PROJECT «NETWORK FOR AGRICULTURE AND RURAL DEVELOPMENT THINK-TANKS FOR COUNTRIES IN MEKONG-SUB-REGION (NARDT)»

Regional research

Agricultural innovations review in Sub-Mekong region countries

Model of cricket farm using solar energy in Cambodia

2023

1. General information

Agri House Co., LTD began their operation in 2019 as a Khmer women led registered company, specializing in using innovative tech and solar-powered cricket farming to increase the yield. They are a wholesaler of cricket powder, premium cricket snacks and Cricket Incubator smart kits for farmers. The initial concept was drafted by Lundy Chou, the CEO and co-founder, and Ian Jones, the business advisor and co-founder.

By creating a climate-resilient solution, Agri House is able to use it as a purposeful design that promotes inclusivity, sustainable and nutritional food source for future generations. The Smart Kit innovation offers a passive income activity that taps into the local markets. It allows farmers to double their yield as well. It was created to solve problems—that marginalized communities were being left behind, especially people with disabilities, who have more difficulties finding a steady stream of income. Agri House also offers a buy-back scheme—meaning if there are any leftover crickets from their customers, they would be able to sell them back, however, no one has opted for this option yet.

In 2021 alone, the market scale of Agri House was able to expand to five provinces (Phnom Penh, Takeo, Kampong Thom, Kampong Cham and Sihanoukville, with local cricket sales totaling 1,405 kilograms per day. This equates to 512 tons per year in these five provinces alone. Report indicates that farmers who have access to finance quickly move from having 2 cricket raising pens to 10 pens.

2. Model development

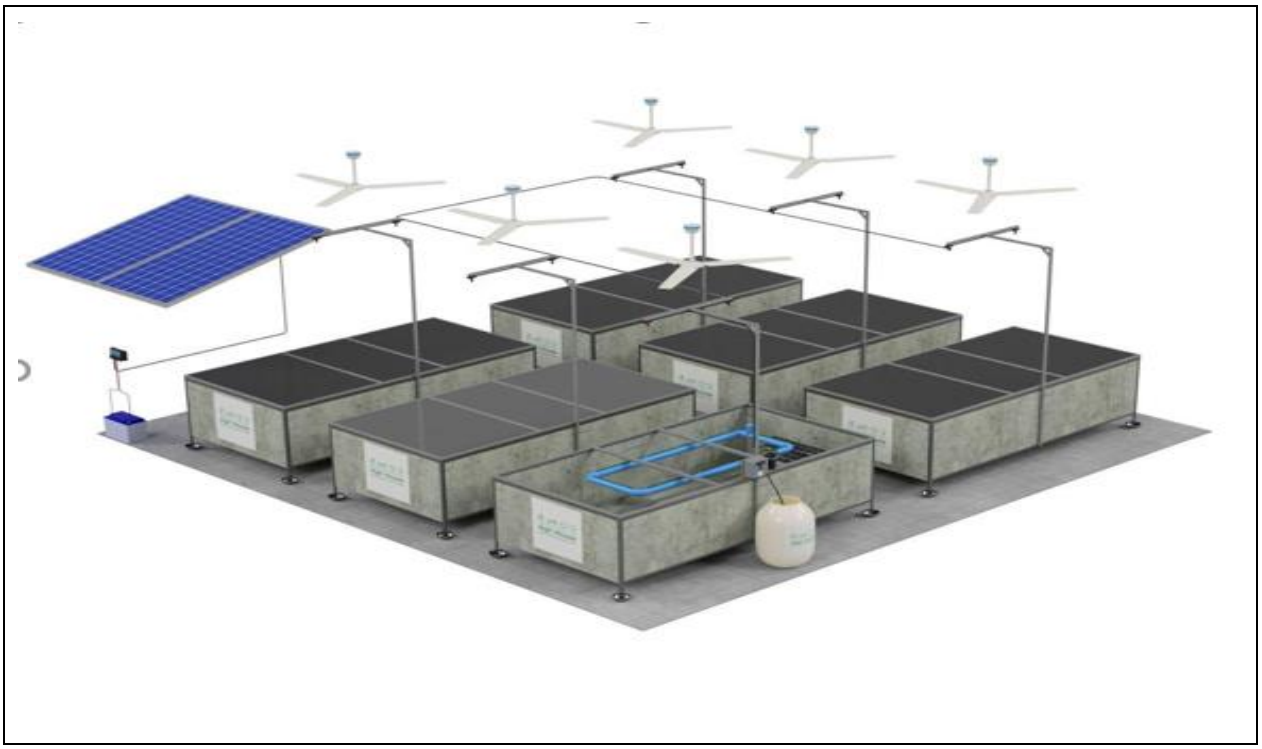
This innovation serves as a beneficial tool to Cambodian agriculture as it provides a viable income for small holder farmers and marginalized communities. The model itself is a micro-circular economy, the cricket produces frass (waste) that can be used to grow the green inputs that supplement feedstock and reduce the costs of raising. This system was first tested in Kandal on an urban farmer, who was displaced from Boeung Kok. It was also tested in Siem Reap and Kompong Thom. The international non-governmental organization (INGO) prefers this because Agri House offers them 3-4 months of support through consulting, technical support, introducing them to other suppliers, connecting them to the market and following up with them at least twice a week. In addition, the signed contract includes the buyback scheme so it builds a sense of security toward the farmers, who can sell it back to the company.

