

Improving Maternal and Child Nutrition Outcomes

Public-private partnerships in the food system

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Key messages

- > Unsustainable food systems are both a cause and a consequence of a variety of interrelated factors.
- > Fortunately, food systems are increasingly receiving the long-awaited global attention they deserve.
- > A sustainable food system is “a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.”
- > There are many multisectoral nutrition-specific and nutrition-sensitive interventions needed in the food system.
- > Public-private partnerships (PPPs) have been at the center of many interventions in the food system aimed at making it more sustainable.
- > This article explores how PPPs can increase food system sustainability and to what extent these improvements positively impact maternal and child nutrition outcomes.
- > Transforming the food system will require numerous interventions at various levels ranging from local-level innovations to a reform of the global-level governance of food, health, nutrition and agriculture.

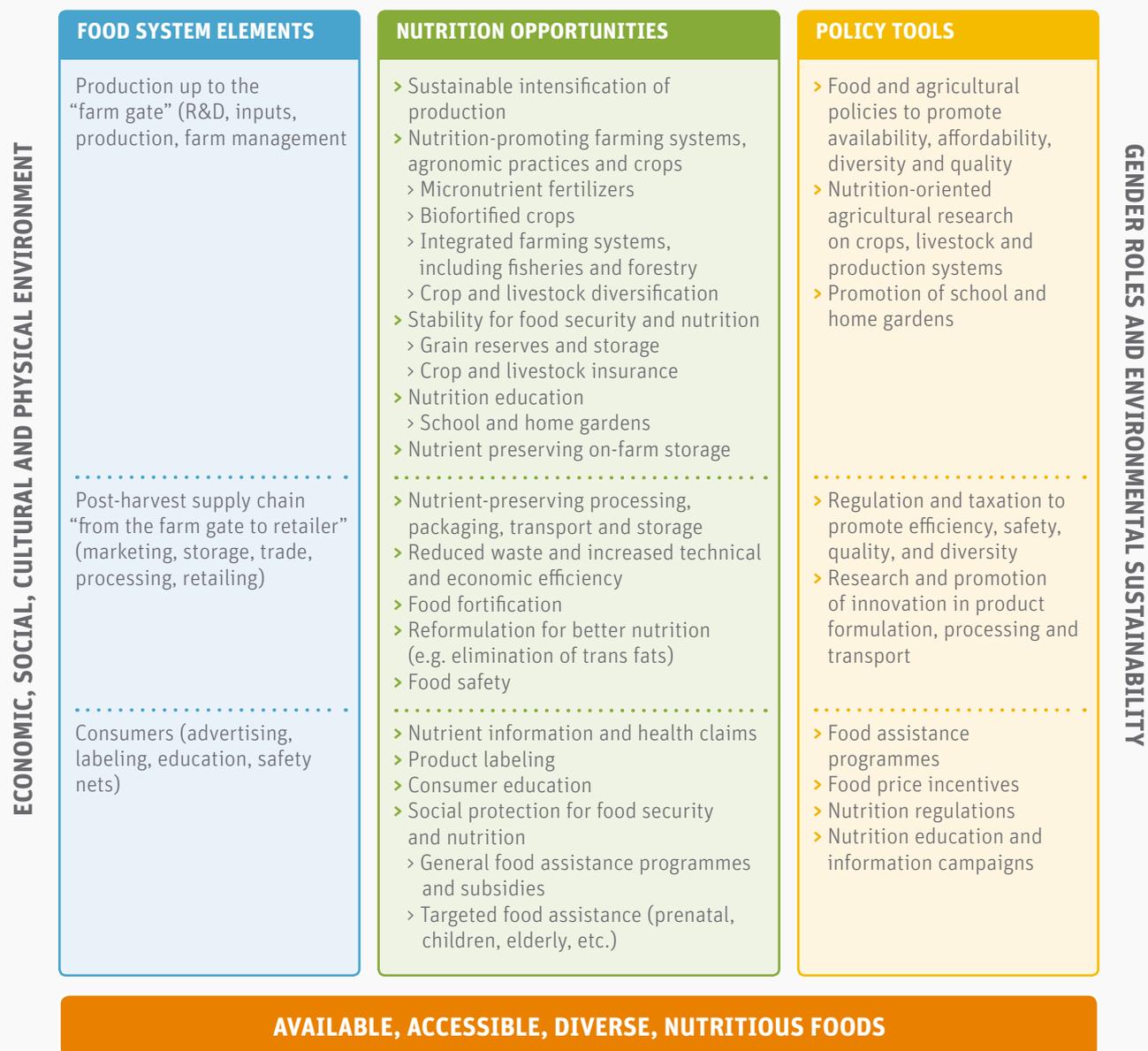
The sustainability of food systems is affected by many factors

