CWR Project

CGIAR Independent Science for Development Council

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Evaluating Quality of Research – Why, How, Who and When

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ISDC-hosted side event @ FAO Science and Innovation Forum
QoR4D to Strengthen Institutional Innovation
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Evaluating Quality of Research: Why?

Accountability, Transparency, Confidence and Contribution

Provide **accountability** for public and private investment in research that generates international public goods

Transparently inform funders about the quality of the scientific processes and outputs of research conducted and that their investments are sound

Generate **confidence** in outputs for next users and policy makers

Provide evidence about how CGIAR science **contributes** towards the goals of the organization, including, as part of a wider effort, its **contribution** to accelerated progress toward the SDGs.

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QoR4D Framework: Elements to evaluate Quality of Research

Key Elements

1. Relevance
Importance, significance, and usefulness of the research objectives, processes, and findings

3. Legitimacy
The research process is fair and ethical and perceived as such

2. Scientific Credibility
Research findings be robust and that sources of knowledge be dependable and sound

4. Effectiveness (Positioning for Use)
Research generates knowledge, products, and services that lead to innovations and provide solutions

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QoR4D Framework

Adaptability, Flexibility and Broad Application

Since 2015, the Evaluation Framework has **evolved** through **lesson learning and adaptation** to changing needs and CGIAR strategy – similar to other frameworks (IDRC, REF).

The QoR4D is inherently **flexible** as it can be applied to all phases of the R&D cycle.

As the current version has been informed by both research (UK Research Excellence Framework) and development (IDRC RQ+ Assessment Instrument) organizations, it has **broad application** to research, development and R4D operations.

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QoR4D Framework: Legitimacy and Scientific Credibility

Scientific credibility requires that research findings be robust and that sources of knowledge be dependable and sound. This includes a clear demonstration that data used are accurate, that the methods used to procure the data are fit for purpose, and that findings are clearly presented and logically interpreted.

Legitimacy means that the research process is fair and ethical and perceived as such. This encompasses the ethical and fair representation of all involved and consideration of interests and perspectives of intended end users. It suggests transparency, sound management of potential conflicts of interest and genuine involvement of partners in co-design and recognition of partners' contributions.

Taken together, **scientific credibility** and **legitimacy** make up the **quality of science** criterion in the QoR4D Framework.

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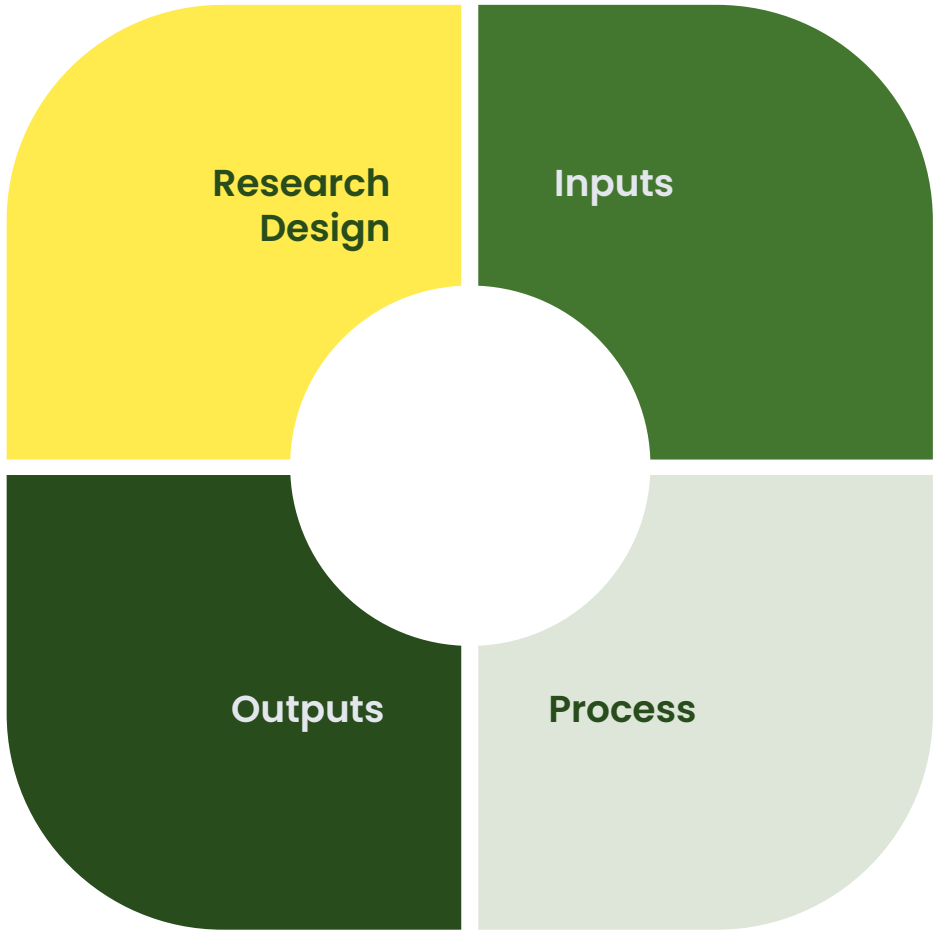
Dimensions for Evaluating Quality of Research



