



## Design and local production of ergonomic tools for farmers in the Northern Region in Ghana

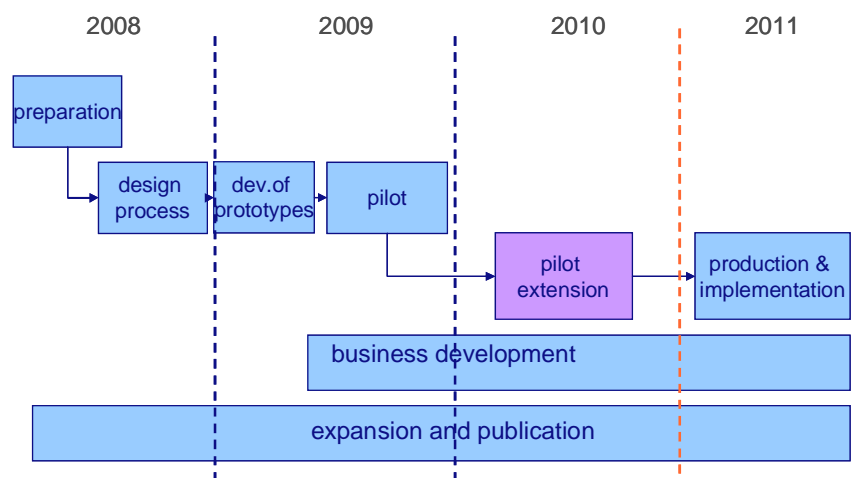
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This project (2008-2011) aims at increasing food production by the improvement of hand tools for the poorest farmers in the Northern Region of Ghana. The project has three goals:

1. to improve the quality of life of the farmers in Ghana by using newly designed ergonomic hand tools;
2. sustainable economic development by starting up local steel manufacturing and marketing of hand tools;
3. capacity building of local knowledge institutes and enterprises in the participative design and marketing of hand tools.

A participatory design process is followed. This means that TNO works together with the local knowledge institutes, the University for Development Studies Tamale (UDS), and Polytechnic Bolgatanga, with Kalabash Foundation and Civil Society Platform on the GSFP as the local project managers, with local black smiths and carpenters for production and with the farmers as end users. For a proper introduction in 6 communities of the new prototyped tools, also two farmer training centers joint the project since this year.



Project chart with activities and timelines

The result of the pilot of 2009 led to the conclusion that the pilot phase needed to be expanded in 2010 and that the stage of production & implementation of the new tools was to early at this point. Therefore four new communities were found to participate in the project. In these communities the participatory design process was repeated. Also, the introduction of the new prototyped tools at start of the pilot needed to be more intensive. For that reason professional local farmer training centers joint the project.



### June 2010

At this moment over 200 farmers, divided over 6 communities (2 in the Upper East Region and 4 in the Northern Region) are now trained in upright working with the new long handled hoes and ready to start the pilot phase during the rain season in 2010. In every community pilot plots are set up to measure and to monitor working with the new hoes compared to the traditional hoes. After the evaluation in October/November this year, a go/no go decision will be made on the continuation of the ergonomic hand tool project.

Project team Ghana Tools April 2010



## Utilisation of side streams from pineapple processing

### Valorizing side streams

Post-harvest losses in the fruit chain in Ghana are decreasing the incomes of farmers and accessibility to nutritious foods. Processing of fruit is a solution to optimize the value chain of fruit. In 2008 TNO (Dutch research and development organization) observes a major chance in adding economic value to side streams. Side streams of the fruit production process are at the moment seen as waste for which needs to be paid to get rid off. This project focuses on new pineapple products for the local market with focus on unsold pineapples, pulp (chaff) and peels. The over-all aim is to increase farmer sales, to achieve more benefits for food companies and improve access to nutritious food for local people.

### Pulp into syrup and fibres

Poor quality fruit and/or pulp (chaff) can be processed into syrup and/or dried to “fibre chunks”. Syrup is a spreadable relatively thick substance. Fibre chunks are dried (like flakes) that can be eaten directly or grinded into flour. Both syrup and fibre chunks have a sense of pineapple flavour, are shelf stable and can be used for bakery ingredient, candy ingredient or they can be directly consumed (fibre chunks can be regarded as candy or snack).

### Peels and crowns into biogas

Next to that, the project wishes to test the feasibility of using the pineapple peels and crowns for the production of biogas. Currently the juice producing factories experience a considerable waste problem as they have difficulties to dispose of the pineapple peels and crown. The biogas produced from this waste is meant to replace partly the traditional sources of energy, like gas bottles, currently relatively expensive in West Africa.



### State of affairs

- TNO and CSIR Food Research Institute detected best side stream products and proved the technical feasibility of processing the new products;
- TNO acquired hardware for producing syrup;
- CSIR FRI tested and produced samples for a market study;
- ICCO linked several partners and put in their experiences with sustainable fruit programs;
- SIFE students from 4 universities of Ghana and Erasmus are currently performed a market study with first cost/benefit analysis
- Currently 4 bakeries and a chocolate processor are using syrup and flour/ fibres;
- Currently a pilot plant for biogas is built at FRI and GTZ
- December 2010 the business case will be delivered, followed with a go/no-go decision
- Next year: Starting up the chain and up-scaling

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