It can be argued that the current global food system is unsustainable. Unsustainable food systems are both a cause and a consequence of a variety of interrelated factors ranging from trade policies, climate change, a transition in people’s diet more commonly known as the “nutrition transition,” and social unrest and conflict. Although there is no doubt that a lack of democracy led to the ongoing Syrian civil war, the major drought the country faced between 2006 and 2010 reduced the availability of barley and wheat, which in turn increased food prices and resulted in a dissatisfied population protesting in the streets in March 2011.¹

Fortunately, food systems are increasingly receiving the long-awaited global attention they deserve.² Laudable commitments were made at COP21³ recognizing “the fundamental priority of safeguarding food security and ending hunger, and the particular vulnerabilities of food production systems to the adverse impacts of climate change” and setting the stage to support the transition to a climate-resilient agriculture.⁴ Moreover, the Sustainable Development Goals (SDGs) adopted in September 2015 call for the world to “halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains by 2030.”

Sustainable food systems to deliver improved nutrition outcomes

A sustainable food system is “a food system that delivers food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.”⁵ Food systems can be shaped in such a way that these positive nutrition outcomes are maximized. This requires a combination of sustainable solutions that include sound policies, improved knowledge, regulations and investments along the production-to-consumption spectrum in order to trigger behavioral changes among food producers, consumers, distributors, processors and women in particular, given their key role in channeling food system outcomes into the health and nutrition of their

FIGURE 1: Food system interventions for better nutrition⁵**POLICY ENVIRONMENT AND DEVELOPMENT PRIORITIES**

children.⁶ There are many multisectoral nutrition-specific and nutrition-sensitive interventions needed in the food system (Figure 1).

Public-private partnerships (PPPs)⁷ have been at the center of many interventions in the food system aimed at making it more sustainable. According to the International Panel of Experts on Sustainable Food Systems, achieving sustainable food systems requires a trans-disciplinary approach whereby farmers, the food industry, consumers, and the public and private sectors’ knowledge and unique understanding of food

systems must be leveraged to achieve more ambitious results than they would achieve separately.^{8,9} PPPs along the food supply chain can contribute to better economic, social, and environmental outcomes. Through a few case studies, this article aims to explore how PPPs can increase food system sustainability and to what extent these improvements positively impact maternal and child nutrition outcomes. The term PPP here is used in a broad sense and includes multipartner structures that bring together private entities, foundations, universities and NGOs.

The role of smallholders in sustainable agriculture

About 70% of the 1.4 billion extremely poor people of the developing world live in rural areas, meaning that in order to reach poverty reduction targets, smallholders' livelihoods must be significantly improved.¹⁰ Furthermore, smallholders play an essential role in the attainment of global food security. As the world urgently needs to close the gap between the food currently available and the food that will be needed by 2050, overall worldwide annual crop production will have to increase by 69% vis-à-vis 2006 levels, and the production in developing countries will have to almost double.^{10,11} Additionally, due to the labor-intensive nature of their farms, smallholders are major contributors to social and economic sustainability, as they create more jobs than do larger high-tech farms.¹² An increased income for producers and smallholders, and lower prices for nutritious foods, can simultaneously improve livelihoods and enhance the accessibility and availability of varied foods.

The link between female smallholders and food sustainability is even stronger. There is significant evidence suggesting that raising women's wages rather than men's is considerably more effective in enhancing children's nutrition, health and household food security.¹³ A study in Cote d'Ivoire revealed that improvements in nutrition and child health brought about by a US\$10 increase in women's income would require a US\$110 increase in men's income.¹³ Moreover, upgrades in women's status represent 11.6% of global reductions in the proportion of children who are underweight, and changes in women's secondary education enrolments account for 43% of global reductions in the proportion of children who are underweight.

