Insects4Nutrition Project

Upscaling Edible Insect-Based Porridge to Improve Health and Nutritional Status of Primary School Children in Zimbabwean Low Socio-Economic Communities

UK Research and Innovation

GCRF Global Challenges Research Fund

Abertay University

The University Of Sheffield.

Sustainable Innovation

MUAST Marondera University of Agricultural Sciences and Technology

University of Zimbabwe

Chinhoyi University of Technology

Food & Nutrition Council

Background

Child malnutrition in many developing countries is at unacceptable levels, particularly iron and zinc deficiencies. To avoid child malnutrition due to the prolonged droughts and poor agricultural harvests some Zimbabwean rural communities traditionally mix insect powder from either soldier termites or mopane worm with especially finger millet cereal flour to make a porridge they use as an infant complementary food. Although this practice has shown observable nutritional impact in children, the impact of the insect-power enriched porridges on child nutrition has not been scientifically proven yet. Against this background, this project is aimed at improving the nutritional status of primary school children (7-11 years) in rural households in Zimbabwe by developing novel insect protein enriched porridge through modification and upscaling of existing local recipes. The project will also evaluate the formulation and nutritional quality of mopane-worm based porridge and its effect on the nutrition status of primary school children in Zimbabwe.

The ***specific objectives*** of the project:

a. To evaluate the existing practices and the nutritional quality of the traditional and locally consumed edible insect-based porridges by analyzing its nutritional quality.
b. To develop acceptable and nutrient dense edible insect (mopane worm) based complimentary foods for primary school children with improved protein and mineral bioavailability.
c. To evaluate the effectiveness of daily supplementation (4 months intervention) of the insect-based porridge on linear growth and micronutrient status.
d. To upscale the traditional mopane worms rearing technologies by providing acceptable methods for commercial rearing of the mopane caterpillars working with communities that are already practicing the traditional rearing methods.
e. To disseminate project findings in order to establish value chain stakeholder network platforms and support for policy makers.

Insects4Nutrition project is divided into five Work Packages (Figure 1): The ***first two work packages*** are dedicated to the analysis of the local produced porridges, raw materials of interest and the design of the insect enriched porridges. The ***third work package*** will be a Randomised Controlled Trial (RCT) to evaluate the effectiveness of the formulated porridge on micronutrient and nutritional status of school aged children (7-11years) and the ***fourth work package*** is for upscaling insect rearing strategies to optimise on sustainability. ***The fifth work package*** is for overall evaluation of the study and dissemination of results and advocating for policy on edible insects and insect-enriched products.

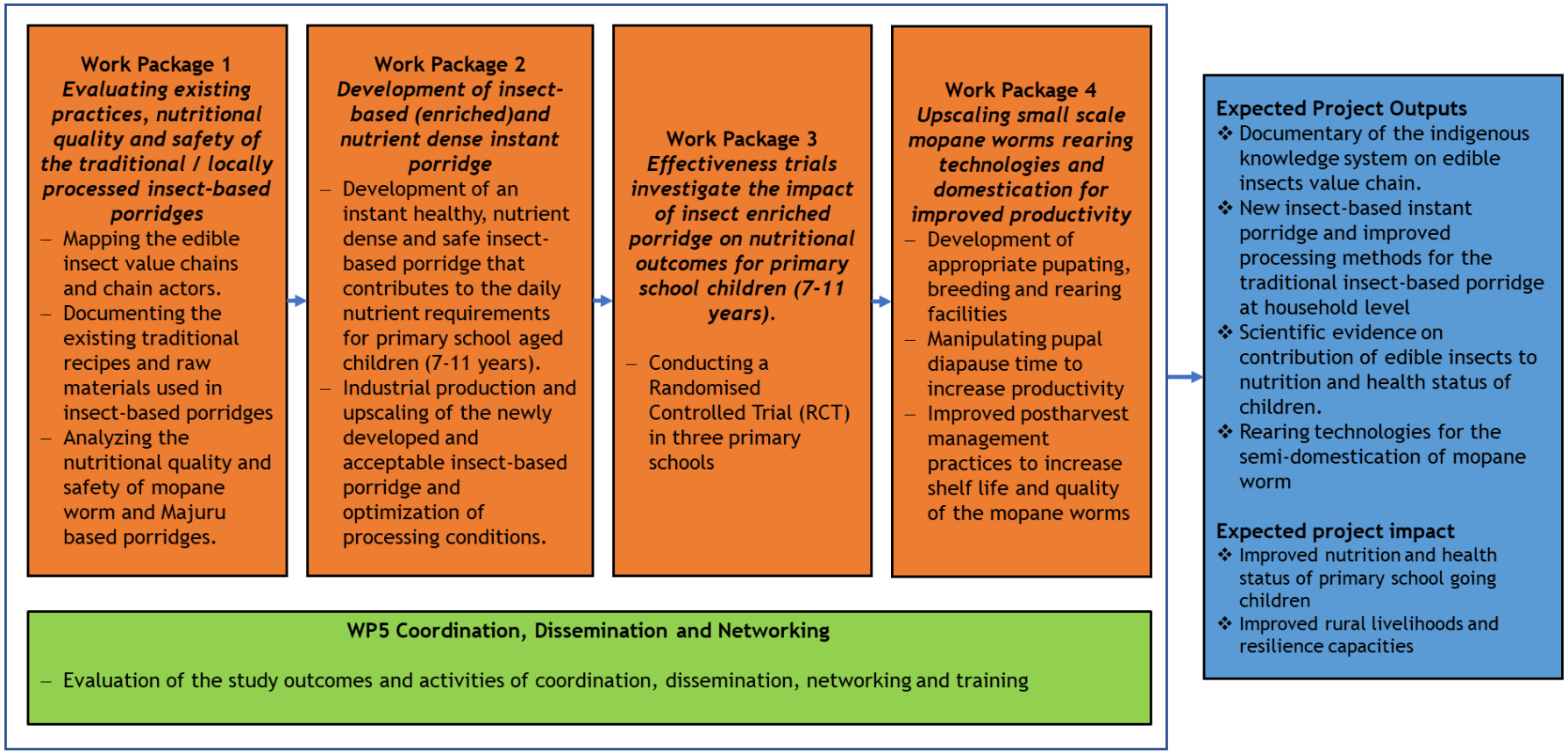

Figure 1. Project activities, expected outputs and project impact

MUAST Project Team

Dr Lesley Macheka
Role: Country Lead Researcher

Qualifications
PhD Food Quality and Logistics Management
MSc Food Quality Management
BSc (Hons) Biological Sciences

Dr Shingai Nyarugwe
Role: Post-Doc Research Fellow

Qualifications
PhD Food Safety Culture
MSc Food Quality Management
BTech Food Technology

Mr Ivor Manditsera
Role: Research Assistant

Qualification
BSc Food Sciences and Technology