RQ+

RESEARCH QUALITY PLUS

Evaluating Research Differently

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Contents

PART 1

Introduction

Science and innovation offer immense promise for global sustainable development. The ability of researchers and innovators to combine creativity and critical thinking has been a driving force behind many of our greatest achievements. As a result we're living longer, healthier lives; we've enlightened profound social change; and we've created networks connecting us around the Earth with a handheld device. But science as a force for good cannot be taken for granted. Many actions justified by the allure of 'scientific progress' have not only failed to create positive change, they have also proven harmful to ourselves and our planet.

With the dawning of the Anthropocene, new opportunities and threats emerge. From human-driven destruction of biodiversity to social inequality within and between countries – we face challenges today which we have never faced at a similar scale in Earth's history. The COVID-19 pandemic has accelerated many for the worse.

We present an optimistic and pragmatic response. We start with the premise that high-quality research can open pathways to a better future for all. In our view, high-quality research is a necessary companion for a 'good Anthropocene.' But seizing this opportunity comes with many questions. Can scientific progress truly connect with, and support, planetary prosperity? How can we know that our efforts are leading to a better future? What does and what should this future look like? Who decides? In the pages that follow, we present

one contribution to this challenge, and describe how we have used it to answer these questions. We call it: Research Quality Plus (RQ+). It is a novel approach and practical framework for holistic research evaluation.

Research evaluation is not a new discipline. Indeed, the global science system is layered with checkpoints, assurances and progress markers. But in recent years each of the predominant methods of research evaluation have come under scrutiny – from scientists and in public opinion. We share these concerns. The way we govern scientific progress can at times be more harmful than helpful. Many approaches to research evaluation underpin and amplify inequities in how science is conducted, and the way it serves society.

RQ+ is one contribution to the necessarily collective movement to do better. In this paper, we will argue that the International Development Research Centre's (IDRC) experience with RQ+ shows significant promise. We elaborate this position by presenting a 2020-21 application of RQ+ across diverse research portfolios funded by IDRC, and as a team of funders, researchers, evaluators, practitioners and students, we offer RQ+ as a validated alternative for defining, managing and evaluating research quality. It is an alternative that we hope will help connect research and innovation with planetary health and sustainable development in the age of the Anthropocene.


Ethiopia
Photo by Clay Knitght

Background

IDRC supports research by and for the Global South through offices in Amman, Dakar, Montevideo, Nairobi, New Delhi and Ottawa. IDRC-funded research builds evidence to break the cycle of poverty, reduce inequalities and vulnerabilities, and help people live healthier and more sustainable lives – what IDRC calls Research for Development, or R4D. This work is use-oriented, multi-disciplinary and people-centred. Today it falls under five thematic programs: Global Health, Education and Science, Sustainable and Inclusive Economies, Democratic and Inclusive Governance, and Climate Resilient Food Systems.

IDRC has learned over a 50-year history that achieving objectives requires transparency and participation from those it aims to serve. To support these efforts, learn from experience and be accountable to its stakeholders, IDRC invests in evaluation. The Centre houses an internal team of evaluators who guide the organization to be self-critical and reflective, but also work with IDRC's research community to innovate and test meaningful measures of quality, progress and impact.

The Research Quality Plus (RQ+) Approach we describe in this report is a result of collaboration between IDRC's evaluation team and its research community.[1] Here we present how RQ+ has been used to support the work of the Centre in a large-scale 2020-21 evaluation[2] and suggest several ways it may hold potential beyond IDRC.

Our hope is that RQ+ contributes to the collaboration of science systems actors of all types — researchers, funders, journals, universities, think tanks, business, activists and knowledge-user communities, to name a few, who want to improve the way we govern scientific progress and sustainable innovation.

Overview

Section 2 presents context and rationale. Readers wishing to move immediately to the practical might move past this justification and foundation-building. However, those intrigued by the underpinning drive and rationale for RQ+ will see section 2 reflects on the global context of R4D as well as the broader science system in which RQ+ operates. RQ+ has been utilised by IDRC for the assessment of R4D. Others might call this 'mission-oriented research' or more simply 'applied science.' Nevertheless, new users are beginning to put RQ+ to the test in very different settings, and we would not limit experimentation. It is important to note that we do not present an all-encompassing review of the debates in research evaluation and governance in a section of this paper. Those interested in learning more about IDRC's ongoing work to scope this landscape – particularly the innovations of the Global South – might consult IDRC's recent book, *Transforming Research Excellence: New Ideas from the Global South* (Kraemer-Mbula et al. 2020), as a companion to this paper.

In section 3, we present our current version of the RQ+ Approach and Assessment Framework. First, we articulate three tenets that constitute the RQ+ Approach. Next, we present our current iteration of the RQ+ Assessment Framework, which operationalizes the three tenets of the RQ+ Approach in a practical tool.

Section 4 outlines a number of questions one will face using RQ+. Here, we reflect on our shared experience using the approach and framework, and provide direction related to each question based on what we have learned and our dialogue with other RQ+ users.

We conclude our report with a look to the future. In Section 5 we articulate plans and possibilities for IDRC, as well as insights and recommendations for others interested in improving the way they evaluate and manage research, and how RQ+ might help.

This raises an important overtone to this paper: the experiences and perspectives expressed hereafter are not conclusive. RQ+ is one contribution to what must be a collective movement. While we are confident RQ+ has delivered value to IDRC and others who are beginning to use it, our aim is to position RQ+ as a dynamic tool that readers might test, challenge and reinvent in their own unique circumstances.

1 Two authors are IDRC employees (RM, AE). Three authors are researchers and evaluators who have worked with IDRC to construct, test and improve the RQ+ Approach and Framework (ZO, MA, OF).
2 This is not the first presentation of the RQ+ Approach. This report should be read as a follow-up to our 2016 manuscript where we introduced our first iteration of RQ+ and reflected on our experience implementing it in a series of 2015 evaluations. See: Ofir, Schwandt, Duggan & McLean 2016.

PART 2

Context & rationale: A new era for research and its evaluation

A time of change and opportunity

The value of scientific research has seldom been as visible and as widely appreciated across the world as during the COVID-19 pandemic. This extraordinary period has underscored the importance of scientific innovation in times of crisis. It has demanded – and to a great extent displayed – the best from science in service of humanity. Many scientists responded, focusing major sections of the research enterprise on both understanding situations and finding solutions for multiple emergent, interconnected health, economic and social problems (OECD, 2021). The importance of bringing a range of research disciplines to bear in finding solutions has been highlighted (Van Bavel et al., 2020; Arencibia-Jorge et al., 2020). Access to data and publications opened further, the use of digital tools increased, international collaboration intensified, output accelerated and new actors actively engaged (OECD, 2021 ; Sloane & Zimmerman, 2021; Miller & Tsai, 2020).

