

Strengthening the Scientific Foundations of Agricultural Transformation: How Mohammed VI Polytechnic University is Generating Evidence for Employment, Value Creation and Food Security in Morocco



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Introduction

Across the African continent, the transformation of agriculture is increasingly understood not as a question of production alone, but as a question of knowledge. Food systems face converging pressures — a rapidly growing and youthful population, climate variability, fragile rural economies and persistent underemployment — that cannot be addressed through incremental technical fixes. What is required is rigorous, context-specific evidence about how innovation translates into livelihoods, how value is created and retained within local economies, and how technologies move from research settings into the hands of farmers. Yet the production of such evidence remains uneven. Much of the research shaping African agricultural policy is generated outside the continent, and where local knowledge exists, it is frequently under-documented, weakly connected to policy, and insufficiently linked to the education of the next generation of professionals.

It is within this context that universities acquire a strategic importance that extends well beyond teaching. As institutions positioned at the intersection of research, education and public engagement, universities

are uniquely able to generate evidence, test it against field realities, and feed it back into curricula, cooperatives and policy dialogue. In Morocco, Mohammed VI Polytechnic University (UM6P), through its participation in the Transforming African Agricultural Universities to Meaningfully Contribute to Africa's Growth and Development. (TAGDev 2.0) programme coordinated by RUFORUM and supported by the Mastercard Foundation, has made the generation of applied, policy-relevant knowledge a central pillar of its contribution. This article examines that scientific work and, more importantly, considers why it matters for the wider project of agricultural and higher-education transformation in Africa.

Institutional Context

UM6P operates as a research-intensive university with a deliberate orientation towards applied science and socio-economic impact. Its engagement in TAGDev 2.0 situates it within a continental network of universities pursuing a shared objective: to make higher agricultural education more inclusive, entrepreneurial and responsive to the realities of African food systems. The programme's emphasis on scientific contributions is not incidental. It reflects a recognition, shared across the RUFORUM network, that the credibility and sustainability of agricultural transformation depend on a robust evidence base — one that documents what works, under what conditions, and with what implications for employment, equity and sustainability. UM6P's scientific outputs over the current cycle should be read against this backdrop, as deliberate efforts to strengthen the analytical foundations on which practical interventions ultimately rest.

Research on Innovation and Employment

A central strand of this work concerns the relationship between agricultural innovation and employment. A flagship study produced by a team of UM6P researchers, titled *"Innovation and Employment in the Case of Olive-Based Production Systems in Morocco,"* has been submitted to the Elsevier journal Sustainable Future and, at the editor's request, is being refined for a journal specifically focused on employability. The choice of the olive value chain is analytically significant. Olive production is among Morocco's most strategic agri-food sectors, deeply embedded in rural livelihoods and export markets alike, and it offers a revealing setting in which to examine how innovation reshapes labour demand — whether it displaces work, creates it, or transforms its nature and quality.

The significance of this research lies in its attempt to move beyond the common assumption that innovation and employment are straightforwardly complementary. By interrogating a specific, well-documented value chain, the study contributes to a more nuanced understanding of the conditions under which technological and organisational change generates decent work. For policymakers pursuing the objectives of the African Union's Agenda 2063 and the Comprehensive Africa Agriculture Development Programme (CAADP), such evidence is directly relevant: it informs the design of interventions that seek to expand youth employment without assuming that productivity gains will automatically translate into jobs. In this respect, the work exemplifies the analytical role universities can play in refining, rather than merely endorsing, prevailing development narratives.

Valorising Under-Recognised Value Chains: Aromatic and Medicinal Plants

A second body of work, produced through UM6P's Socio-economic Impact Institute and its Social Innovation Lab, addresses the aromatic and medicinal plants (AMP) sector through a scientific contribution titled “Aromatic and Medicinal Plants — Potential, Sustainability and Markets.” The AMP value chain occupies an unusual position in Morocco's rural economy. It carries considerable economic potential, particularly for cooperatives and for women-led rural enterprises, yet this potential remains largely unrealised because of persistent constraints in financing, governance, processing and market access. Documenting the sector's potential and its sustainability dimensions is therefore not a marginal academic exercise; it is a precondition for designing interventions that can convert latent value into durable rural income.

The broader importance of this research is its alignment with two intersecting development priorities: inclusive rural economic development and the empowerment of women in agriculture. By generating credible analysis of markets, sustainability and value creation, UM6P provides cooperatives, advisory services and policymakers with an evidence base on which more competitive and more equitable strategies can be built. This connects local knowledge production directly to Sustainable Development Goals concerning decent work, gender equality and responsible production, and it demonstrates how targeted scientific attention to a neglected value chain can have disproportionate significance for the communities that depend on it.

