This is the first of the series of newsletters that will capture our efforts to develop an approach that will accelerate the scaling of innovations in the CGIAR Research Program on Roots, Tubers and Bananas (RTB). The newsletters will capture the major concepts of scaling readiness, activities, and information about the RTB cases in which we are developing and testing the approach. The scaling readiness project is an Earmarked Funded project under RTB Cluster 5.4 and is implemented by Wageningen University, IITA, Bioversity International, CIAT and CIP.

This first newsletter provides (1) the objectives of the scaling readiness project, (2) background on innovations and scaling of innovations, (3) concepts of scaling readiness, and (4) testing of scaling readiness in four RTB projects.

1. Objective of the scaling readiness project

Scaling of agricultural innovations is one of the biggest challenges for research for development organisations, in the CGIAR and beyond. For a long time, scaling of innovation was considered to be done at the end of a project, through handing out flyers to farmers, or summary sheets and briefs to policy makers. The results have been very disappointing and the CGIAR is under pressure to demonstrate how research outputs lead to development outcomes and impacts.

The thinking about scaling and the science on how best to do it, has been neglected for a long time. The “scaling readiness” project builds on state-of-the-art science and scientific methods to shed more light on how scaling occurs in practice and what tools and methods can accelerate scaling of innovations in agricultural research for development (AR4D) projects. In doing so, the scaling readiness project aims to:

1. Assess the potential of RTB technologies and innovations to be used at scale;
2. Provide strategies to accelerate the scaling of RTB technologies and other innovations;
3. Measure the performance of RTB projects in terms of enhancing their scaling readiness;
4. Inform RTB managers and other key stakeholders about strategic scaling actions and partnerships;
2. Scaling of innovations in agri-food systems
Successful adoption and use of technological innovations (e.g. crop varieties, management practices) depends to a large extent on the enabling environment and accessibility of complementary non-technological innovations (e.g. access to credit, markets, knowledge and services). For instance, in order to scale a new crop variety, AR4D projects need to develop strategies to enhance awareness, convince farmers that the new variety has advantages over the old varieties, build new seed systems, provide training on complementary soil and farm management practices, sensitise the market, as well as review new policy and partnership approaches. In the absence of these complementary non-technological innovations it is not possible for the technological innovation to be used at scale by many farmers.

3. Concepts of Scaling Readiness
Scaling readiness approach investigates the relation between four ‘readiness’ concepts important for scaling of innovations in agrifood systems: technological readiness, readiness of enabling environment, innovation readiness and scaling readiness. Each of the concepts are explained below.

Technology Readiness Levels

TRL 0: Idea. Unproven concept, no testing has been performed.
TRL 1: Basic research. Principles postulated and observed but no experimental proof available.
TRL 2: Technology formulation. Concept and application have been formulated.
TRL 3: Applied research. First laboratory tests completed; proof of concept.
TRL 4: Small scale prototype built in a laboratory environment (“ugly” prototype).
TRL 5: Large scale prototype tested in intended environment.
TRL 6: Prototype system tested in intended environment close to expected performance.
TRL 7: Demonstration system operating in operational environment at pre-commercial scale.
TRL 8: First of a kind commercial system. Manufacturing issues solved.
TRL 9: Full commercial application, technology available for consumers.
3.1. Technological Readiness

Most AR4D projects are focused around the development of technological innovations, such as new pest and disease resistant crop varieties, new fertilizer compositions, new tools and machinery for harvesting. Each of these technologies start their life cycle as ‘an idea’ and subsequently passes through different research and development processes and phases. Some of the successful technologies eventually mature enough to be effective solutions to specific problems and become available for end-users such as farmers. Technological readiness measures the position of technological innovations on a gradient starting from ‘idea’ (TRL 0) to be shown to work at scale (TRL 9).

3.2. Readiness of the enabling environment

Scaling of technologies in an agri-food system requires not only improvement in the technological innovations but also in non-technological innovations that form the enabling environment for the technological innovation to have impact at scale. Consequently, readiness of the enabling environment measures the position of the non-technological innovations on a gradient starting from ‘idea’ (TRL 0) to be working at scale (TRL 9).

3.3. Innovation readiness

Innovation readiness refers to the readiness of the package of both technological and non-technological innovations an AR4D project seeks to promote. To measure them together we use the same gradient starting from ‘idea’ (TRL 0) to be shown to work at scale (TRL 9).

3.4. Scaling readiness

AR4D projects with mature and complementary innovation packages (i.e. with high innovation readiness), have a higher chance of achieving impact at scale. However, high innovation
readiness does not guarantee widespread adoption, i.e. the actual use of innovations. In some situations, innovations that have high readiness have been used, are hardly being used by end users. The opposite is also possible in the sense that innovation packages with low readiness are used commonly. For instance, R4D projects with large scale project investments might lead to initial use of innovation by many users. However, the innovations became unused after the end of these projects. Scaling readiness measures both innovation readiness and innovation use.

Figure 4 shows that for a hypothetical AR4D project to scale its technological innovation (new crop variety – orange dot), the AR4D project needs to innovate in three other areas, namely (a) fund access (blue dot), (b) market access (red dot), and the policy environment (green dot). Thus, four complementary innovations are critical for scaling. Each of the four critical innovations has different readiness (y-axis) and use levels (x-axis). Customized strategies for innovations can guide the movement of each innovation to higher readiness and use.

4. Testing of scaling readiness in four RTB projects
In 2017, the scaling readiness concept will be further developed, tested and validated within four RTB projects. These projects include:

1. Scaling BXW-control in DR Congo and Uganda (led by Bioversity International);
2. Scaling best cassava agronomy practices in Tanzania and Nigeria (led by IITA);
3. Emergency response schemes and early warning systems for managing cassava pests and diseases in Vietnam (led by CIAT);
4. Decision support for potato late blight management in Ecuador (led by CIP).

More news soon!