Applications have been quickly developed from fundamental knowledge and past experience in different contexts, while various knowledge systems have brought complementary perspectives and solutions to the fore (Harle, 2020). Critical information has been channelled to professional and public stakeholders through pre-print and open science repositories and other means of sharing (OECD, 2021). Research approaches that bring people into the process of the science itself, as partners and decision makers, are growing in prominence and relevance (Marten et al., 2021; Beresford et al., 2021; McLean et al., 2020). Demand for transparency and open government has increased alongside heightened appreciations of scientific expertise, making it possible for scientists to contribute to social programming – and for some political leaders and the public to take evidence-informed action (Davies et al., 2019; UNESCO, 2021).

At the same time, the pandemic has exposed many vulnerabilities in the global research system. Progress in non-COVID-related fields of science has delayed or suffered as financial and human resources have been redirected (Rashid, 2020). Research quality has at times been compromised, including through accelerated publishing (London & Kimmelman, 2020; Martins et al., 2020). Scientific breakthroughs around pandemic drugs and vaccines have become matters for dispute and jostling for profile as national pride, inborn biases and commercial interests took centre stage (Hafner et al., 2021; Zaitchik, forthcoming).

Siloed approaches to research persist. Fake as well as science-informed narratives have multiplied and competed for space on social media (Barua et al., 2020). Pre-existing and systemic inequalities in global research priorities have become obvious and increasingly egregious (Ntoumi, 2020).

Thus, the global pandemic response has brought into sharp relief the opportunities and advancements possible when science is mobilized for the good of humanity, as well as the multiple challenges that may constrain progress when scientists work on the science-policy-practice nexus across disciplinary, epistemological, sectoral and geographic boundaries.

The demonstration of effective action as well as weakness in this time of crisis has brought a sense of urgency and visibility to longstanding problems and an opportunity to learn from experience, and to be resolute, as well as innovative, in bringing about changes that can shift systems that hold outdated practices in place. And this will be necessary. The pandemic has accelerated interconnected global crises gripping humanity and our planet as we enter the age of the Anthropocene. Climate breakdown, biodiversity loss, excessive consumption and waste, rampant inequalities, corporate ownership of data and our private information are making systemic transformations essential.

The scientific community now has the imperative to consider anew how best to contribute to the transformations needed to serve society and the ecosystems on which it depends, and the systems underpinning and directing research that need to be in place for this purpose. Research done under labels such as development, applied, strategic, challenge or mission-oriented research, and especially research aimed at supporting the achievement of global pacts such as the Sustainable Development Goals (SDGs) and the Paris Climate Agreement, will gain in prominence and momentum. Inevitably, so will the search for research incentives and assessment approaches more responsive to the demands of this new era.

The importance of research from the Global South in the era of the Anthropocene

We all live in an interconnected system. People, products, biology, institutions and ideas all spin webs of complexity around any individual action. A mounting body of research is unveiling how human actions are precipitating changes in these systems at historically unparalleled rates and how many impacts of human activity are proving to be detrimental to our natural and social systems, even if inadvertent or unintended (Monastersky, 2015, Vignieri, 2014, Lewis & Maslin, 2015).

In the face of the multiple interconnected changes that define the era of the Anthropocene, no society today can claim to be fully 'developed' – designated as a state that others should strive to achieve or emulate. Development and hence 'research for development' must be reimagined as a shared responsibility of all nations, intended to benefit all people and the global environment. This implies that research assessment approaches suitable for this era have to incentivize boundary-spanning scholarship and innovation around the world, while recognizing that in the Anthropocene, the Global South continues to cope with a disproportionately higher burden of harm and immediacy (IPCC, 2019; Carmody et al., 2021).

This presents the world of science and innovation with an opportunity for change, with as yet untapped potential. RQ+ is one contribution based on this perspective, born from the experience of research in the Global South.

A key strength of the RQ+ Approach is that it moves away from some of the dominant narratives about how science is done, valued and assessed – narratives that have evolved and persist as a result of power asymmetries as well as deeply embedded commercial interests prominent in influential Northern-created research assessment systems (Agate et al., 2020; Neylon, 2020; Sutz, 2020; Kraemer-Mbula et al., 2020). By shedding new light on research quality, we can increase fairness, learn more and significantly expand the pool of ideas and imaginations we tap in our search for a good Anthropocene. For example, a meta-analysis of RQ+ assessments conducted in 2015 of 170 IDRC-funded research initiatives, demonstrated that Southern-led research is "scientifically robust, legitimate and important" and also, statistically speaking, better positioned for use than Northern-led research undertaken in or on Southern countries. It also demonstrated that solutions to a particular development challenge can be most aptly developed by those most closely linked to it (Lebel & McLean, 2018; McLean & Sen, 2019). We recognize this result is not globally generalizable; it is based on a specific sub-sample of a specific body of use-oriented and translational research. Yet, it raises an important demonstration about who wins, who loses and who is left behind when applying the mainstream (Northern-born) research evaluation techniques. For us, it highlights a critical need to re-think our globally embedded research evaluation approaches, and the immense potential of Southern science if we do.

Current trends in research evaluation

Southern science actors are not alone in their dissatisfaction with the status quo in research evaluation. Robust scrutiny of the scientific enterprise over the last decade has raised many questions about current practices in the financing, practice, communication, and perhaps foremost evaluation of science across geographies and disciplines, and amongst both discovery and applied philosophies. This general dissatisfaction has triggered debate worldwide about the value and usefulness of conventional mainstream systems of research evaluation (Wilsdon et al., 2015; Hicks et al., 2015; Curry et al., 2020; Aubert Bonn & Bouter, 2021; Aubert Bonn & Pinxten, 2021; Jones & Bice, 2021).

For one, dominant narratives around what constitutes and how we can judge 'high-quality' or 'excellent' research, coupled to deeply ingrained incentives systems, hold in place assessment approaches rooted in the science-centric, deliberative method of 'peer-review.' For example, one's 'scientific peers' generally select what gets funded, what results get published, or what is ethically authorized.[3] At the same time, analytic approaches such as biblio-metrics, alt-metrics and innovation metrics continue to gain prominence with those seeking simplified and comparable performance indicators. These analytics often take the form of quantitative counts of productivity (such as publications or patents) and popularity (such as impact factor or H-index), and can be used to inform decisions about individual scientists' careers, university rankings and ultimately how governments invest in science.