Agri House Co., LTD is now focusing on connecting Cambodian farmers to the national and international market. Their in-house engineer, Kun Kimlong, developed all of

their chip programming. They use solar power to regulate the cricket raising environment in the smart six pen. The regulation occurs via a programmed Arduino chip that regulates a prime raising- the humidity, the temp, the airflow, and the water. Agri House aims for 70% humidity and 28 degrees Celsius. Alteration was adapted according to each family, with some of the pens being cut into half and renovated in order to fit smaller spaces. They are currently using commercial feedstock and local green inputs. However, they are developing their own plant-based feed, which is 19-21% protein content. They spent a lot of time validating feedstock because the crickets require specific feeds and protein levels. Depending on the level of literacy of the farmer so they do have videos available to teach, can also connect via social media. If they are not literate, they can send voice messages or send videos as a form of communication.

Agri-Households partnerships with Euro Cham, through building a relationship with the European Market. Ly Ly food is their main partner for export, they also hold partnerships with Impact Hub, and World Food Program. They were able to get their primary income stream from The World Food Programme, and Samaritan's Purse, who also helps the farmers with the funding. Agri House also received a grant from Energy Lab, which was funded by UNDP.

Cricket farming using solar energy



Source: Country Report of CDRI, Cambodia.

3. Opportunities and challenges

Simple evaluation was made daily, through testing everything and making sure that they are in order. There are no exact criteria for evaluation, however. The innovation required a lot of time and can be costly. Due to the old traditional way of raising crickets, it is hard to convince potential customers to change their ways and be patient by following every particular step. It is about building, adopting, and finding someone to also validate their innovation. Thus, the only solution available is to keep being patient and pushing through to convince more people to change the way they raise crickets. In order to mitigate the challenges, Agri House requested that CapRed should support them in monetary funding and there should be research development that helps with pinpointing the challenges and finding solutions.

Right now, Agri House is working on their new products, which are cricket snacks, cricket powders and roasted crickets as a form of healthy superfood snack to also provide a new stream of revenue. Agri House currently is looking for support from the government since there is little to none for them to invest more into the crickets and insect industry, especially since Agri House is the first to register because it is difficult to find which exact sector they are in. Moreover, they are seeking for the government to boost the insect industry in Cambodia by expanding the market and making it easier to access. Because they are finding it difficult to do administrative work with the government, such as how the process works and who to meet in order to discuss and progress the work.

4. Conclusion

Agri House is a great gateway to serve as a model for using solar-powered technology and as an expansion in the cricket industry in Cambodia, not only with new ways to raise crickets, but also their healthy snack made from crickets or cricket powders. Furthermore, it helps with supporting marginalized groups, displaced people and women through providing passive incomes from UNDP and World Food Programme. They are seeking more support from the government in terms of broadening the scope of the insect industry in Cambodia. Cricket powders and snacks can be served as a healthy alternative source of protein for the future. It is also an excellent opportunity to learn about a lesser-known agricultural field that is prominent in Cambodia. /