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Knowledge sharing to improve the sustainability of food systems in West Africa: lessons learned from the Food Systems Caravan

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Knowledge sharing and co-creation for application offer pathways for the multidimensional challenges of food systems in West Africa which are to date still largely underexplored. They have the potential for the emergence of effective communities of practice to tackle some of the serious threats West African food systems face today, some of which are rooted in long-term exploitation by internal and external colonial and post-colonial powers. The Food Systems Caravan project (www.foodsystemscaravan.org) sought to break knowledge barriers among the different stakeholders and generations of West African food systems. The project brought together policy makers, researchers, farmers, extension officers, students, non-governmental organizations (NGOs) and other stakeholders in a series of events to promote learning, knowledge sharing and dialogue in Benin, Burkina Faso, Ghana, Mali, and Nigeria for a shared understanding of the challenges and solutions to West Africa food systems. The experience of the Food Systems Caravan showed that participatory knowledge sharing methods empower local and national players, enhance cross-learning and activate stakeholder networks. The project explored and experimented with innovative multimedia and incentivising approaches to development work that could be replicable and used to activate change in a more effective way compared to traditional north-south development efforts.

Keywords: food systems; Food Systems Caravan; knowledge sharing; agroecology; sustainable food systems; youth; students; competitions; research for development; West Africa; Benin; Burkina Faso; Ghana; Mali; Nigeria

Le partage des connaissances et la co-création pour l'application offrent des voies pour les défis multidimensionnels des systèmes alimentaires en Afrique de l'Ouest qui sont à ce jour encore largement sous-explorés. Ces deux approches ont le potentiel pour l'émergence de communautés de pratiques performantes pour faire face à certaines des menaces graves auxquelles les systèmes alimentaires ouest-africains sont confrontés actuellement et dont certaines trouvent leur origine dans l'exploitation à long terme par les puissances coloniales et postcoloniales internes et externes. Le projet Food Systems Caravan (www.foodsystemscaravan.org) a cherché à briser les barrières de connaissances entre les différentes parties prenantes et générations des systèmes alimentaires ouest-africains. Le projet a réuni des décideurs politiques, des chercheurs,

des agriculteurs, des agents de vulgarisation, des étudiants, des ONG et d'autres parties prenantes dans une série d'événements visant à promouvoir l'apprentissage réciproques, le partage des connaissances et le dialogue au Bénin, Burkina Faso, Ghana, Mali et Nigeria pour une compréhension commune des défis et solutions aux systèmes alimentaires d'Afrique de l'Ouest. L'expérience de la Caravane des systèmes alimentaires a montré que les méthodes participatives de partage des connaissances autonomisent les acteurs locaux et nationaux, améliorent l'apprentissage croisé et activent les réseaux endogènes de parties prenantes. Le projet a exploré et expérimenté des approches multimédias et incitatives innovantes pour le travail de développement qui peuvent être reproduites et utilisées pour activer le changement de manière plus efficace par rapport aux efforts traditionnels de développement nord-sud.

Mots-clés: systèmes alimentaires; Caravane des systèmes alimentaires; partage des connaissances; agroécologie; systèmes alimentaires durables; recherche pour le développement; Afrique de l'Ouest; Bénin; Burkina Faso; Ghana; Mali; Nigeria

1. Introduction

Addressing food systems complexities in cross-project synthesis

West African food systems face complex and interconnected challenges that pose serious threats to the food security of the region's growing population (CEDEAO-CSAO/OCDE, 2007). Reliant on rain-fed agriculture and employing around 60% of the population, West African food systems are at risk by increasing climate variability and temperatures rising above global levels (ECOWAS, 2015). Declining soil fertility across most of West Africa affects land productivity and reduces the soil and the agricultural systems' capacity to adapt to a changing climate (Stewart et al., 2020).

Adequate responses to these socio-ecological challenges have to consider the specific characteristics of the region, where 70%-80% of the entire population - with the exception of parts of Côte d'Ivoire, Mauritania and the coastal urban areas of Ghana and Nigeria - lives on less than two euros a day (Jalloh et al., 2013). The lack of access to finance and resources limits the ability of farmers to respond to the urgent challenges they face (ECOWAS, 2015). Solutions are necessary that build resilience through the synergies between the elements in the system while favouring local resources, small-scale interventions and labour-intensive practices. Agroecological approaches address many of West Africa's food system challenges, however, the potential for action towards the development of appropriate agroecological practices is limited. The International Panel of Experts on Sustainable Food Systems (IPES-Food) analyzed the agroecological movement . It finds that the movement is fragmented and

that there tends to be a lack of interaction between the different actors that are part of the food system (IPES-Food, 2020).