Documenting Models of Technology Adoption

Beyond peer-reviewed publications, UM6P is investing in the documentation of practical models through which agricultural technologies are adopted at scale. Teams are preparing a book examining the Al Moutmir and SMART Blinder models as mechanisms that accelerate the adoption of new agricultural technologies, and have proposed a methodological instrument — a “Guide for Evaluating the Performance of New Technologies: from Innovation to Food Security.” This attention to adoption is analytically important because the gap between the availability of a technology and its effective use by farmers is one of the most persistent obstacles to agricultural transformation. Understanding the institutional, informational and economic conditions that enable adoption is often more consequential than the invention of the technology itself.

The proposed evaluation guide addresses a recurrent weakness in development practice: the tendency to measure activity rather than impact. By offering a structured means of assessing whether new technologies actually improve productivity, incomes and food security, the guide encourages a shift towards evidence-based judgement about which innovations merit investment and scale. Should such an instrument be adopted more widely across the RUFORUM network, it could contribute to a more disciplined and comparable assessment of agricultural innovation across diverse national contexts.

Evidence from Practice: Entrepreneurship in Vocational Education

Knowledge generation at UM6P is not confined to written outputs; it also emerges from structured practice. From 14 to 19 December 2025, the university's Benguerir campus hosted an international study visit on strengthening entrepreneurship and innovation within vocational education and training (VET) systems. Participants engaged directly with UM6P's innovation ecosystem — including its FabLabs, the

1337 coding school and its incubators — and worked with applied methodologies such as Lean Startup, the Business Model Canvas and Design Thinking. The resulting study-visit report, enriched by a participant satisfaction survey, documents transferable practices for embedding entrepreneurship within technical and vocational education.

The relevance of this exercise extends beyond the event itself. Vocational education is frequently identified as a weak link in African skills systems, oriented towards theoretical instruction and insufficiently connected to enterprise creation. By documenting concrete methods for integrating entrepreneurship into VET, and by enabling peer exchange among institutions, UM6P contributes to a form of knowledge that is practical, replicable and directly aligned with the imperative of youth employment. This illustrates a broader principle: that credible evidence for higher-education transformation can be generated not only through formal research, but through the systematic documentation of institutional practice.

Connecting Knowledge to Policy and Regional Priorities

Taken together, these scientific contributions share a common orientation. They are concerned less with knowledge for its own sake than with knowledge that can inform decisions — about employment, about value chains, about technology and about the design of education itself. This orientation aligns closely with the ambitions of Agenda 2063 and the Comprehensive Africa Agriculture Development Programme (CAADP), both of which emphasise evidence-based policy, human capital development and the transformation of African agriculture into a source of decent and dignified work. It also reflects the distinctive contribution that universities can make within development partnerships: not simply to implement activities, but to generate the analytical understanding that allows interventions to be improved, adapted and sustained.

Lessons Learned and Recommendations

1. **Prioritise employment-sensitive research.** Evidence on how innovation affects the quantity and quality of work should be a deliberate research priority, since assumptions about job creation frequently outpace the available evidence.
2. **Invest in under-documented value chains.** Sectors such as aromatic and medicinal plants offer significant returns to rural and women-led enterprises, and targeted scientific attention can convert latent potential into durable income.
3. **Treat technology adoption as a research question.** The conditions enabling farmers to adopt innovations deserve as much analytical attention as the innovations themselves, and standardised evaluation tools can support more disciplined decisions about scale.
4. **Document institutional practice systematically.** Study visits, training methodologies and ecosystem models constitute a valuable and replicable form of evidence when they are recorded and shared rigorously.
5. **Strengthen the research-to-policy interface.** Scientific outputs achieve their full value when they are actively connected to cooperatives, advisory services and policy dialogue rather than confined to academic circulation.

6. **Support publication in high-quality journals.** Sustained institutional support for peer-reviewed publication reinforces the credibility of African-generated evidence and its influence on continental policy.
7. **Build comparative knowledge across the network.** Common analytical frameworks shared across RUFORUM member universities would enable more meaningful comparison of results and accelerate collective learning.

Conclusion

The scientific contributions emerging from UM6P under TAGDev 2.0 illustrate a considered understanding of the role universities can play in agricultural transformation. By examining the relationship between innovation and employment, by documenting the potential of under-recognised value chains, by treating technology adoption as a serious object of study, and by recording the practices through which entrepreneurship can be embedded in education, the university is helping to strengthen the analytical foundations on which durable change depends. These contributions are modest in scale relative to the challenges they address, and they should be understood as early steps rather than final achievements. Yet their orientation is significant. They point towards a model of higher education in which the generation of credible, policy-relevant evidence is treated as a core institutional responsibility — and in which African universities take a leading part in producing the knowledge that African agricultural transformation requires.

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