To increase male and female smallholders' social status through the food supply chain, a competitive retail and manufacturing sector must be in place. However, integrating smallholders into domestic food value chains remains a challenge in developing countries, where smallholders face technological constraints (e.g., storage capacity, know-how, technical efficiency); structural constraints (e.g., climate, regulations, culture and traditions); and financial constraints (e.g., credits and cash-flow deficits), to name but a few.¹⁴ These challenges are far greater for women, whose farm work is often not remunerated, and who tend to be excluded from decision-making and to have unequal access to land, markets, education, credit, extension services and inputs. In Africa, for instance, women only own 1% of the total agricultural land, they access less than 10% of agricultural credit offered to small-scale farmers, and they receive 7% of extension services. Moreover, social norms can impose even more restrictions on women's empowerment and their control over decision-making power regarding family income, which in turn hinders their ability to develop small businesses.¹⁵

“Integrating smallholders into domestic food value chains remains a challenge in developing countries”

The role of PAFA in supporting producer organizations

PPPs' role in linking smallholders with high-value markets is well established (see **Table 1**). The Agricultural Value Chains Support Project (PAFA) – established in 2010 for a 6-year period and funded by the International Fund for Agricultural Development (IFAD) and the OPEC Fund for International Development – aims to sustainably improve the incomes and livelihoods of farming families from the Groundnut Basin area of Senegal by providing support for local value chains. PAFA supports five value chains: sorghum, *niébé* (cowpea), sesame, poultry and hibiscus. Small and vulnerable farmers are supported to access markets through production contracts between their farmer/producer organizations (POs) and the private sector. As part of this partnership, the POs are required to deliver a certain production quantity at a given time, which meets the criteria and quality standards specified in the contracts. Likewise, private market operators commit to buy this production in line with the modalities and prices established in advance.¹⁶ The partnerships also set up a co-financing system for agricultural inputs (e.g., seeds and fertilizers) and equipment, which enables producers to cover their needs well in advance and to prepare for the next crop. During the first year, the PAFA funds 80% of the POs' needs, 60% in the second year, 40% in the third, and in the 5th year POs bear the full costs for inputs.¹⁶

Since the start of the project, producer groups supported by PAFA have seen their yields and revenues increase significantly. While PAFA's original goal was to reach 14,000 households, within a five-year timeframe, it increased the income of around 26,000 vulnerable households.¹⁷ Seventeen cowpea POs of the Diourbel (330 ha) and Fatick (150 ha) regions had a satisfactory harvest, from which 500 rural households benefited. In the Diourbel region, harvest yields reached a net increase of 420–550 kg/ha as opposed to 200 and 157 kg/ha in the last five years.¹⁸ The same trend was observed in the regions of Fatick and Kaffrine for the eight sesame POs. Moreover, the project provided producers with 50 storage facilities for small grain within two to three years, and the hunger gap decreased from 7 to 3 months.¹⁹

Data on outcomes such as decreasing malnutrition rates or changes in diet and feeding practices were not available, although subjective evidence suggests that these indirect outcomes have occurred. Nonetheless, positive outcomes in harvest yields have led to the extension of the project beyond the Louga region.¹⁹

TABLE 1: Public- and private-sector roles in supply chain management of high-value agricultural products¹⁰

Supply chain support processes	Possible roles for public-private partnership
Extension and information services	<ul style="list-style-type: none"> > Knowledge of specialized techniques for high value agriculture, markets (prices), rules and regulations in private and public sectors could be complementary > Public sector could subsidize costs of information about food safety standards and other market requirements for smallholders
Infrastructure development	<ul style="list-style-type: none"> > Manage flows between chain links quickly and efficiently; reduce distribution costs to remain competitive. This requires public (roads, ports, storage facilities) and private (processing, storage, logistics, etc.) infrastructure that could be provided through partnerships
Certification, grades, and standards	<ul style="list-style-type: none"> > Consistent, credible application of standards on food safety and quality specifications. Establishment of certification agencies that provide affordable services to smallholders could require public-private partnerships. Government could influence formation of standards (jointly with private sector) customized to the needs of smallholders
Coordination mechanisms	<ul style="list-style-type: none"> > Public sector responsibility for regulation to ensure competition and enforcement of contracts could be developed jointly with the private sector and smallholders

The role of Purchase for Progress (P4P)

Purchase for Progress (P4P) is a five-year pilot initiative initiated by the World Food Programme (WFP), the Bill & Melinda Gates Foundation and the Howard G Buffett Foundation in 2008 and managed by WFP. Within the framework of this initiative, stable demand from WFP and partners provides smallholder farmers with an incentive to invest.²⁰

