fontaines: the "4G project."

The "4G project" and the subsequent capacity building activities of water entrepreneurs have been financed by donations and grants.

"I situate the '4G project' in the concretisation of what should be international aid," said Amandine Muret, Knowledge Manager at 1001fontaines (interview).

In 2014, 1001fontaines' portfolio of water kiosks was characterised by heterogeneous performance. Particularly, 1001fontaines suffered from low-performing water kiosks impacting the viability of the whole portfolio<sup>9</sup>.

Consequently, the management of 1001fontaines decided to launch the "4G project," which is a longitudinal capacity building project to upgrade the initial and continuous training of the water entrepreneurs and support them in reaching their beneficiaries.

"The goal of this project was to reinvent our model of water supply on the ground, with a goal of significantly increasing the water sales of our entrepreneurs in their villages. The '4G Project' aimed to transform our customers' relationship with drinking water in the same order of magnitude. We needed [not only] to review and to reinvent ... the physical distribution methods of water but also to review our pricing strategies, the potential use of complementary distribution of different channels, water 'packaging', the type of sales training we gave to our entrepreneurs and the contribution of the O-We brand to our efforts to convince the villagers." (Extract from "Social Marketing Department 4G project" by Amandine Chaussin and Project Manager and Chanrith Kruey 4G Project Manager in October 2014)

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<sup>8</sup> A statistical analysis reveals a dependence between the seniority of the entrepreneur and the performance of water kiosks (n = 204 entrepreneurs).

<sup>9</sup> 1001fontaines' economic model relies on cross subsidisation between performing and failing kiosks at the level of regional platforms (Phnom Penh, Battambang, and Kampong Cham).

## Selecting the champions and extracting best practices from water entrepreneurs

"There was a first step before even launching the '4G project.' It was to meet the best entrepreneurs and understand how they worked. Understand why they are the champions of Teuk Saat and 1001fontaines. [...] There was a whole preparatory work of two months in which we observed, [did] interviews with seven stations, seven entrepreneurs who exploded sales and we tried to understand all that"

said Amandine Chaussinand, who was in charge of the "4G project" at this time.

Once a "good practice book" was written, identifying the business practices to be promoted in each kiosk, the "4G project" started.

## Selecting the four kiosks to support

"We needed kiosks [that] ha[d] no particular type of problem such as dry season, no water, technical problem or an entrepreneur with a lot of debts for example." (Amandine Chaussinand, interview)

A joint analysis was then established with the advisors, leading to a list of potential kiosks to support. Several interviews with 15 preselected water entrepreneurs were performed to identify the ones to support.

"During the job interviews we were able to explain the project. We explained how we were going to contribute to the marketing, the communication, and the implementation of the best practices together so that the stations will be more successful." (Amandine Chaussinand, interview)

Several days were spent with the entrepreneurs to help them understand the real mindset of the project. Four kiosks were selected (two Tier II and two Tier I<sup>10</sup>). Among them, one was new and considered a showcase kiosk.

"We wanted to showcase all the best practices when launching a kiosk. Moreover, we participated in the recruitment of entrepreneurs for this kiosk." (Amandine Chaussinand, interview)

## Strategic dimensions of the "4G project"

The "4G project" revolves around three main strategic ideas.

First, 1001fontaines opted for a "selective" bricolage (Baker & Nelson, 2005; Witell et al., 2017; Yang, 2018) by considering the routines and best practices developed by the entrepreneurs responsible for managing the water stations with the resources at hand.

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<sup>10</sup> The kiosks are listed taking into account the average sales over 12 rolling months with the following thresholds: Tier I  $\geq 1,700$  litres of water per day;  $1,200 \leq$  Tier II  $< 1,700$  litres of water per day; Tier III  $< 1,200$  litres of water per day. 1,200 L per day = kiosk breakeven, with a contractor being able to earn around \$150 per month; 1,700 L per day = enough income to set aside and invest in growth (new vehicle ...).

In 2014, 1001fontaines organised an inventory of these practices (25 practices classified into three levels: compulsory, recommended, suggested) to transfer them first to four water kiosks and then to the entire portfolio of water kiosks.