Design: Appropriateness of the research design (strategy and agenda) in terms of commonly accepted standards in a designated field.

Inputs: Includes categories such as research staff, team compositions, availability of adequate research infrastructure and funding resources.

Processes: Includes management and coordination, driven by incentives for achieving and maintaining the high scientific credibility of outputs.

Outputs: Includes scientific outputs such as published results, improved varieties and other technical outputs as well as non-published outputs – reports, conference proceedings, blogs, policy docs, databases etc.

Evaluating Quality of Research: How?

Key methods

Evaluation of QoR4D in CGIAR requires a **mixed methods** approach combining **quantitative** and **qualitative** indicators resulting in a credible, balanced and comprehensive outcome.

Quantitative methods include bibliometrics and Altmetrics for publications; numbers of technical outputs, methods, tools, workshops, capacity development, reports, policy briefs, databases, digital outputs, communication outputs etc.

Qualitative methods include standards, skill base, research infrastructure, assessment of partnerships, diversity, ethics, review systems, capacity development, scaling readiness, mentoring, gender, social inclusion, adequacy of funding, contribution to IPGs and SDGs etc.

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Examples of use of bibliometrics for evaluating publications

Overview of author collaboration

	A4NH	CCAFS	PIM	WLE	FTA	Livestock	FISH	RTB	GLDC	MAIZE	Wheat	RICE	
AUTHORS													
Authors	3330	1923	955	1408	4310	2031	685	1955	1258	1739	1601	4672	25867
Authors of single-authored	3	5	13	3	12	3	1	1	2	2	1	9	55
Authors of multi-authored documents	3327	1918	942	1405	4298	2028	684	1954	1256	1737	1600	4663	25812
AUTHORS COLLABORATION													
Single-authored documents	3	7	16	3	12	3	1	1	2	2	1	10	61
Authors per Document	6.3	4.8	2.9	5.5	6.4	5.9	4.3	5.3	5.6	3.8	4.5	6.0	5.1
Co-Authors per Documents	8.9	7.0	4.4	6.9	9.0	8.1	6.0	7.6	8.4	6.3	7.4	8.9	7.4
Collaboration Index	6.3	4.9	3.0	5.5	6.5	6.0	4.4	5.3	5.6	3.8	4.5	6.1	5.2