According to the IPES-Food report, the potential of agroecology to increase the sustainability of West African food systems is severely hampered by the failure to communicate the existing research and evidence on the performance of agroecology coupled with the phenomenon that many initiatives and platforms supporting the agroecological transition in West Africa remain isolated, poorly documented, and insufficiently coordinated with each other (IPES-Food, 2020). The same panel advocated for an 'alliance-building and collective action' approach as an essential leverage point in order to unlock the potential of agroecological transition in West Africa (IPES-Food, 2020). Thus, building a cross-country and cross-sector network to share knowledge and experiences and enabling fruitful collaborations are leverage points for the agroecological transformation of the food system. The design of the here portrayed Food Systems Caravan project took into account the complexity spurred by the multiple challenges related not only with the biophysical context of West African food systems, but also the institutional, educational and social challenges faced by students, farmers, and particularly the rural women and youth. The project benefited from synthesis funding of the Swiss Programme for Research on Global Issues for Development (r4d programme) and was running in two phases from 2019 to 2020 (road tour) and from 2020 to 2021 (follow-up and outreach). It capitalized on the extensive networks and the knowledge generated by four of its transdisciplinary research partnership projects in West Africa. And it established new bridges between science, practice and information and communication technologies. One of its main goals was to activate knowledge-based change and disseminate examples of positive socio-ecological transformations adapted to the West African contexts.

Between 2019 and 2021, the Food Systems Caravan travelled more than 3500 km by land to organize conferences, farmers' field days, open classes and seminars in universities and secondary schools, knowledge sharing events with NGOs, and field workshops that reached a total of over 7400 participants. The events targeted policy makers, farmers, researchers, students, civil society actors, extension officers, the private sector and the general public. By connecting the research sites and West African collaborators with their shared challenges and experiences and by catalyzing the engagement of the local and national partners, the project sought to establish a long-lasting network to reach other engaged actors in the region.

Researching agroecological systems in partnership

The project built on the scientific evidence and results of four transdisciplinary projects that ran between 2015 and 2021 and focused on ecologically and socially sustainable solutions for food systems in West Africa: the Organic Resource Management for Soil Fertility (ORM4Soil) project[1], the Insect as Feed for West Africa (IFWA) project[2], the Sustainable Yam Systems (YAMSYS) project and the Towards Food Sustainability (FoodSAF) project.

The ORM4Soil project sought to contribute to identify and test technologies that are able to reverse soil degradation in Mali and Ghana with the use of local resources and techniques designed in a participatory way with farmers. The project has shown that the use of agroforestry techniques with multipurpose trees and the use of otherwise discarded local organic resources are suitable practices to improve yields and the level of soil organic matter, essential to retain moisture, provide nutrients to crops and contribute to climate change adaptation. The IFWA project addressed the challenge of many smallholder poultry and fish farmers who do not have appropriate access to protein rich animal feed, resulting in quantitative and qualitative feed shortages that affects the production of meat, eggs and fish. The project has shown that fly larvae and termites are economically, socially and environmentally viable sources of protein for poultry and fish feed on smallholder farms in West Africa, significantly enhancing local chicken growth performances and egg production. The project also facilitated the use of insects as feed as new opportunities for income generation among local populations, since the insects can be mass produced locally and on-farm. The YAMSYS project sought to address the challenge of lowering yam yields due to the high level of soil fertility required by these plants and its rapid decrease when the plot is cropped with yams. As this crop is extremely important for local culture, food traditions and food security, the project developed innovations in integrated soil fertility management for yam-based cropping systems. The project's results show that the adoption of such innovations can reverse the fast decline in soil fertility caused by yam crops and the deforestation that the traditional yam systems involve. With a stronger connection to governance issues, the FoodSAF project addressed the challenges of optimizing sustainability of food systems in a scenario of complex interactions between food production distribution and consumption, environmental impacts and social justice outcomes.

