



## A project that has a green thumb!

For more than 15 years, the promotion of agroecological techniques has been the heart of ADG's activity in Cambodia. However, this transition faces various obstacles, such as farmers' access to quality natural fertilizers.

First, the individual production of this type of fertilizer requires natural inputs sometimes difficult to access within farms. Second, the production of the fertilizer requires considerable energy for any farmers wishing to market their products on a larger scale. Third, these "homemade" fertilizers are sometimes of low quality. Lastly, the natural fertilizers available on the market are expensive and sometimes also poor quality. These difficulties result in slowing down the agroecological transition, which is essential for sustainable and respectful management of the soil.



In order to overcome these problems, ADG in partnership with the FAEC (Federation of Farmer Associations Promoting Family Agricultural Enterprise in Cambodia), aims to assist the farmers of the Otdomsoriya cooperative in the production of a high-quality natural fertilizer, "Bokashi", and to market it to other producers. Located in Takeo province, Otdomsoriya is an agricultural cooperative created in 2013 by a group of farmers who are collectively engaged in commercial activities such as the production of fertilizers, rice seed and rice. The cooperative now has more than 80 members, 34 of whom are women. For ADG and FAEC, the main objective is to improve the fertility of the soil by supporting Otdomsoriya in the production of this fertilizer, from the collection of natural inputs available in several cooperatives.



The goal is to get a fertilizer with high quality to allow to increase agricultural production and household income. Obviously, the challenge is also to create a Bokashi with affordable price to local people. To carry out this project, ADG and FAEC are working on three main axes: 1) Develop an efficient natural fertilizer formula adapted to the needs of small producers. 2) Set up the production system/facilities of this fertilizer. 3) Develop sales distribution channel and marketing strategy. These actions are aimed primarily at the

members of the cooperative. However, it will also attract other producers who want to use natural fertilizers but have neither the time nor the inputs to produce them.

Bokashi is a mixture of organic matter and microorganisms essential for the maintenance and improvement of soil structure, ventilation, water retention capacity and nutrient absorption capacity. The microorganisms used also improve soil resistance to various diseases and pathogens.

More importantly, over the long term, the experience with Otdomsoriya will serve as a model for other agricultural cooperatives and farmer organizations of the ADG network and the FAEC.



#### **The work of Aude and Odam, agronomy students.**

One is Belgian, the other is Cambodian. For their graduation work, they decided to integrate the Bokashi project. For them, the challenge of finding an alternative to the use of chemical fertilizers was a real source of motivation. Based on last years' experience, the Bokashi produced by the program already has an efficiency ratio three times higher than the natural fertilizer produced by farmers. However, it still has limited quantity of Nitrogen which is essential for the farmer need. Aude and

Odam's research will aim to improve the quality and effectiveness of the previous Bokashi, while maintaining an affordable price for local producers.

As Aude well points out, the development of Bokashi is far from the only result of student research. It is above all a team work with different skills and approaches. Indeed, the Bokashi is the accumulation of a three-year work that brings together the experience farmer's field farm, the knowledge of ADG agricultural engineers, the logistical and financial support of the FAEC, ADG and ALISEA, the exchange of techniques with other organizations and student researches. The first part of their work consisted in finding, based on the work of the previous student and other scientific studies, the appropriate methodology for improving the quality of the fertilizer.



Once the methodology was validated, both students demonstrated three different types of microorganisms that laboratory analysis revealed the most effective. The selected microorganisms were integrated into Bokashi. In April 5 and 6 with an atmosphere that was both serious and relaxed, and under a blazing sun, farmers and students produced 1.8 tons of Bokashi; they are testing the production. With the help of the farmers, Aude strives to set the stage for this experiment: making a new greenhouse and repairing an old one, taking daily measurements of PH and Bokashi temperature and preparing the seedlings for salad and Chinese broccoli.

While Odam, meanwhile, analyzes nitrogen, phosphorus, potassium, the number of microorganisms present and the moisture content of the samples in the laboratory. Every 4 days, Aude measures the size of Salads and Chinese broccoli.



The result show that with new method, the fertilizer could improve 20% of nitrogen while maintaining the same cost as the previous one. Finally, the Bokashi are ready to produce and supply to the market. Brochure, posters, Facebook page and awareness campaign are being created to promote the cooperative and its Bokashi.