Most recent to the mix is the concept of 'research impact assessment.' RIA constructs are largely driven by the pressure to demonstrate the value of science to governments and taxpayers supporting public research. RIA typically aims to illustrate 'the impacts' of research on society by identifying longer-term results such as health benefits, economic efficiencies or social justice outcomes. Examples such as the UK Research Excellence Framework (https://www.ref.ac.uk/) or the Canadian Academies of Health Sciences (CAHS) Preferred Framework on Investment in Health Research have been established, tested and put into regular use to support this demonstration of research impact (CAHS 2009).

3 For a notable alternative, see the work of the Patient-Centered Outcomes Research Institute at www.pcori.org

Growing opposition to the status quo has led to a clamour for alternatives that identify, measure and value scientific achievement more meaningfully. Major global initiatives such as DORA and the Leiden Manifesto, and intensifying calls for 'responsible research assessment'[4] (HEFCE, 2015), encourage funders, institutions and publishers to improve methodologies, systems and cultures of research evaluation that counter the weaknesses apparent in the predominant deliberative and analytic assessment systems. Concurrently, many have been critical of the growing desire for research impact assessment, questioning the rigour, reliability, utility and possible negative consequences of the movement (Fielding, 2010; Gugerty & Karlan, 2018; Russell et al., 2020).

As a result, a growing number of initiatives aim to find solutions. Among others, they advance the need to nurture a more comprehensive, values-driven approach to research evaluation (HuMetricsHSS, 2021); minimize perverse incentives and reward responsible research practices, complete reporting and the practice of open science (Glasziou & Chalmers, 2018; Moher et al., 2020); tackle systemic problems in research, including quality assessments that undervalue societal relevance (Dijstelbloem et al., n.d.; Dijstelbloem et al., 2014; Belcher et al. 2016; Rau et al., 2018); and attend to "measuring what matters"(INORMS Research Evaluation Group, 2021; Himanen & Gadd, 2019). Young scientists, too, have made their voices heard; in 2018 the Global Young Academy Working Group on Scientific Excellence published a report with 15 recommendations for improving processes of research evaluation (Global Young Academy, 2018). Nations are also taking action. For example China, one of the most powerful and fast-growing national forces in science, has launched radical system-wide reforms in how science is incentivized and assessed (Nature, 2020). Still, the assessment reforms of institutional regimes for defining, incentivizing and evaluating quality research continue to be painfully slow (Curry et al. 2020).

For momentum, demonstrations of viable alternatives are needed, and this presents an opportunity for the Research Quality Plus approach described in this paper. RQ+ is open access, modular and implementation ready. We believe putting RQ+ to work will provide valuable insights and spark further validation that alternatives are possible for science systems governance.

4 An umbrella term for evaluations that recognize diverse and inclusive research cultures, and thus incentivize and reward a plural approach to high quality research.

Curitiba, Brazil Photo by **Rodrigo Kugnharski**

PART 3

The RQ+ Approach & RQ+Assessment Framework

3.1 The RQ+ Approach

The RQ+ Approach is a means of assessing and improving the quality of research. It can be used across a spectrum of research activities, including priority-setting, design, implementation, evaluation and communications. It can be used by actors of many types, such as researchers, funders, universities, think tanks or publishers. Our focus in this report relates to our use of the approach at Canada's International Development Research Centre (a research funder) to guide retrospective research project evaluations [5].

At its core, the RQ+ Approach encompasses three tenets that present unique and, in our view, practical innovations for research governance. The remainder of sub-section 3.1 outlines these tenets and showcases how they can be put into use. These three tenets represent the core elements of RQ+ that should be translated across any application to retain the core benefits. The RQ+ Assessment Framework, which follows in sub-section 3.2, is how we have operationalized these tenets for IDRC specifically. Other users of RQ+ may and should iterate the core tenets into a framework reflecting their own values and objectives.

Three tenets of the RQ+ Approach

1

Context Matters

The predominant forms of research quality assessment isolate research from its environment. But there is much to learn by considering research within its natural, social and economic context, including the varying political, organizational, disciplinary and data settings in which research is done. Doing so advances understanding of the complex systems research happens in, and the relationships that research may or may not hold with contextual factors of interest.

2

Quality is Multi-Dimensional

Scientific rigor is fundamental, but concepts of quality should include other values and objectives that describe 'quality' for the specific work. For IDRC, these additional dimensions include research legitimacy, importance and positioning for use. For other funders, think tanks, journals, universities, or actors of any type, these dimensions may be different.

3

Systematic and Empirical Appraisal

Using rubrics, RQ+ requires evaluators to base judgements about quality and context on empirical evidence. RQ+ may begin with an expert review of a published research output but also asks researchers and intended users of research for their insights, and as necessary, balance these perspectives against the voice of beneficiary communities, other researchers in the same field, and/or the bibliometrics and altmetrics. Peer opinion may be one source that is triangulated against others.

5 The RQ+ Approach has emerged from an iterative process of exchange, trial and debate between IDRC and its research community. This work has included consultations with IDRC staff from varied disciplinary backgrounds, Southern and Northern researchers we have worked with and for, and science organizations (funders, academies, governments, and so on) around the world. We are deeply grateful to our colleagues who have partnered in this experience. The first iteration of the RQ+ approach was published in 2016 (Ofir et al., 2016). The iteration presented in 3.1 and 3.2 of this report reflects improvements following a large-scale evaluation with our IDRC College of Reviewers (see annex for 16 members). A collection of resources on RQ+, including its origin, purpose and accounts of use can be found at: www.idrc.ca/RQplus.