Besides these four research projects, which provided a first basis to the jointly organized knowledge sharing events and workshops, the Food Systems Caravan involved many other institutions, projects and individuals in the process. The diversity of actors brought other perspectives and experiences that broadened and contextualised the scope of the discussions and enriched the debate about how to support the agroecological transition of West African food systems. In close partnership with the networks of each mentioned project, the Food Systems Caravan organized a series of different types of events between September 2019 and August 2021, as described in Table 1. Besides the organization of the 73 events mentioned above, the Food Systems Caravan included also the creation and dissemination of multimedia material relevant to farmers and other stakeholders, as well as a Student Project Award to directly engage students in the thinking and transformation of local food systems. These components are developed in section 3 and 4 of the paper, respectively.

Table 1. Number of participants per type of event organized by the Food Systems Caravan.

Type of event	Number of activities	Number of participants
Full-day conferences	6	638
Open classes and activities with students	21	3379
Farmers' trainings and awareness-raising activities	36	2955
Scientific workshops	2	60
Activities with other actors (ngos, private enterprises, local authorities)	8	158
Total	73	7190

2. Transdisciplinary knowledge sharing to establish new dialogues concerning West African food systems

The divide between research and practice has long been recognized as a hindrance to an effective knowledge sharing and co-creation in food systems, particularly affecting the end users of newly generated knowledge (Merril-Sand and Collion, 1994). On the other hand, multi-stakeholder learning processes have proven to empower farmers and other stakeholders to become agents of innovation and transformation of their systems (Dolinska and Aquino, 2016; Akpo et al. 2015). This is in contrast to how knowledge transfer is still organized in the context of African agricultural systems: Knowledge transfer builds on inefficient and hierarchical extension services (Assefa et al., 2014), often rooted in the colonial period (Mukembo and Edwards, 2015). A general lack of systems approaches hinders the adoption of sustainable practices (Mbow et al., 2014).

With these premises in mind, the Food Systems Caravan project designed events and workshop formats that sought to break the usual barriers and hierarchies observed in the knowledge and management processes within the sub-Saharan food systems. The agroecological innovations and lessons compiled in the four research projects helped mapping the initial Food Systems Caravan network. The early involvement of all relevant stakeholders in a transdisciplinary setting was a key principle in the project's implementation. The underlying assumption was that involving different types of actors from the start would enable their ability to express and identify problems and solutions related to the research subjects of the different projects. This helped set the base for an evident consideration of farmers' perspectives by other stakeholders upon the sharing and joint discussion of the projects' results, which is consistent with the growing recognition for the inclusion of farmers' voices in different research contexts (Nyadzi et al., 2021). Indigenous traditional knowledge was a

core value in the project's activities and guided the participatory knowledge sharing process, with contributions by scientists, technicians, practitioners and other stakeholders. This transdisciplinary approach had the agroecological transition of the local food systems in sight, with a particular focus on the end users of the discussed approaches and technologies.

Weaving networks for knowledge sharing and collective action

With the extensive stakeholder mapping and partnership network relations in place the Food Systems Caravan identified prior to each event key actors of the agroecological movement in the five countries, involving them in a participatory way in the events and workshops it organized along the way, and thus providing a platform for different actors to meet each other and present the results of their experiences to each other. Some NGOs, university representatives and research institutions were also invited to participate in events in the neighbouring countries, thus promoting the weaving of a network, not only at the national level, but also across borders. The facilitation of such a network building process sought precisely to contribute to reducing the above-mentioned fragmentation of the agroecological movement in West Africa. The Food Systems Caravan thus worked to take a first step in bringing different actors together, enabling the subsequent emergence of new alliances in a self-organized way and independently of external facilitators.

The experience of the project has shown that such events and workshops can contribute to reducing the fragmentation of the local agroecological movements, which exists partly due to the lack of investment and resources allocated to agroecology in the West African context. Providing a platform for NGOs, farmers' representatives, researchers and private actors to meet and exchange their results and engage in a common dialogue generated novel bridges for new collaborations. This is illustrated for example by a university researcher's comment after the conference in Cotonou: 'Now that we met other people engaged in agroecological research and implementation in Benin, we can create new projects together and we don't feel so isolated anymore'; or by the testimony of a participant from a Malian NGO in the conference of Bamako: 'It is very empowering to meet other people involved in the agroecological transformation of food systems, and initiatives we had no idea existed in our own country.' Furthermore, after the project's completion in 2021, the responses from participants of the project's events in Mali, Benin, Nigeria and Ghana to an online questionnaire, point out the expansion of their contact networks, with some of those new contacts resulting in collaborations with partners that they encountered thanks to the Food Systems Caravan activities.