From: Runzel et al. (2021) *Outlook on Agriculture* 50: 130-140

CRP Country collaboration network

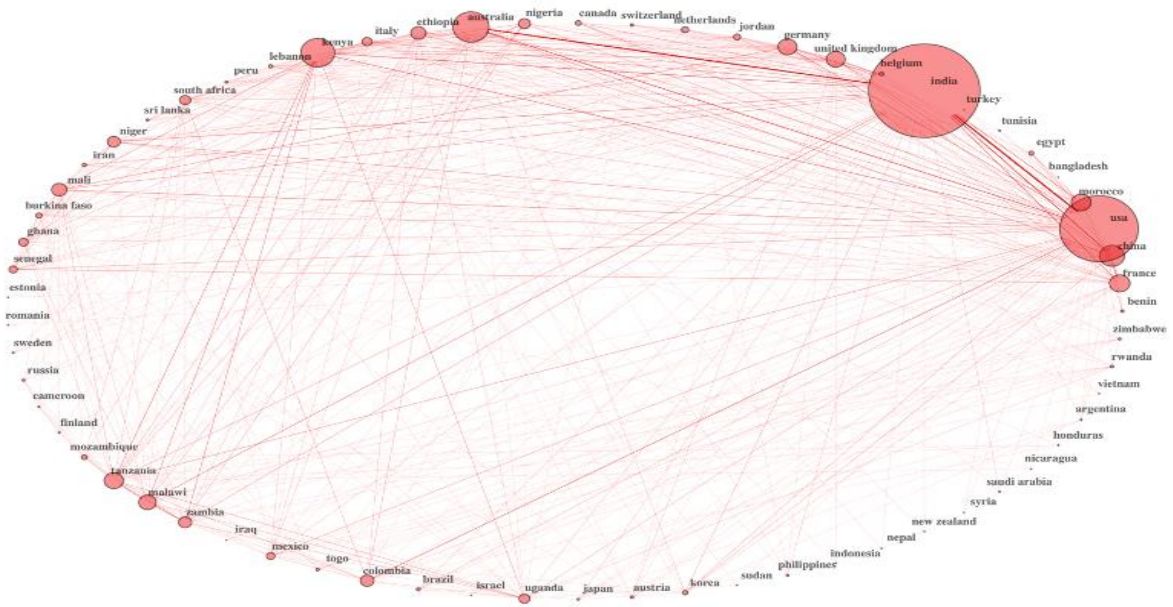

Photo: Lorem Ipsum

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Bibliometrics offers a productive opportunity for scalable, transparent, quantitative results on research toward monitoring and evaluating research programs.

The recent co-designed Technical Note delves into practices in evaluating quality of science and makes recommendations for enhanced use of bibliometrics in One CGIAR.

Co-design has helped to expand awareness of the breadth of available indicators and the horizons of bibliometric analysis to motivate further use.

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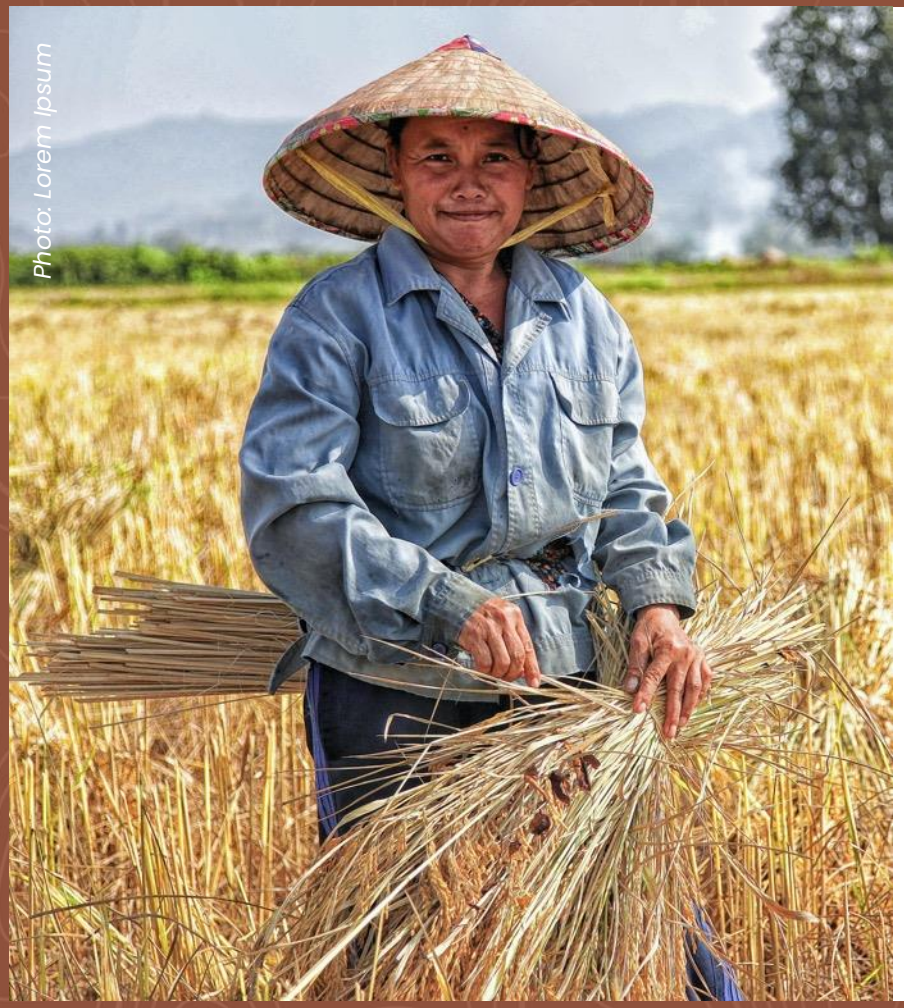
Qualitative methods: key indicators