FIGURE 1

Five illustrative uses of the RQ+ Approach

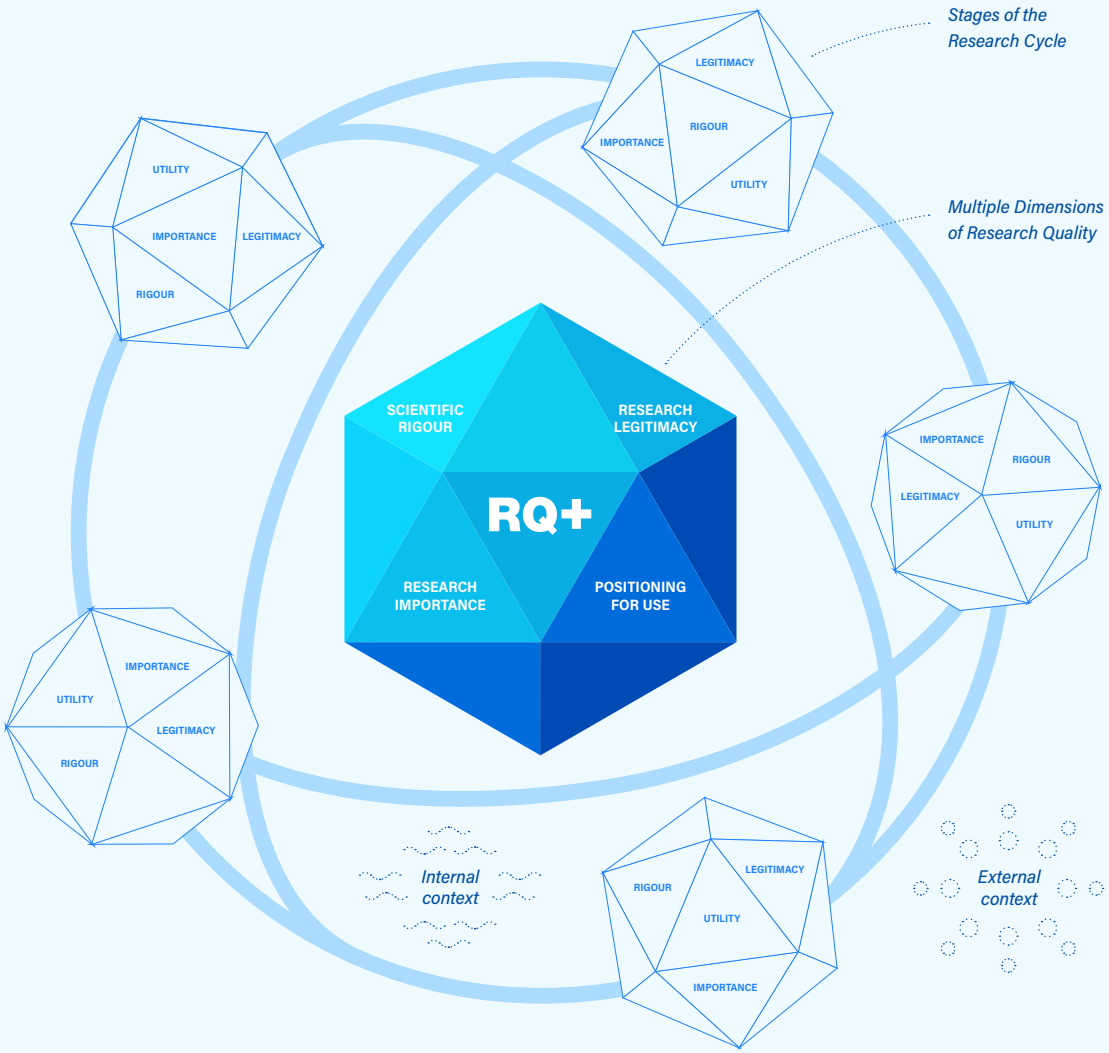
The RQ+ Approach might be applied in several ways and in figure 1 we outline five that span a 'typical' research cycle. Using RQ+ across multiple stages of a research process can support risk management, transparency and continuous learning.

Use	Why?	How?
1. Priority Setting Building a shared vision of research quality	RQ+ cultivates a shared understanding of, and common approach to research quality by making quality goals explicit and transparent.	RQ+ enables actors to articulate the values and principles underlying their research and its management. ***E.g. A funding agency uses RQ+ to describe to applicants what they look for in quality work.***
2. Design Creating projects and cohesive portfolios or teams	RQ+ helps establish the desired results of a project or portfolio and strengthens design across the identified dimensions of quality. RQ+ helps to identify contextual factors that may influence research processes and introduce risk.	Contextual factors and quality dimensions will flag aspects that should be addressed in proposals by researchers and in application reviews by funders. ***E.g. A think tank constructs a research proposal for a local government, which embodies the attributes derived from their vision of quality research and acknowledges the contextual considerations built into the project.***
3. Implementation Monitoring, adaptive management, risk mitigation and course correction	RQ+ supports adaptive management of research projects and portfolios. It can support real-time learning as a program progresses through project-by-project monitoring, self-reflection by researchers or funders, and/or serve as a formative or developmental evaluation framework.	RQ+ enables meaningful expectations and goals to be established and the development of appropriate milestones. RQ + can be used for tracking progress over time and informing project or program decision-making. ***E.g. A research team uses RQ+ as checklist at a team meeting to identify areas for attention and action.***
4. Evaluation Learning and accountability	RQ+ provides an assessment framework to judge research quality based on clear criteria. Evaluations can be done on a variety of entry points (e.g., a paper, a faculty, a project) and a common RQ+ Framework facilitates meta-evaluation. The results of these individual or meta evaluations can support learning and demonstrate accountability by showcasing measured results against criteria that are valued and meaningful.	Contextual factors and quality dimensions provide evaluative criteria which can be approached using rubrics or other evaluative ranking system. The systematic nature of the RQ+ Approach enables compilation of quality assessments across units. For example, projects, programs, portfolios, disciplines, organizations, funding modalities, and so on. ***E.g. A journal assesses manuscripts received using a tailored version of RQ+, and at annual junctures examines metadata to understand strengths, weaknesses and opportunities within its community.***
5. Communication Telling meaningful and evidence-informed stories	RQ+ provides qualitative and quantitative evidence for the dimensions of research that matter most to those who enabled and undertook the work.	Reporting and communicating against the dimensions and contextual factors builds a meaningful, holistic and useful story about results, strengths and limitations. ***E.g. A university faculty uses RQ+ to identify, evidence and report compelling illustrations of their work.***

Three tenets of the RQ+ Approach

RQ+ provides a multi-dimensional definition of quality that clarifies values and upholds that context is always an inseparable component of research. Used systematically and empirically, RQ+ enables a holistic view of quality that can apply across the research cycle.