Second, 1001fontaines also adapted its "templates"<sup>11</sup> (Jensen et al., 2003; Sutter et al., 2014) to better transfer best practices within the firm. This knowledge transfer was also facilitated by the local advisors.

Third, 1001fontaines improved the accessibility of potential customers to 1001fontaines' water through a combination of various distribution channels. In 2014, in addition to entrepreneurs who delivered water at homes, 1001fontaines started to rely on "shopkeepers" who acted as local sales agents in return for retrocession on the price of marketed water.

### **Implementation of the "4G project"**

The "4G project" was implemented in two phases.

The first phase extended the distribution channels and transferred best practices to the water entrepreneurs. This phase extended from mid-2014 to the end of 2015, during which the 4G kiosks were those receiving special attention.

A second phase from 2016 rolled out this new operating framework to all the kiosks.

### **Results of the "4G project"**

This transfer of best practices of "champion kiosks" to the other entrepreneurs, coupled with the extension of distribution channels, revealed a significant increase in the overall performance of the portfolio of water kiosks.

The results obtained during the first phase of the "4G project" are particularly notable.

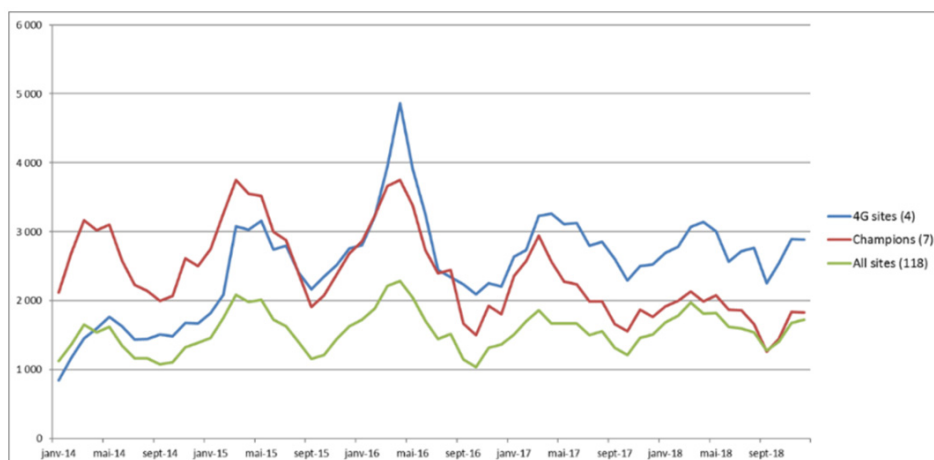
The penetration rate in the villages significantly increased from 14.9% in 2014 to 17.8% in 2015 to 19.3% in 2016. The number of non-performing kiosks, i.e., with a performance of less than 1,200 L per day, was reduced across the entire portfolio from 44% in 2014 to 24% in 2016. The number of breakeven kiosks (performance greater than 1,200 L per day) increased across the entire portfolio from 46% in 2014 to 73% in 2016.

More specifically, over this period (Figure 2), the supported 4G kiosks become more successful than the "champion kiosks."

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<sup>11</sup> "A template contains the critical aspects of the successful routine, providing the details and nuances of how the work gets done, in what sequence, and how the various subroutines are interconnected" (Jensen et al., 2003).

**Figure 2: Observations of champion sites, 4G sites, and all sites January 2014 - September 2018 – average daily production in litres<sup>12</sup>**



Source: 1001fontaines

### Social marketing and higher penetration rates in the villages

Following the “4G project,” 1001fontaines decided to focus on demand-side drivers and to allocate funds in market-based resources.