Dimension	Criterion	Indicator
Design	Research topic & plan	Global/regional problem
	Rigor	Coherence, clarity
	Methodology	Integrity, fitness
Inputs	Skill base	Discipline
	Composition of teams	Diversity, gender, discipline
	Support structures	Laboratories, fields
	Funding	Donor commitment
	Capacity building	Useful to planned activities
Processes	Partnerships	Inclusiveness, recognition
	Gender	Awareness, responsiveness
	Roles and responsibilities	Clarity
	Performance evaluation	Incentives
	Negative consequences	Consequences, risks
Outputs	Communication	Methods & tools
	Enabling environment	Awareness, understanding
	Networking	Multi-stakeholder engagement
	Policy linkages	Policy makers engagement
	Scaling readiness	Multi-stakeholder engagement
	IPG generation	Positioning for uptake and impact



Legitimacy: Partnerships and Local acceptance

- Partnerships are the foundation of all CGIAR projects and initiatives
- Understanding local knowledge and culture and incorporation in the design of projects
- Includes gender awareness and social inclusion
- Participatory processes build trust and acceptance
- Contextually appropriate solutions and better outcomes

Qualitative methods: Example of use of rubrics for gender

Evaluation question	Elements to be assessed	Assessment criteria	No	Partly	Yes
Were gender considerations included in research questions and objectives?	Legitimacy	Awareness & responsiveness	Gender considerations were not included; research was gender blind.	Gender was considered in a partial way with some weaknesses	Gender was fully considered in all aspects of research
Was there evidence of gender analysis and disaggregation of data by sex?			No evidence of gender analysis and data disaggregation	Limited gender analysis with some data disaggregated	Rigorous gender analysis and data fully disaggregated

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A Six-Step Process to Evaluate QoS

Step 1	Preparing for Evaluating Qos
Step 2	Identify Key Evaluation Questions and Sub-Questions
Step 3	Identify and Map Methods to Evaluation Questions
Step 4	Identify Key Documents and Potential Gaps
Step 5	Collect and Analyse Data
Step 6	Triangulate Qualitative and Quantitative Results

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Evaluating Quality of Research: When?

PHASES	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8
Proposal	■								
Duration of the initiative		■	■	■	■				
Research phase		■	■	■					
Implementation phase			■	■	■				
Evaluation of the initiative					■				

Timeline for the evaluation, dimensions and elements:

Proposal phase: design, inputs and processes; scientific credibility, legitimacy and relevance

Research & implementation phases (mid-term corrections): inputs, processes and outputs; scientific credibility, legitimacy and effectiveness

End of initiative phase: inputs, processes, outputs and outcomes; scientific credibility, legitimacy and effectiveness; output to outcome studies, outcome to impact case studies (OICRs)