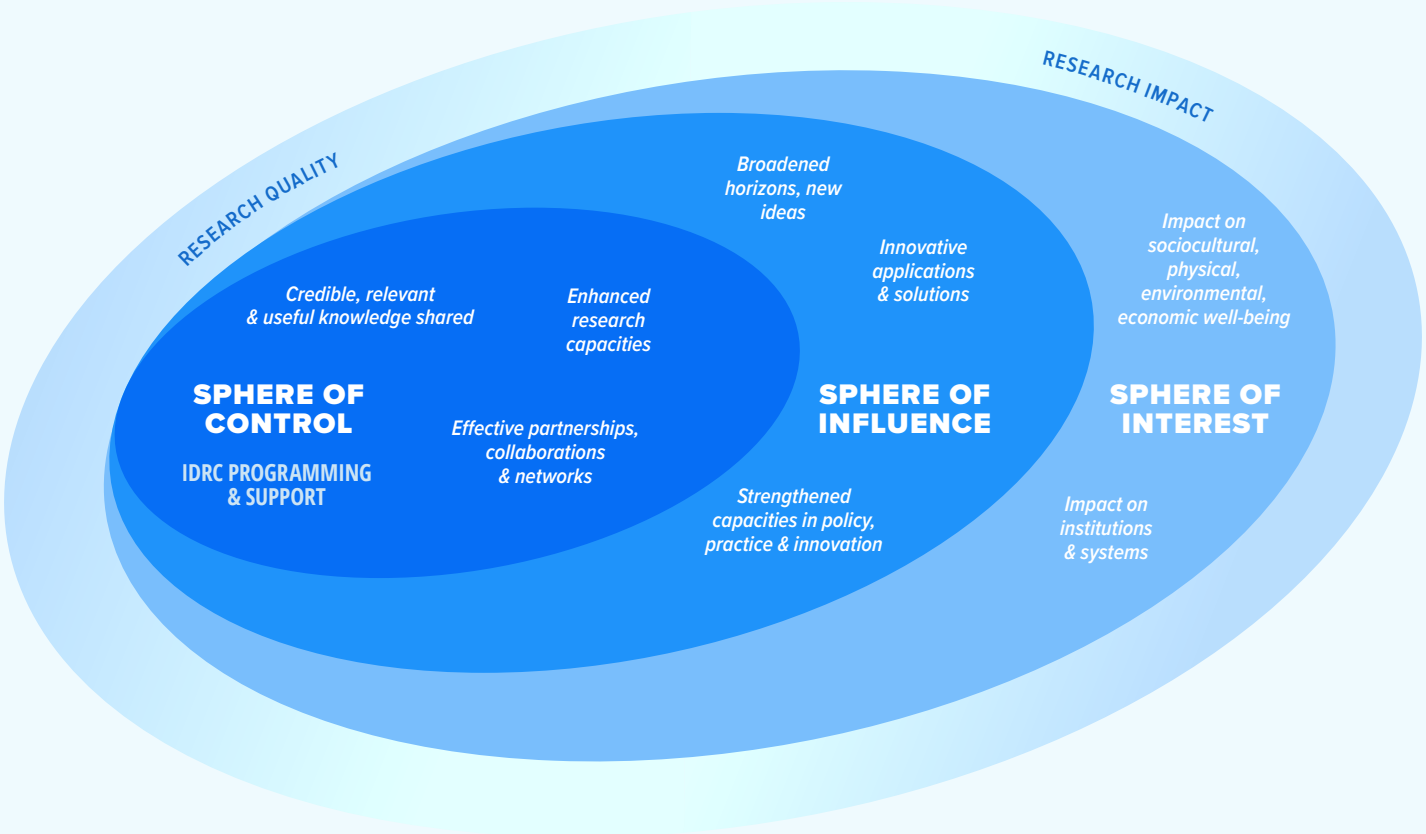
FIGURE 2



The RQ+ Approach is focused on the sphere of control.

Definitions of research excellence tend to combine notions of scientifically sound research with its impact. Yet the use, influence and impact of the research are not under the full control of the researchers or managers and financiers of the work. However, it is reasonable and important to hold them responsible for the extent to which the research is well-positioned for use, fully cognizant of the context(s) in which it is designed and conducted.

FIGURE 3



3.2 The RQ+ Assessment Framework

Here we describe the RQ+ Assessment Framework that was used in the most recent implementation of the RQ+ Approach at IDRC.

The RQ+ Assessment Framework consists of three components: (1) contextual factors; (2) research quality dimensions; and (3) evaluative rubrics. These three components align to the core tenets of the RQ+ Approach presented in sub-section 3.1. Like the tenets of the approach, the specific components are derived from background research, consultation with the IDRC research community, multiple pilot-tests, and validation through large-scale evaluations. Learn more: www.idrc.ca/rqplus.

In our view, the RQ+ Assessment Framework presented here is comprehensive and holistic. Although it has been developed to represent the values and mission of IDRC, we believe it contributes to a conceptual understanding of 'quality' that builds a bridge between scientific efforts and social, economic and environmental impacts that others may benefit from exploring.

We hope it contributes to the global need for research to be positioned in social and environmental symbiosis, as the Anthropogenic epoch demands. Still, we recognize that what follows is not watertight or failproof, and it will require amendment and adaptation. For one, because the framework is socially and environmentally value-based and value-driven, we expect it to continue to evolve over time, including at IDRC [6]. Likewise, we invite users of RQ+ to adapt components of the framework to fit their contexts, values and objectives.

The RQ+ Assessment Framework makes use of terms and concepts that have varied roots and definitions across geographies and scientific disciplines. Understanding these terms may be interpreted differently in different contexts; we present here the terms and interpretations that are useful and applicable to IDRC as a research for development funder. Users are encouraged to adopt language that works best in their context.

The RQ+ Assessment Framework in its entirety, including detailed descriptions of the contextual factors, quality dimensions and sub-dimensions, each corresponding rubric, and guidance for implementation can be found in IDRC's open access digital library.[7] The annexed 'RQ+ at a glance' infographic provides a quick reference summary.

COMPONENT 1– Contextual factors

Sensitivity to context is a core tenet of the RQ+ Approach. It is valuable for an organization to consider how its research processes and/or results may be conditioned by institutional, political or resource settings. Such understanding may help it to design, implement or evaluate its research programs/projects better than if it views research in isolation from its environment. An organization may learn which contextual factors appear to enable high-quality research, or on the contrary, which seem to inhibit it – and then make appropriate decisions. IDRC has gained useful insights from meta-analysis of previous RQ+ Assessments which included consistent characterizations of context, and several have challenged long-held assumptions about Southern research contexts and quality (McLean & Sen, 2019). In addition, they also help managers and funders syndicate a portfolio (e.g., its risk profile) by identifying project clusters by contextual factors and drawing lessons from past projects in similar contexts. Research organizations seldom have access to systematic, detailed and analytical information about the context in which they operate. This is an important contribution of RQ+.