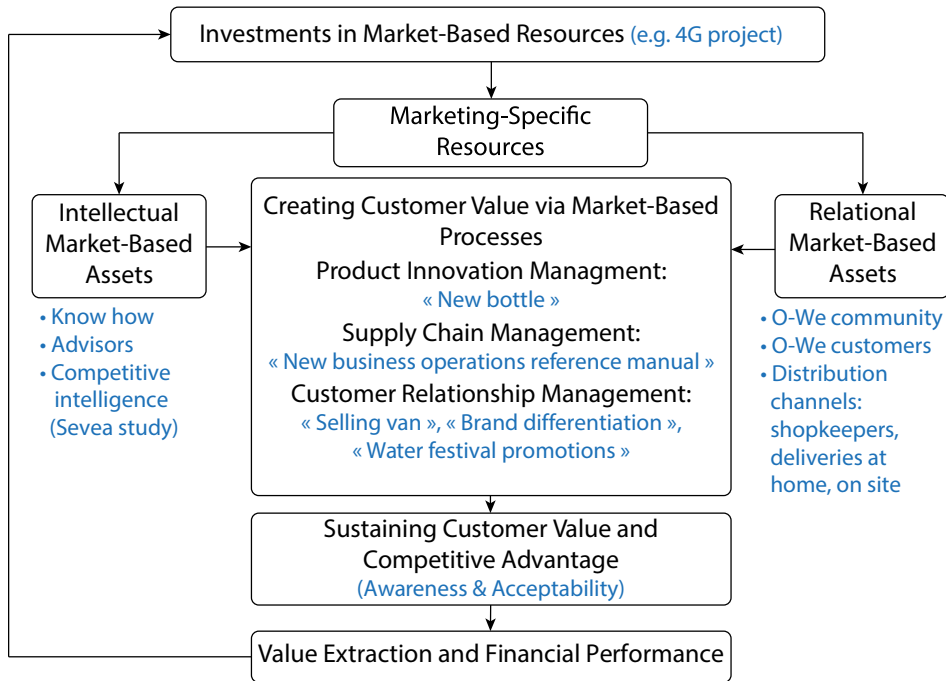
“Today we no longer consider the beneficiaries as only beneficiaries but also as clients. Therefore, we bring customers a quality service. And therefore, [...] the promotion of new distribution channels increases the services that we can provide to our customers. We push the “social business” aspect to the maximum [...] We have a product and we seek to improve our service so that this product arrives of very good quality with an excellent service” (Amandine Muret, Knowledge Manager at 1001fontaines, interview).

Relying on the framework proposed by Srivastava et al. (2001), three types of market-based assets that contribute to this market orientation (Agarwal et al., 2018; Ghauri et al., 2016) have been identified (Figure 3): intellectual market-based assets, relational market-based assets, and market-based processes, that help create customer value.

Intellectual market-based assets are know-how derived from experiences in the field, reports by advisors on their understanding of market trends, and competitive intelligence to better understand the current and future dynamics of the safe water market in Cambodia.

Relational market-based assets are derived from the O-We community and their related customers using three channels: home delivery, kiosks, and local shopkeepers.

<sup>12</sup> The years 2016 and 2017 were characterised by unusual climatic phenomena. In 2016, Cambodia experienced an unusually dry and hot dry season, with first-half sales being the highest on record at kiosks. In 2017, the usual dry season did not really take place, the rain having been sustained throughout the year, resulting in lower results in terms of performance for 1001fontaines.

**Figure 3: Market-based resource investments of the “4G project”**

(Srivastava et al., 2001)

There are three types of market-based processes: product innovation management (such as designing a new bottle to differentiate oneself from competitors), supply chain management (by improving processes of platforms and sourcing), and customer relationship management (using a van to promote the O-We brand in rural areas, redesigning marketing tools to promote and differentiate the O-We brand, and implementing promotional campaigns during the water festival).

Coupled with an understanding of consumers' habits and preferences, efforts to disseminate the social mission through the O-We brand translate into a better penetration in the villages year after year (Awareness and Acceptability dimensions), making the O-We brand a valuable resource for 1001fontaines.

### **A statistical analysis confirming the strategic dimension of capacity building**

The thresholds of performance used for the statistical analysis respond to Sustainable Development Goals (SDGs) 6 and 8 for 2030 (Figure 4).

Several statistical analyses at a meso scale (districts and provinces) were performed to better understand the context in which water kiosks operate by studying, in particular, natural disasters resulting from climate change and the current supply of water in Cambodia.