Post-initiative (+3-5 yrs) phase: effectiveness; outcomes and impacts

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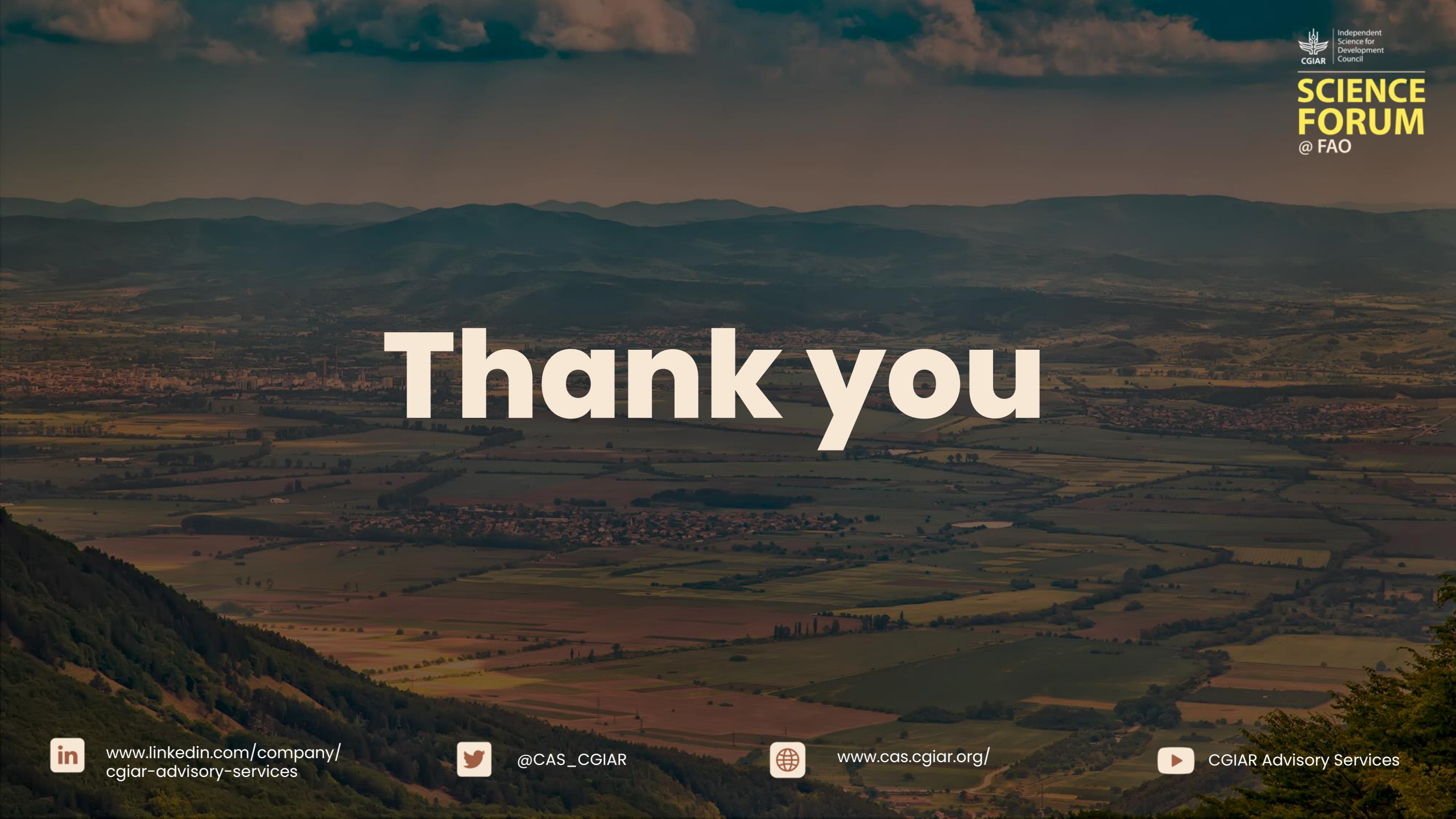
Evaluating Quality of Research: Who?

Use within CGIAR:
Independent evaluators; Scientists; Managers; Governance; Funders

Potential use beyond CGIAR:
R&D partners; Other R&D organizations; Other research organizations; Development organizations

The QoR4D Framework is flexible - there is no "one size fits all". Appropriate indicators will always depend on context. When indicators are selected a priori and categorized under the four elements of this framework, they will serve as a powerful mechanism for ensuring the highest standards of Agricultural R4D.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