By providing a platform to communicate existing evidence on the performance of agroecological techniques, the Food Systems Caravan events also facilitated the dissemination of certain innovations. For example, the agroforestry approach with the multi-purpose tree *Gliricidia sepium* brought by ORM4Soil is now being tested and disseminated by the NGO

New Tree/Tiipaalga[3] to farmers in Burkina Faso. The rearing of black-soldier fly for poultry feed, studied by the IFWA project, is being applied by project participants in Mali and Nigeria. The NGO OPC[4] in Ghana is disseminating the use of the empty fruit bunch from oil palm as an organic soil amendment in its intervention region in Western Ghana, following the lessons learned by the ORM4Soil project in the Eastern part of the country. As a result of a series of encounters during the Food Systems Caravan process, the same NGO partnered with the university of Ghana, the West Africa Feeds company, the CSIR- Animal Research Institute, FiBL Switzerland and an independent group of farmers in a new applied research project that combines the lessons learned by ORM4Soil and IFWA.

The above-mentioned cases demonstrate how, with relatively few resources, it is possible to provide meaningful platforms to facilitate the networking between different actors working on agroecological practices that can increase the sustainability of food systems in West Africa. The project's experience shows that the weaving of such networks can quickly catapult evidence-based results into practice and originate new regional and local collaborations that unleash the potential of an otherwise fragmented agroecological movement within the food systems of West Africa. Above all, it creates respect for and confidence in the knowledge and capacity of regional actors and their contextualised initiatives.

Two design elements of the Food Systems Caravan particularly stand out with empowering and game-changing potentials. First, the creation and dissemination of multimedia and audiovisual material portraying regional actors and initiatives. Second, the inclusion of students into the network and the support of their ideas for changing West Africa's food systems.

3. The power of media in catalyzing discussions

A transition based on agroecological principles partly relies on farmers' ability to access good quality information and knowledge, which is inhibited by high levels of illiteracy, a lack of good quality extension services and the low level of access to information sources, particularly among women and the youth. Agricultural learning videos have been proven as effective tools to increase access to knowledge in the context of rural Africa (Bentley et al, 2019), and can be particularly instrumental in closing gender gaps in what comes to access to agricultural knowledge (Zossou et al., 2017).

Farmers in West Africa regularly use videos in their mobile phones, not only to entertain themselves, but increasingly also as a learning tool. However, many say they do not know where to find them and that most of the available ones are of reduced quality or low interest (Sousa et al., 2019). The growing use of videos on a regular basis and the possibility of

sharing them without cost with other farmers via bluetooth, means that this technology holds a great potential not only to improve the accessibility of agricultural related information to farmers, but also to empower them to become the owners and distributors of relevant information (Sousa et al., 2019). Consequently, the Food Systems Caravan engaged an internationally awarded filmmaker in order to develop short videos, mini-documentaries and a full-length film to portray appropriate agroecological practices to a wider audience. The videos and the documentary were screened in over 60 events with farmers and students during the follow-up and outreach phase of the project in 2020 and 2021.

The short videos and the mini-documentaries show the results of r4d projects and the achievements of different NGOs and initiatives with significant contributions to the agroecological transition of local food systems. The full-length film, entitled 'La Veine Verte' (the Green Vein), brings together the showcase of agroecological practices in the region with personal testimonies of actors engaged in the improvement of the sustainability of West African food systems. These outputs have been designed to reach a wide range of stakeholders, excluding excessively technical language and using 'role models' to communicate practices that can be relevant for the end users. The screenings have demonstrated the power of videos to catalyze discussions between stakeholders and to provide insights to in-depth reflections about local food systems. The debates with farmers and students that followed the screening of the videos illustrated this power, engaging the audience and enabling them to connect to the content in a close, more personal way. The documentary film, in particular, provided a convincing tool to approach the complexity of food systems, due to the ability of alternating complementary perspectives in a relatively short period of time. Besides screening the videos, these were also shared with farmers via Bluetooth during the events, making it possible for the participants to not only store the information but also to become the disseminators themselves. The empowering aspect of this type of knowledge sharing was greatly appreciated by farmers.