**Figure 4: Key performance indicators monitored by 1001fontaines according to the Sustainable Development Goals**

<b>Key Performance Indicators</b>	Volume / kiosk Number of liters per day	Average entrepreneur's salary in dollars	Sustainability ratio
<b>Frequency</b>	Monthly	Monthly	Monthly
<b>Sustainable Development Goals (United Nations)</b>	SDG6  Clean water and sanitation	SDG8  Decent work and economic growth	SDG8  Decent work and economic growth

Notes: 1001fontaines addresses SDGs 6 and 8. SDG 6 is monitored through the number of litres per day produced by the kiosks. SDG 8 is monitored through the average salary of an entrepreneur in dollars. At 1001fontaines, any entrepreneur who, once all fees have been paid, can get a monthly income of more than \$150 is considered financially self-sufficient

We used principal component analysis to evaluate climate change natural disasters (two dimensions with a variance of 68.2%) and supply of water (two dimensions with a variance of 55.4%) at a meso scale (24 provinces) from 2008 to 2013.

A statistical analysis at a micro scale (villages) through the prism of resources used by the water kiosks was performed. The objective of this analysis was to identify the main resources explaining the water production (the dependent variable) of the water kiosks over one year.

Nearly 70%<sup>13</sup> of the water kiosks' performance can be statistically explained with the resources "at hand" and the best practices identified during the "4G project" by observing the "champion water entrepreneurs" – a high result. This demonstrates that correctly applying the best practices taught during the initial training is already a guarantee that a kiosk will reach a level of performance sufficient to achieve sustainability.

A statistical analysis at a meso scale (districts) was performed to evaluate the correlation between water kiosks' performance and economic potential factors at a district level using the Economic Potential Index from the World Bank.

There is no correlation between water kiosks' performance and economic potential factors at a district level (World Bank Group, 2018). 1001fontaines' model does not depend upon the economic potential of one territory on the scale of Cambodia.

A statistical analysis over seven years (2012-2018) analysed the dependence between the level of performance of each water kiosk and the level of occurrence of natural disasters resulting from climate change – overwhelmingly, floods and episodes of drought. The scenarios of evolution of the average water production as a result of these natural disasters were also analysed to evaluate the resiliency of water kiosks.

<sup>13</sup> Adjusted R<sup>2</sup> of the multiple linear regression = 0.681.

The occurrence of natural disasters resulting from climate change impacts the average water production of the water kiosks.

To maintain the service at the provincial level, 1001fontaines has implemented a continuity plan of its operations in the event of natural disasters (mainly drought), more specifically for the pooling of water sources between water kiosks' neighbours.

The statistical study reveals a greater occurrence of resilience scenarios during the observation of the analysis.

## CONCLUSION

The 1001fontaines case study offers some particularly interesting lessons with regard to the challenge of delivering water in the most remote areas.

The organisation relies on resources "at hand" and local capacities to address the "last mile market."

Selective bricolage was fundamental for 1001fontaines to achieve self-sufficiency, confirming that bricolage can be scaled (Busch & Barkema, 2020). It also demonstrates that bricolage is not a function of improvisation or vice versa (Baker & Nelson, 2005), and can be organised strategically.

By relying on three forms of capital (structural, relational, and cognitive), 1001fontaines gets value from its "social embeddedness," particularly through its O-We brand, which helps disseminate its social mission.

The case study reveals the idiosyncratic firm's ability to leverage the resources at hand, particularly human resources (Chadwick, 2017), through a capability building mechanism (Makadok, 2001).

Capacity building is a key element of the 1001fontaines model, and the longitudinal "4G project" is an example of how this activity has been industrialised to enable durable impact, economic sustainability, good resilience to natural disasters resulting from climate change, and the scaling-up in Cambodia.

Therefore, the findings of this case study confirm the catalytic role of philanthropy to reach sustainability and scalability.

Julien Ancele considers that "only a collective effort of SWEs will enable ... address[ing of] the climate change challenge." At the international level, 1001fontaines aims to "inspire and become a key player in the large-scale deployment of a drinking water solution that meets the fundamental principles of the model."

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