Categorizing the contextual factors is done separately from the assessment of the research quality dimensions, i.e., a given rating for a contextual factor (e.g., political instability) is not meant to modify a specific rating for a given quality dimension (e.g., methodological integrity).

IDRC has identified five contextual factors of research quality which are deemed relevant to the research it supports. They may be grouped under external (to the organization/individual conducting the research) or internal (those that the organization/individual may be able to influence).

6 This feature of framework flexibility embraces the notion of 'dynamic evaluation' we have argued is an essential direction for evaluations of all types. See for example: McLean & Gargani, 2019 and Feinstein, 2020.
7 Available in the IDRC Digital Library here: https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/56875/IDL-56875.pdf?sequence=5&isAllowed=y

External contextual factors

1— **Maturity of the Research Field.** The extent to which there exist established theoretical and conceptual frameworks from which properly defined hypotheses have been developed and subjected to testing; if that field already has a substantial body of conceptual and empirical research in the research field; and whether it encompasses a significant community of researchers.

2— **Data Environment.** Whether quantitative or qualitative, the extent to which the research environment is data rich or data poor, and the instrumentation and measures for data collection/analysis are agreed upon and openly available and accessible.

3— **Political Environment.** The extent of risk related to political, commercial and governance challenges that could affect the conduct of the research. These range from policy instability, electoral uncertainty and industry interference to more fundamental political destabilization, economic crisis, human security threats or a humanitarian crisis. Alternatively, the nature of a research topic may be politically contentious and may bear costs or benefits to the researcher.

Internal contextual factors

4— **Organizational Research Environment.** The extent to which the organizational context of the research team is supportive of the research. Here, 'supportive' refers to priorities, incentives, infrastructure and regulations. This contextual factor refers to a valuation of risk for quality research within the researcher's organization.

5— **Research Capacity Strengthening.** The extent to which the project prioritizes financial, technical and administrative support to strengthen capacities to conceive, conduct, manage and communicate research addressing pertinent development challenges, as well as to improve abilities to identify and analyze such challenges. The focus here is to categorize the intensity of the effort put towards capacity strengthening (of individuals and/or organizations). Unlike the other contextual factors, research capacity strengthening does not inherently refer to risk. It is a measure of focus and effort.

COMPONENT 2— Research quality dimensions

The second tenet of the RQ+ Approach is to view research quality as a multi-dimensional construct that cannot be reduced to a single reliable measure. Instead, users of RQ+ articulate the values and objectives they wish to promote with their research as 'quality dimensions.' There are four principal quality dimensions in IDRC's RQ+ Assessment Framework: Scientific Rigour, Research Legitimacy, Research Importance and Positioning for Use. These are not independent, but closely interrelated. For example, an accurate and precise presentation of research results (under Scientific Rigour) can facilitate its uptake for policy/practice (under Positioning for Use). Each dimension contains sub-dimensions that expand on the core issues they represent.

1— Scientific Rigour

This first dimension refers to the technical merit and fidelity of the design and implementation of the research. Scientific Rigour is judged in terms of commonly accepted standards for the field of research (e.g., methods for experiment design, analytical models, evidence-based conclusions, reporting guidelines, etc.). It embraces the notion that reliable knowledge is generated from multiple perspectives and ways of knowing, and thus asks reviewers to assess the appropriateness of trans-, inter- and multi-disciplinary approaches to the work. Scientific Rigour includes two sub-dimensions:

1.1. **Protocol** is about the structural quality of the research design, reflected in its clear presentation (which would allow reproduction of the study), observed methodological standards, openness and framing by the examination of current knowledge (e.g., by literature reviews) on the issue.

1.2 **Methodological Integrity** refers to the technical merit of research implementation, with criteria related to (i) clear and replicable research questions, (ii) adequate data collection/generation, (iii) relevant analysis frameworks utilized, (iv) conclusions grounded in the evidence, and, (v) clear and accurate presentation of results – all linked by a consistent logic throughout the process.

2— Research Legitimacy

Research Legitimacy considers the extent to which research results have been produced by a process that accounts for the concerns and insights of relevant stakeholders, has addressed environmental consequences and was deemed procedurally fair and valid by those it is intended to benefit. Legitimacy is judged by who participated, who did not, the process for making choices and how know-

ledge was generated. While there may be a wide variety of moral and ethical aspects to consider (both societal and environmental), IDRC has defined four critical elements: Addressing Potentially Negative Consequences, Inclusiveness, Gender and Engagement with Local Knowledge.

2.1 **Addressing Potentially Negative Consequences.** This sub-dimension refers to strategies used in the research to address the risk of negative consequences (anticipated or unanticipated) of either research processes or outcomes in terms of damage done to the environment, communities/societies, culture, institutions and research participants as individuals. This includes evidence that the research team abided by accepted codes of conduct, including compliance with free and informed consent processes, avoiding coercion or adverse incentives, and recognizing and respecting local cultures and traditions. It also refers to researchers taking measures to anticipate possible adverse effects of research products and outcomes, for instance if a new technology is introduced that may exacerbate inequalities. It considers how researchers have planned to identify and address environmental consequences and produce results of a positive benefit to planetary health.

2.2 **Inclusiveness.** This applies to prioritizing the interests of marginalized and/or vulnerable communities whenever consistent with the research aims and outcomes. It also refers to the sound selection of research participants to ensure a balanced, broadly informed research process and result.

2.3 **Gender.** Research should take account of potentially differentiated gender considerations and be conducive to fair gender process and effects. Gender is a critical consideration at each of the research design, implementation and use phases. While it is categorical within IDRC that no research project should be funded that is gender blind, the IDRC RQ+ Assessment Framework acknowledges that projects may be gender aware, sensitive, responsive or transformative [8]. The focus of assessment is not on gender outcomes of the research, but rather the extent to which gender considerations were integrated into the research process (in relation to one of the four categories).

2.4 **Engagement with Local Knowledge.** This sub-dimension examines how contextually grounded the research is in terms of local knowledge and ways of knowing, as well as the appropriate connection of local actors with the process (including through benefits and access to research findings). Decolonization is considered here as research should leverage and potentiate local knowledge, ways of knowing, tradition and culture to ends that empower. Note, 'locality' is considered in relation to the scope and intentions of the research being assessed. In some circumstances, local knowledge may relate to oral histories, traditions and norms in an Indigenous community. In other cases, locality may relate to organizational culture at a local government ministry.