In 2015 in Ethiopia, WFP bought 30,000 metric tons (MT) of maize from smallholder farmers. The use of forward delivery contracts (FDCs) – enabled by a successful collaboration between the government, banks, cooperative unions (CUs), donors, and NGOs – has played a key role in making this possible. WFP contracts enabled farmers' unions to access loans from the Commercial Bank of Ethiopia (this was previously restricted to exporters only), which in turn enabled the cooperatives to purchase food from their members, thereby integrating smallholder farmers into the market mainstream.²¹

The positive results of this partnership are many, ranging from enhanced leadership and management capacity for women in both Rural Saving and Credit (RUSACCO) and Primary Cooperatives (PC) to P4P's locally procured food being served in WFP school meals in 37 pilot schools in Ethiopia. Nevertheless, initial estimates of the impact of P4P in Ethiopia do not find statistically significant differences in household welfare measures (real income, asset scores, livestock holdings, and food consumption scores) between non-P4P and P4P smallholder farmers. In fact, while the intention for P4P was to impact one level of the supply chain (smallholders), P4P interventions were directed at another level of the supply chain (the farmer organizations).²² Purchases and supply-side interventions had to 'trickle' down the supply chain from the CU to the PC to the

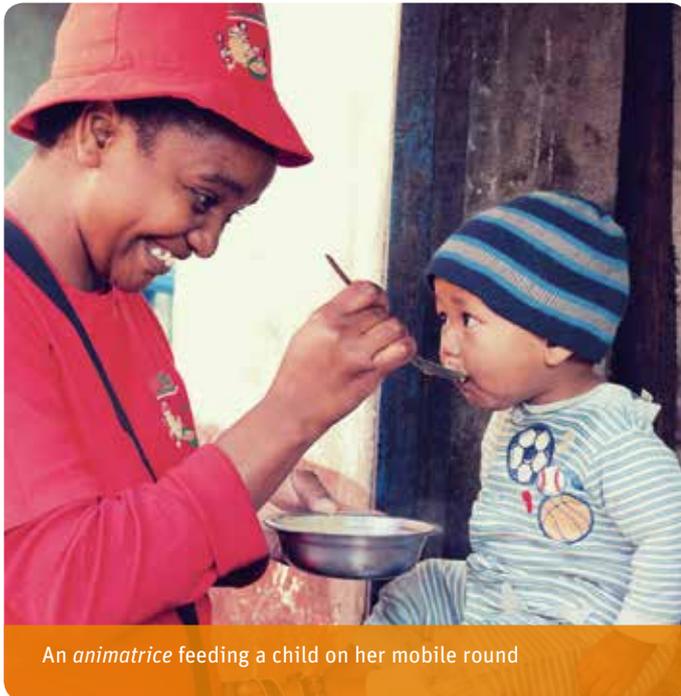
smallholder in order to have an impact, and thus they needed to be substantial enough to influence the behaviors and outcomes for smallholders.²²

Creating economically sustainable systems through the post-harvest supply chain

In terms of economic sustainability, for the last 20 years, French NGO GRET has been testing different approaches in Madagascar to make high-quality complementary foods readily available to the greatest number of people without their having to depend on charity aid programs. Enhancing the nutritional quality of foods



A Malagasy Hotelin-Jazakely



An *animatrice* feeding a child on her mobile round

is an important determinant of health and social sustainability in the long run, as poor nutrition leads to diseases related to being overweight, obese or undernourished, which result in increased national healthcare expenditure and loss of income.

Nutri'Zaza (Table 2) is a Malagasy social enterprise that was set up in 2013 with a twofold aim: first, to put in place a socially sustainable approach whereby the developed system would be scaled up and have a significant nutritional impact, and second, to create an economically sustainable system that would not eternally depend on external grants but rather cover its own costs.^{23,24} Nutri'Zaza was created by GRET and other shareholders including TAF (the *Koba Aina* manufacturer), I&P and SIDI (two French investment funds), APEM (a local, Malagasy association) and GRET.²⁴ Nutri'Zaza sells *Koba Aina*, a local, industrially produced infant-and-young-children flour mix fortified with minerals and vitamins, and sells the product through three distribution networks. The first of these is the original distribution network of 'baby restaurants' (*Hotelin-Jazakely*) and the door-to-door mobile rounds led by so-called '*animatrices*,' in which context it is provided in the form of ready-to-eat porridge; the second is a traditional retail channel where *Koba Aina* is sold in single-serving sachets; and the third is an institutional distribution network through which the product is sold to NGOs, the United Nations and local institutions for them to distribute freely. The complementarity between these three networks ensures the profitability and sustainability of the social enterprise. Currently, the partnership benefits from a 1.2 million € subsidy from the "Agence française de développement," which also provides a subsidy to GRET to support the project, and 509,000 € from its shareholders until it reaches a minimum sales volume,

enabling it to cover its costs. It is expected to become financially independent in 2018.