The interpersonal dialogue portrayed in the videos and film, where a wide diversity of actors such as farmers, researchers, students and civil society actors interact with each other in an assemblage of perspectives, dissolves the barriers between different types of stakeholders and shows their complementarity. We argue that this aspect can enable new bridges between different perspectives and lay the ground for a more complementary and constructive dialogue rather than a competing or dominating one. By enabling a dissolution of certain barriers between stakeholders that have traditionally asymmetrical power relations, such as farmers and researchers or policy makers, video facilitated discussions can contribute to a decolonization of typically dominant perspectives and focus on a more collaborative approach. This tool can therefore have a constructive role in facilitating a more democratic and participatory approach to development, if used with this purpose.

Farmers were particularly interested in more practical approaches, and expressed their wishes to learn more about practices such as those portrayed in the IFWA and ORM4Soil learning videos. As a result of the viewing of these videos, farmers have requested the organization of practical workshops about the use and reproduction of black-soldier fly larvae for poultry feeding practices disseminated by the IFWA project. Workshops took place in Mali and Nigeria, two countries where the project was not initially present, thus showing the power of videos to disseminate the projects' results in other contexts.

4. Engaging students as change-agents: the Student Project Award

Even though Africa boasts the youngest population in the world, the potential of its youth's transformative power for collective prosperity remains hampered by the exclusion of young Africans from participating in decision making processes and from having access to resources (UN, 2017). Furthermore, IFPRI's Global Food Policy Report (2020) highlights the importance of including the youth in building more resilient food systems. In effect, students and universities are recognized as having a promising role as change-agents in resource-poor settings (Petersen and Kruss, 2021) and known to significantly contribute to build capacity for sustainable development (Hansen and Lehmann, 2006), if the conditions are provided. In order to tap into the creative power of students, the Food Systems Caravan launched the Student Project Award, a contest to challenge students into thinking critically about their contexts and finding appropriate solutions to identified problems using systems thinking and agro-ecological principles.

The Award was promoted at the five open classes in universities that the Food Systems Caravan organized along its path. The classes took place in the Rural Polytechnique Institute of Koulikoro (IPR), Mali, the University Nazi-Boni (UNB), Burkina Faso, the Millar Institute for Transdisciplinary and Development Studies (MITDS), Ghana, the University of Abomey-Calavi, Benin, and the University of Ibadan, Nigeria. In Benin, the information was spread to other universities such as the University of Parakou. Students in these institutions received USB memory sticks containing a set of digital documents related to agroecology and systems thinking, as well as the guidelines of the Award. A total of thirteen proposals were subsequently submitted and a team of reviews selected five of them as winners. The winning student teams received a budget of around 1500 euros each to carry out their initiatives. The awarded student initiatives included the implementation of agroforestry practices (Ghana); the establishment of a cooperative for agroecological food production and training (Benin); the training of youth and women in compost and biopesticide production and access to a local organic market (Nigeria); the organic production and training on traditional leaf vegetables (Benin) and the production and distribution of biopesticides produced with local ingredients (Benin).

Overall, the student teams organized trainings on agroecological practices for more than 200 farmers in their regions. Furthermore, the Student Project Award motivated the students in three of the teams to make their initiatives more official, registering them as youth associations to continue their efforts in the promotion of agroecological solutions in their context. The success of this initiative showed clearly that the identification of highly motivated actors can activate change in an effective way, even when resources are limited, providing a model for future development efforts.

Becoming change-agents: the experiences of students

All of the five student groups concluded their activities successfully and the reported results were evaluated in a positive way by the Food Systems Caravan team. One year and a half after completion of the student projects, the Food Systems Caravan team interviewed six of the students virtually. They all agreed that the Student Project Award had a transformative impact in their lives by allowing them to realize their creative potential while contributing to improve their communities.