3— Research Importance

This quality dimension considers the value of the knowledge generated by the research for intended users and uses. Research Importance may have different interpretations when viewed from a local or global perspective, and this must be considered vis-à-vis the intention of the project. Importance is assessed through the lens of two sub-dimensions that consider related but different perspectives of the value of research:

3.1 **Originality** looks at the contribution of the research to theory and/or practice in terms of innovation in the generation of new knowledge and fresh insights relative to the current state of a given field. Originality is just as possible with knowledge synthesis addressing a solution-pertinent question or comparing a body of work on different criteria, as it is with novel experiments or novel empirical discovery science.

3.2 **Relevance** reflects the extent to which the research processes and products address existing social and/or environmental problems and are targeted to pressing, widely endorsed needs, challenges and opportunities of potential users and impacted communities – be they global or local.

4—Positioning for Use

The last dimension considers the extent to which research has been managed such that the probability of use and impact is enhanced. Determining the level of uptake of research products and tracking their influence is outside the scope of this method of assessing research quality; in our view, it is also largely beyond the control of a single project. However, it is reasonable to assess the extent to which the research process acted to enhance the probability of use and impact. One of the keys for successful Positioning for Use is the integration of potential users into

8 IDRC's gender programming framework sets out the following continuum of gender markers for research:
Gender aware: gender (the differentiated and intersectional experiences of women, men, boys and girls) is considered in the research project's rationale, but is not an operative concept in the design and methodology; Gender sensitive: gender is considered in the research project's rationale and is addressed in the project design and methodology, but does not (yet) extend to analysis and action to address gender inequalities;
Gender responsive: gender is considered in the research project's rationale, design and methodology and is rigorously analyzed to inform implementation and communication, and influence strategies. Gender responsive research does not (yet) address structural power relations that lead to gender inequalities;
Gender transformative: examines, analyzes and builds an evidence base to inform long-term practical changes in structural power relations and norms, roles and inequalities that define the differentiated experiences of men and women. Gender transformative research should lead to sustained change through action (e.g., partnerships, outreach and interventions). For more information about Gender Equality at IDRC, please visit: https://www.idrc.ca/en/research-in-action/gender-equality

the research from design to implementation. For example, when policymakers participate in drafting and prioritizing research questions, so that the research is directly aligned to user needs. Another example is the creation of audience-friendly, use-oriented and freely available research outputs.

RQ+ explores such positioning of the research through two sub-dimensions.

4.1. User Engagement refers to the degree to which the project built meaningful, two-way connections with intended knowledge users at appropriate stages of the research process, and shows evidence of using viable mechanisms to do so (e.g., accessible workshops with stakeholders). This implies the research enabled ways in which users could contribute. This sub-dimension must be considered vis-à-vis the intentions of the work – some studies may require high degrees of participation from multiple stakeholders holding varying perspectives, other studies may seek input from a single predominant user at only a few designated checkpoints. In other words, engaging users is always effective but the intensity of the engagement is determined by the research questions and objectives.

4.2 Openness and Actionability looks at the deliberate intent to ensure research results are tailored into products that are timely, useful, comprehensible and attractive to knowledge users. It also considers issues of research openness, including how the research addressed open access publication, data and code sharing, and supported process transparency.

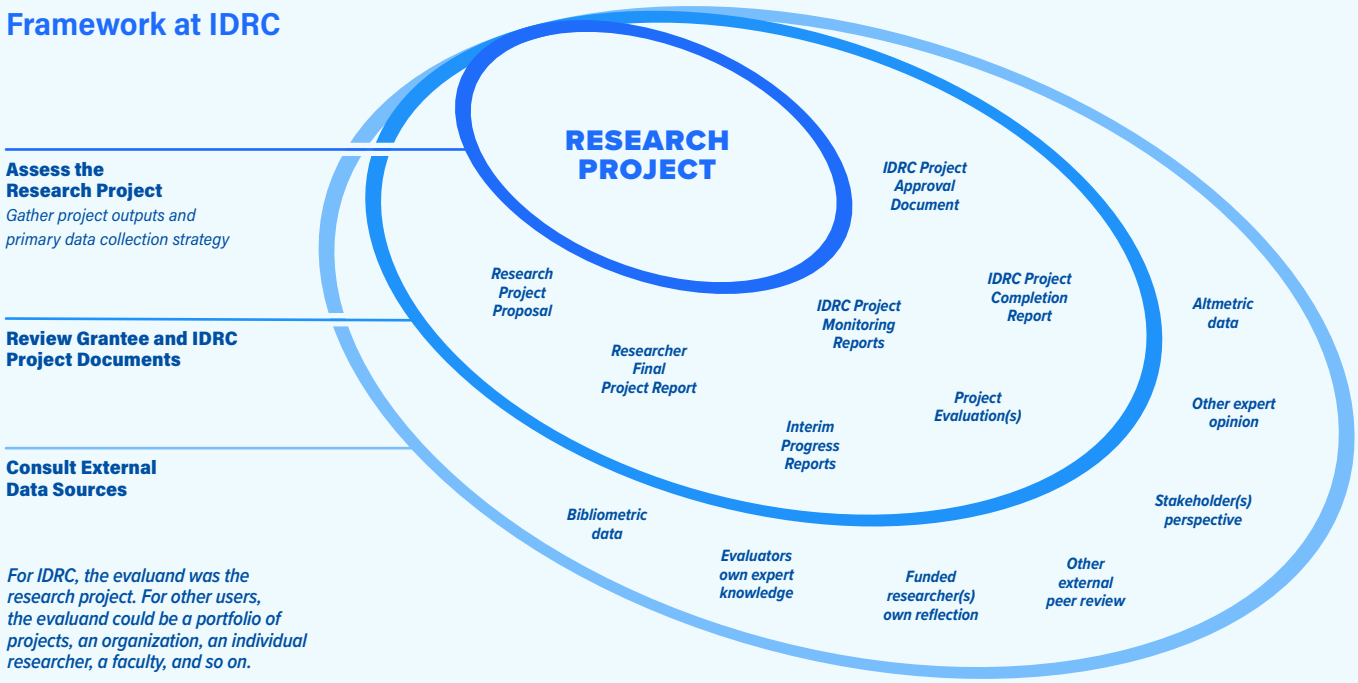
COMPONENT 3– Systematic and empirical judgements: evaluative rubrics

The third tenet of the RQ+ Approach implies that an evaluation of research quality must be based on empirical evidence, not only peer opinion.