In terms of results, Nutri'Zaza currently employs 80 people, works with 40 women, and is present in 23 cities in Madagascar. Although more than 12.5 million meals have been distributed since 2013 and about 17% of infants in baby restaurant neighborhoods are regular consumers (more than 25 meals/month), the nutritional impact of Nutri'Zaza still needs to be assessed.

Conclusion

Although there would appear to be a lot of evidence on the relevance of PPPs during the initial phases of projects (illustrated by the examples of PAFA, P4P and Nutri'Zaza), and numerous positive impacts for the beneficiaries, further investigation shows that there are very few independent rigorous assessments of the impact of private-sector engagement on improved maternal and child nutrition, and that there is therefore not enough evidence to support broad statements. Enhancing sustainability is also about measuring impact and ensuring accountability. Where the evidence base is weak, efforts must be made to investigate further. Caution is therefore necessary when assessing criticisms or commendations of PPPs in food systems, particularly when it comes to suggesting their positive impact on nutrition.²⁵ While the case studies are instructive and do give an overview of the range of different levels of outcomes (not enough evidence and/or enough evidence which needs further research), increasing and more relevant evidence on the indirect outcomes needs to be generated in order to establish the link between PPPs and improved maternal and child nutrition (e.g., malnutrition rates, changes in diet, and feeding practices).

Throughout the literature, there seems to be general agreement that continued collaboration across sectors is fundamentally needed. Although not explored in this article, there are several best-practice examples from which we can certainly learn. Transforming the food system will require numerous interventions at various levels ranging from local-level innovations to a reform of the global-level governance of food, health, nutrition and agriculture. Additionally, accountability needs to be pursued so as to optimize the effectiveness of PPPs and, most importantly, to investigate their impact on maternal and child nutrition.

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 "Enhancing sustainability is also
 about measuring impact"

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TABLE 2: Roles, interests and elements for success of Nutri'Zaza partners