All of the students expressed gratitude for the opportunity of building their capacities and increasing their self-confidence, thus better preparing them for future endeavours as change-agents. As noted by a student from Benin, 'Students are the future leaders of the local change, so it is very important to engage them and make them feel like they can participate in that change', adding that 'the youth is very active and motivated, and they are well placed to be drivers of change because they are more aware of climate change, for example.' However, the context does not always enable students to fulfil their potential, with one student in Nigeria explaining that, sometimes, even the local authorities can create obstacles to change: 'It can happen that you organize an outreach activity to teach local farmers on some improved farming practices, but the local leaders still want you to give them money before you get access to their farmers.'

One of the points that students raised was that it was very gratifying to become a role model to other students, with another student in Benin saying: 'Our experience was magical. We have seen other students around us gaining awareness of their power to change things. Some of them even developed ideas to join us and support our vision.' The same student added: 'The project came at the right moment to allow us to make our dream come true and therefore contribute to the wave of change happening among the youth.'

Another point raised by different students was that the opportunity to develop their own project gave them visibility in their context. One student in Ghana said: 'Other organizations contacted us to know more about what we were doing and also about the Food Systems Caravan, and we started some new local partnerships with some of those contacts.' Similarly,

the previously mentioned Nigerian student said: 'Following our good visibility plan, we were quickly noticed by different organizations, and we granted an interview on a radio station. That was something new in my career. Also, the execution of the projects connected me with different stakeholders in the industry. Right now, I practically have connections with people in different fields, including universities and research institutions in Nigeria [...] My country/community is not affable with such transformative ideas, and I probably wouldn't have been able to achieve this without the Food Systems Caravan award.' One student from Benin, whose group focused on training on agroecological practices for farmers and schools, said 'The project really helped making ourselves known in the area. We have now established many connections with farmers and increased our knowledge on agroecological practices through the process of co-learning.'

The availability of the students to work with their local communities in a very direct and dedicated way has likely contributed to building trust relationships and therefore increasing the potential of their initiatives to create impact. Another student from Nigeria said: 'The award from the food systems caravan helped my team to train over 50 youth and women on the production of compost, organic vegetables, biopesticides, and entrepreneurship. Interestingly, some of our participants started their business after the training and this improved their livelihood.' His colleague from the same group added: 'As we speak, we now have more organic vegetable farmers in the Ajibode community of Ibadan, around the University of Ibadan [where the trainings took place].' The student from Ghana, whose team worked on increasing the number of trees in farmers' fields in the northern part of the country, expressed his satisfaction with the generated impact of his team: 'The communities have continued the tree nurseries we created with the project, and they integrated tree planting into their farming activities. Many of them started new nurseries in their backyards.'

In total, the awarded student groups trained more than 200 farmers on agroecological practices such as compost making, soil fertility management, biopesticide production and use, among other topics. Other direct impacts include the a) the creation of tree and vegetable nurseries in Benin and Ghana, b) the planting of hundreds of tree seedlings (Ghana), c) the establishment of an organic produce market at the university of Ibadan (Nigeria), d) the organisation of public screenings of agroecological videos for rural communities (Benin) and e) the awareness raising activities with at least 250 fellow students in the universities of Parakou and Cotonou (Benin) and Ibadan (Nigeria).

The Student Project Award sought to empower students to create their own initiatives to contribute to an agroecological transition in their food systems. Tapping into the creativity and motivation of local students proved to be a successful way to generate a positive impact, while developing the capacities of the leaders of tomorrow and empower the youth, a part of the local societies that is otherwise too often excluded from decision-making and local

development processes. We argue that this type of initiative should be replicated in order to empower youth in becoming change agents in their communities and generate impact using relatively few resources.

5. Multi-stakeholder perspectives on the agroecological transition of local food systems

The use of food-related multi-stakeholder platforms has been demonstrated to be effective in solving complex problems and strengthening the links to policy makers in West Africa (Ewijk and Ros-Tonen, 2021). Through the empowerment of farmers and other stakeholders in having their perspectives heard, multi-stakeholder platforms can more easily get to the root of the problem and, therefore, produce relevant policy recommendations, in addition to an enriching joint learning process (Malley et al. 2017). The direct involvement of a wide range of actors in the Food Systems Caravan process created an opportunity to engage different stakeholders in a dialogue on pathways to the agroecological transition of local food systems, particularly during the full day conferences.