Partner	Roles & Interests	Elements for success
<p>TAF is a major local agrifood company created in 1945, specializing in coffee roasting, tea production and various spices of Madagascar. It is the producer of <i>Koba Aina</i>, and its sole supplier. It signed an exclusive contract with Nutri'Zaza for its distribution.</p>	<ul style="list-style-type: none"> > TAF is a 20% shareholder in Nutri'Zaza and the producer of <i>Koba Aina</i>. The company ensures the quality and thus the reliability of the product. > TAF's investment in Nutri'Zaza stems primarily from a social, not financial, motivation. 	<p>Shared goal: The five shareholders all agreed on the social purpose of the company and agreed not to receive dividends beyond the amounts initially invested. All profits will be directly reinvested into the company, to expand and improve the <i>Hotely-Jazakely</i> network.</p> <p>Local context: <i>Koba Aina</i> is produced from local raw material except for the vitamins and minerals; the product is in line with international quality standards that were elaborated with research partner IRD; its producer, TAF, is a local company; the product is adapted to the local context in terms of pricing, taste and format; Nutri'Zaza created jobs locally for female "<i>animatrices</i>"; the distribution network of <i>Hotely-Jazakely</i> was developed in partnership with Antananarivo University.</p> <p>Key metrics: Production of social indicators that will allow the Ethics and Social Monitoring Committee to report annually on Nutri'Zaza's social mandate (e.g. price of <i>Koba Aina</i>, number of <i>Hotely-Jazakely</i> opened, job creation and salary etc.).</p> <p>Sustainability: The social business approach was introduced to ensure the program's sustainability; Nutri'Zaza still receives funding from public sector (EUR370,000 p.a.) until full economic viability in 2018; the Nutri'Zaza White Book was developed to replicate the Nutri'Zaza experience and contribute to the debates on social entrepreneurship.</p> <p>Governance: To secure its social mandate, several safeguards were implemented, including a shareholders' agreement and binding statutes, a charter, and the creation of an ethics and surveillance committee made up of GRET's former research, policy and technical partners in Madagascar.</p> <p>Added value/complementarity: GRET has been active on the ground in Madagascar since 1994. Its close relationships with the Ministry of Health, the Malagasy Nutrition National Board and the University of Antananarivo, along with its reputation and expertise in the field, make it well placed to steer and maintain the project's social vocation.</p>
<p>GRET is a French development NGO, which has been active for 40 years, from the field to the political sphere, in the fight against poverty and inequality. It is Chairman of the Board of Nutri'Zaza.</p>	<ul style="list-style-type: none"> > GRET is a 44% shareholder in Nutri'Zaza. <i>Hotelin-Jazakelys</i> were developed in 1994 as part of GRET's program in Madagascar (Nutrimad). They serve as the basis of Nutri'Zaza. GRET provides technical support to Nutri'Zaza (through its contract with the "Agence française de développement" it chairs the Board of Nutri'Zaza and shares experiences and lessons learned, with the aim of replicating the model and scaling it up in different contexts. > GRET's interest lies in improving the nutritional status of the population, contributing to development, and steering an innovating social entrepreneurship experience. 	<p>> TAF brings product quality and reliability to this partnership.</p> <p>> Capital from the social investors (SIDI and I&P) enables Nutri'Zaza to consolidate its economic model and to diffuse its social impact before ensuring capital gains and to deploy at larger scale.</p> <p>> APEM's expertise in promoting entrepreneurship specifically in a Malagasy context makes it a key partner to further sensitize Madagascar to the concept of a social enterprise and to pave the way for scale-up.</p>
<p>I&P (Investisseurs & Partenaires) aims to finance and support entrepreneurs in Africa.</p>	<ul style="list-style-type: none"> > I&P is a 22% shareholder in Nutri'Zaza. It has a seat on the Board of Directors and influences strategic decision-making based on its experience. 	
<p>SIDI is a French social investor and has a long-term presence in Madagascar alongside Malagasy microfinance institutions and producer organizations.</p>	<ul style="list-style-type: none"> > SIDI is a 22% shareholder in Nutri'Zaza. It also brings to the Board of Directors its experience as a social investor, and influences strategic decision-making. 	
<p>APEM is a non-profit organization that was founded in 1987 by twenty members of the Business Group in Madagascar. It aims to fight against poverty by enabling micro and small enterprises to access microfinance services.</p>	<ul style="list-style-type: none"> > APEM is a 2% shareholder in Nutri'Zaza. It has a seat on the Board of Directors and influences strategic decision-making based on its experience. 	