Along its way, the Food Systems Caravan organized six full-day conferences in the cities of Bamako (Mali), Ouagadougou (Burkina Faso), Accra (Ghana), Cotonou (Benin) and Ibadan (Nigeria), with a total of more than 600 participants. In five of the conferences, one per country, special working group sessions were organized with the goal of drafting recommendations regarding the agroecological transition of national food systems. This resulted in unique situations and fruitful group discussions benefitting from 10 to 25 farmers' representatives, policy makers, researchers, extension officers, NGOs and other stakeholders in each group.

In the beginning of the working group sessions, five different topics were proposed and each participant joined the group of their preference for a focused discussion of around one hour. The topics, with minor adaptations in each context, were the following: 1) scaling-up of agroecological principles at the national level; 2) governance and innovations of food systems; 3) the potential of organic farming for the national context; 4) strategies to link science and practice for the development of agroecology; and 5) the promotion of agroforestry practices. For all working groups, a facilitator and rapporteur were chosen in the beginning of the discussion. The discussed five topics in each of the five conferences enabled a cross-country overview of drafted recommendations.

Multi-stakeholder recommendations for policy makers

The reports from all working groups were compiled and the drafted recommendations were qualitatively analysed. A total of 150 recommendations were produced by the working groups

and coded into 12 categories in three main clusters: 1) knowledge and education, 2) governance of food systems, and 3) development of the food sector. The cluster with the most recommendations was 'knowledge and education', with almost half of the total (N=74). 'Governance of food systems' followed with N=45 and the 'development of the food sector' had N=31. The 12 categories are shown in table 2.

Table 2. Identified categories of recommendations in the three clusters.

Cluster	**Categories of recommendations**
Knowledge and education (N=74)	Awareness raising, knowledge sharing, improvement of extension services, formal education and increased knowledge production
Governance of food systems (N=45)	Policy change, territorial governance, national regulation of organic agriculture, reinforced cooperation between food system actors and gender-based solutions
Development of food sector (N=31)	Improvement of value chains, infrastructure, equipment, and financial incentives

The single category of recommendations with the most mentions was 'knowledge sharing', followed by 'improvement of value chains, infrastructure and equipment', 'national regulation of organic agriculture' and 'awareness raising'. The category with the lowest mentions was 'gender-based solutions'. The number of recommendations per category is shown in Figure 1. Together, the categories 'knowledge sharing', 'awareness raising' and 'extension services' amount to 38% of the total recommendations, showing that knowledge transfer and dissemination of innovations are seen as a priority for the stakeholders that took part in the group discussions. This seems to reflect the findings of other authors who identify serious gaps between the existing knowledge and its accessibility to farmers in Africa (Adolwa et al., 2017, Gwandu et al., 2014). This also supports the Food Systems Caravan approach of using media to facilitate knowledge sharing, as described in section 3. The sum of recommendations in categories 'improvement of value chains, infrastructure and equipment' and 'financial incentives' is 20% of the total, which shows that after knowledge transfer and attitudinal change, sector development and economic support are seen as playing a key role in the agroecological transition of food systems. Recommendations that focused on 'gender-based solutions' were surprisingly low, showing there is room for improvement in what concerns the perception of the importance of participation of women and other marginalized groups in solution-oriented strategies to improve the sustainability of local food systems.