References

01. IFPRI. 2014–2015 Global Food Policy Report [Internet]. Washington, DC: International Food Policy Research Institute, 2015. Available from: www.ifpri.org/publication/2014-2015-global-food-policy-report.
02. Bryce E. Food at COP21: Three new initiatives spotlight food insecurity, soils, waste [Internet]. The Guardian, 2015 [cited March 20, 2016]. Available from: www.theguardian.com/environment/world-on-a-plate/2015/dec/04/food-at-cop21-three-new-initiatives-spotlight-food-insecurity-soils-waste.
03. COP21 is the '2015 United Nations Climate Change Conference', which took place in November 2015 in Paris and led to 195 countries adopting the 'Paris Agreement', which lays out essential goals to reduce climate change.
04. Stetson N. COP21: What it means for agriculture and global food security [Internet]. DipNote, 2016 [cited March 20, 2016]. Available from: <https://blogs.state.gov/stories/2016/01/08/cop21-what-it-means-agriculture-and-global-food-security>.
05. HLPE. Food losses and waste in the context of sustainable food systems – a report by the high-level panel of experts on food security and nutrition of the Committee on World Food Security [Internet]. Rome: High Level Panel of Experts, 2014. Available from: www.fao.org/3/a-i3901e.pdf.
06. The World Bank. The Future of Food: Shaping the Global Food System to Deliver Improved Nutrition and Health. [online] World Bank, 2016. Available at: www.worldbank.org/en/topic/agriculture/publication/the-future-of-food-shaping-the-global-food-system-to-deliver-improved-nutrition-and-health [Accessed September 13, 2016].
07. FAO. The State of Food and Agriculture – Food Systems for better nutrition. Rome: Food and Agriculture Organization, 2013.
08. IPES-Food. 10 principles to guide the transition to sustainable food systems [Internet]. 1st ed. IPES-Food, 2015 [cited March 21, 2016]. Available from: www.ipes-food.org/10-principles-to-guide-the-transition-to-sustainable-food-systems.
09. Smith B. Developing sustainable food supply chains. Philosophical Transactions of the Royal Society B: Biological Sciences 2008;363(1492):849–861.
10. Narrod C, Roy D, Okello J et al. Public-private partnerships and collective action in high value fruit and vegetable supply chains. Food Policy 2009;34(1):8–15.
11. Searchinger T, Hanson C, Ranganathan J et al. Creating a sustainable food future: Interim findings [online]. World Resources Institute, 2013. Available at: www.wri.org/sites/default/files/wri13_report_4c_wrr_online.pdf [Accessed October 12, 2016].
12. UNCTAD. Commodities and Development Report 2015 – Smallholder Farmers and Sustainable Commodity Development. New York & Geneva: United Nations, 2015.
13. Chan M. Improving Opportunities for Women in Smallholder-based Supply Chains [online]. Bill & Melinda Gates Foundation, 2010. Available at: <https://docs.gatesfoundation.org/Documents/gender-value-chain-guide.pdf> [Accessed September 13, 2016].
14. Arias P, Hallam D, Krivonos E et al. Smallholder integration in changing food markets. Rome: Food and Agriculture Organization, 2013:210.
15. Tripathi R, Chung YB, Deering K et al. What Works for Women: Proven approaches for empowering women smallholders and achieving food security. Oxfam Policy and Practice: Agriculture, Food and Land 2012;12(1):113–140.
16. Diouf S. IED Afrique | Innovations Environnement Développement [online]. Iedafrique.org, 2016. Available at: www.iedafrique.org/PAFA-Senegal-Faciliter-l-acces-aux.html [Accessed September 20, 2016].
17. Seneweb News. Bassin arachidier : le PAFA garantit la sécurité alimentaire de "près de 26 mille ménages". [online], 2016. Available at: www.seneweb.com/news/Societe/bassin-arachidier-le-pafa-garantit-la-se_n_155125.html [Accessed September 21, 2016].
18. Fall A. Des lignes de politique en sécurité alimentaire réussies pour la réduction de la pauvreté au Sénégal [online]. Dakar: Laboratoire de Recherche sur les Transformations Economiques et Sociales, 2013. Available at: <http://lartes-ifan.org/pdf/Des%20lignes%20de%20politiques%20en%20sécurité%20alimentaire%20réussies%20pour%20la%20réduction%20de%20la%20pauvreté%20au%20Sénégal.pdf> [Accessed September 21, 2016].
19. Ledakarois, (n.d.). Revue du projet d'appui aux filières agricoles - Sous le sceau de la consolidation des acquis [online]. Le Dakarois. Available at: www.ledakarois.net/sous-le-sceau-de-la-consolidation-des-acquis.html [Accessed September 21, 2016].
20. World Food Programme. Purchase for Progress | WFP | United Nations World Food Programme – Fighting Hunger Worldwide [online]. Wfp.org, 2016. Available at: www.wfp.org/purchase-progress [Accessed September 21, 2016].
21. Bruce M. Global food security. London: The Stationery Office, 2013.
22. Lentz E, Upton J. Benefits to smallholders? Evaluating the World Food Programme's Purchase for Progress pilot. Global Food Security 2016.
23. Bruyeron O. 3 questions to Nutri'zaza and partners – Gret [online]. Gret, 2015. Available at: www.gret.org/2015/11/3-questions-a-nutrizaza-partenaires/ [Accessed March 23, 2016].
24. Nutri'Zaza, Gret, Sidi. Nutri'zaza L'entreprise sociale contre la malnutrition à Madagascar Dossier de presse – Remise des Grands Prix de la finance solidaire 2 novembre 2015 [online], 2015. Available at: www.sidi.fr/wp-content/uploads/2015/06/DP_Nutrizaza_Remise-du-Prix-Finance-solidaire.pdf. [Accessed April 22, 2016].
25. Hoddinott J, Gillespie S, Yosef S. Public-Private Partnerships and the Reduction of Undernutrition in Developing Countries. SSRN Electronic Journal 2015;(01487).