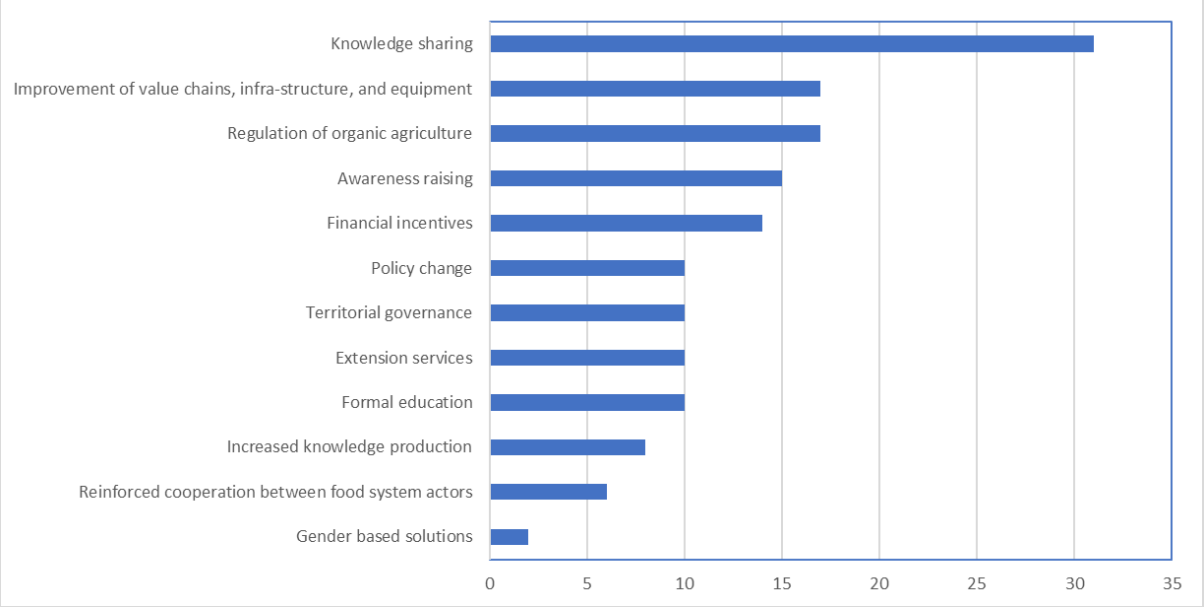

Figure 1. Number of recommendations per category.

6. Conclusions

The Food Systems Caravan built on four transdisciplinary, long-term research partnership projects with reliable relations between partners from West Africa and Europe. Through a synergy of actions of the regional partners and new actors, the Food Systems Caravan project critically enabled the solution-oriented sharing of knowledge on the agroecological transition in West Africa. This project established a sustainable network of actors from various backgrounds to share their challenges and experiences to reach other committed actors in the region. The diversity of actors contributed to the acknowledgement of different perspectives and experiences that broadened the scope of discussions and enriched the debate on how to accompany the agroecological transition of food systems in West Africa. Furthermore, the new alliances and collaborations that emerged from the process contribute to reducing the fragmentation of the agroecological movement in the region, which is considered as one of its main hindrances.

In its approach to valorise local and national competencies in the West African food systems, the Food Systems Caravan created and made use of three fundamental elements: i) the production and dissemination of multimedia and audiovisual materials, ii) the inclusion of students in the network and support for their ideas for changing West African food systems, and iii) the organization of multi-stakeholder events to enable cross-sector dialogues concerning the agroecological transition of local food systems.

The use of multimedia and audiovisual materials has demonstrated the power of these tools to catalyze discussions between a broad range of stakeholders while enabling new bridges between different perspectives. This helps lay the ground for constructive dialogues and facilitate a more democratic and participatory approach to development. We also suggest that video facilitated discussions can contribute to a decolonization of traditionally asymmetrical power relations, such as farmers and researchers or policy makers, due to its capacity of dissolving barriers between the portrayed actors and rather focus on the complementarity of their contributions. Also, the fact that the audiovisual material was dubbed into local languages enabled a more democratic access to knowledge, especially to traditionally marginalized groups. Moreover, this way of sharing knowledge in contexts in which the portrayed projects were not active was shown to be effective, resulting in examples of the adoption of certain practices and the request by farmers to be trained in specific innovations.

The success of the Student Project Award has clearly demonstrated that identifying highly motivated and committed local actors can effectively activate change, even when resources are limited, by setting up an efficient model for future development efforts. Specifically, the initiative harnessed the creativity and motivation of local students as an effective way to generate positive impact for change while developing the capacity of the leaders of the future. Likewise, the award contributed to empower the youth, a segment of the society that is usually marginalized in the local decision-making and development process in the West African region. We suggest that this approach can be replicated in future development efforts In the local and regional context, the Food Systems Caravan is today perceived as a success story. The network that was weaved by the project has contributed to strengthen the agroecological movement in the region and gathers the conditions to continue to thrive and grow. The sharing of knowledge and experiences with the traditional knowledge at its center, as well as the engagement of the youth as change agents in their communities, are core values in the project's approach, which we recommend to be applied and considered in future projects.

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