Although subject matter expertise is an invaluable starting place for any RQ+ application, IDRC asks reviewers to apply their knowledge to assessing multiple sources of data to fully understand project quality and context. This includes empirical primary data collection, along with secondary data source reviews. For example, an evaluator using RQ+ to examine the

FIGURE 4

Systematic application of the RQ+ Assessment Framework at IDRC



quality of a completed project may review the research outputs (both academic and knowledge translation focused), gather altmetric or bibliometric data related to the outputs, and speak to the research team about how/why design and implementation strategies were used in the work. See figure 4 for illustration.

To facilitate transparent and systematic application, the RQ+ Assessment Framework provides detailed evaluative rubrics that spell out criteria to assess each contextual factor and sub-dimension of quality (see figure 5 for examples). Each value in the rating scale has a description of what a given parameter means (e.g., what does a 'good' rating entail for the sub-dimension Openness and Actionability).

Reviewers compare the descriptions in the rubrics for each sub-dimension/factor with the evidence they have gathered from empirical sources. By drawing on clear criteria, the rubrics facilitate consistency and comparability in the assessment. The combination of written descriptive assessments with numeric ratings allows reviewers to provide a rich, mixed qualitative/quantitative analysis with various uses (e.g., meta-analysis across programs in an organization and narrative interpretation of processes that condition how research is performed).

The contextual factors use a four-point categorical scale. Each factor has tailored labels specific to it. For example, the 'Maturity of the Research Field' uses: 1 - Mature; 2 – Established; 3 – Emerging; 4- New. For 'Organizational Research Environment,' the numerical labels are: 1- Empowering; 2 – Supportive; 3 – Unsupportive; 4 – Restrictive. (See figure 5 for example.)

For the quality dimensions and their subdimensions, the rubrics use graduated levels of achievement, classified into four steps: 1-2 Unacceptable; 3-4 Less than acceptable; 5-6 Acceptable/good; 7-8 Very good. (See figure 5 for example.)

The IDRC RQ+ Assessment Framework contains the full text for all rubrics (IDRC 2022).

FIGURE 5

Examples of rubrics for contextual factors and quality sub-dimensions

Contextual factor	1— EMPOWERING	2— SUPPORTIVE	3— UNSUPPORTIVE	4— RESTRICTIVE
Organizational Research Environment	Research environment (organizational priorities, infrastructure, norms, incentives etc. related to research) is fully established and enabling for researchers.	Research environment is well developed and generally supports researchers with their needs.	Research is not an organizational priority, yet the organization tends to comply with acquired commitments or external requests.	Research environment is weak or largely under-developed, not supportive of researchers or possibly even works against them.

Quality sub-dimension	1 – 2 UNACCEPTABLE	3 – 4 LESS THAN ACCEPTABLE	5 – 6 ACCEPTABLE/GOOD	7 – 8 VERY GOOD
Relevance (from dimension 3, Research Importance)	The research does not contribute to a key development priority, or an emerging area that might demand solutions in the foreseeable future. Justification for the work is absent or unconvincing.	The research makes little contribution to a key development priority or an emerging area that might demand solutions in the foreseeable future. A justification for this area of work is not well substantiated.	The research contributes to a key development priority, or an emerging area of significance that will likely demand solutions in the near future. This area of work is justified.	The research makes an important contribution towards a key development priority, or an important emerging area that is highly likely to demand solutions in the near future. This area of work is comprehensively justified.

Northwest Territories, Canada Photo by **USGS**

PART 4

Considerations in the use of RQ+

There are several potential uses of RQ+. We outlined five earlier in this paper: priority-setting, design, implementation, evaluation and communication (see figure 1). In preparing to apply RQ+ for any of these uses, various issues will require consideration. There is no standard checklist of issues; they will depend on context and purpose. In this section we share some issues that IDRC considered fundamental in the design of its most recent application of RQ+. It is critical to note that not all applications of RQ+ require the degree of intensity and focus suggested hereafter. Users of RQ+ are invited – and encouraged – to tailor the approach to their own contexts and needs.

We begin this section with a brief introduction to the Evaluation of the Quality of IDRC-supported Research, or the 'RQ+ College of Reviewers' evaluation. IDRC assembled 16 leading academics with research for development experience to form the inaugural RQ+ College of Reviewers. The Centre launched the evaluation to advance IDRC's stewardship of high-quality research for development. The RQ+ College of Reviewers evaluation was one of three 'strategic evaluations' commissioned by IDRC to conclude its 2015-2020 strategy period. These examined cross-cutting issues central to the Centre's mandate. With a focus on research quality and actions that are within IDRC's sphere of control, this RQ+ College of Reviewers evaluation complemented others that look at broader research outcomes such as 'scaling the impact of research results' and 'building leaders in research for development.' [9]

The specific objectives of the RQ+ College of Reviewers evaluation were to: 1) generate insights on the strengths, weaknesses and opportunities for improving the quality of research across IDRC's full suite of programming; and 2) provide a follow-up to a series of 2015 RQ+ evaluations, and thereby enable longitudinal analysis of trends in research quality and research contexts.

The evaluation was conducted in two components. The first involved conducting independent and peer-expert RQ+ Assessments of 160 research projects from across IDRC programs. The second focused on qualitative and quantitative meta-analysis. The structure of the RQ+ College of Reviewers is described in figure 5 on the following page.

Perspectives related to the use of RQ+ collected during and after the evaluation are reflected in this section (see appendix for full list of external reviewers/College members). Further details on the evaluation design are provided in the latest version of the RQ+ Assessment Instrument,[10] a guidance document for the RQ+ College of Reviewers. Here, reflections and lessons on the design of the RQ+ College of Reviewers evaluation are grouped under the following questions:

1. **What will be assessed?** This includes contextual factors and quality dimensions in an RQ+ Framework, the scope of review and the unit of analysis.

2. **Who will conduct the assessments?** Expertise and relevant perspectives are required, and so too is a plan to facilitate consistency and consensus across reviewers.

3. **How will assessments be conducted?** Managing issues like portfolio diversity, balancing qualitative and quantitative assessments, and the use of ratings for quantitative analysis require clear and consistent planning.

Users of RQ+ are not required to follow this advice. It is provided as a reflection on IDRC's experience using the RQ+ in a large-scale summative evaluation.

1. What will be assessed?

Identifying contextual factors and quality dimensions in an RQ+ Framework.

IDRC has landed on five contextual factors, four dimensions and 10 sub-dimensions that reflect its values for research. We believe these represent a holistic and comprehensive view of research quality. Some of the dimensions, like Scientific Rigor are widely accepted quality criteria. Other dimensions, such as Legitimacy or Positioning for Use, are not yet a part of mainstream quality debates.

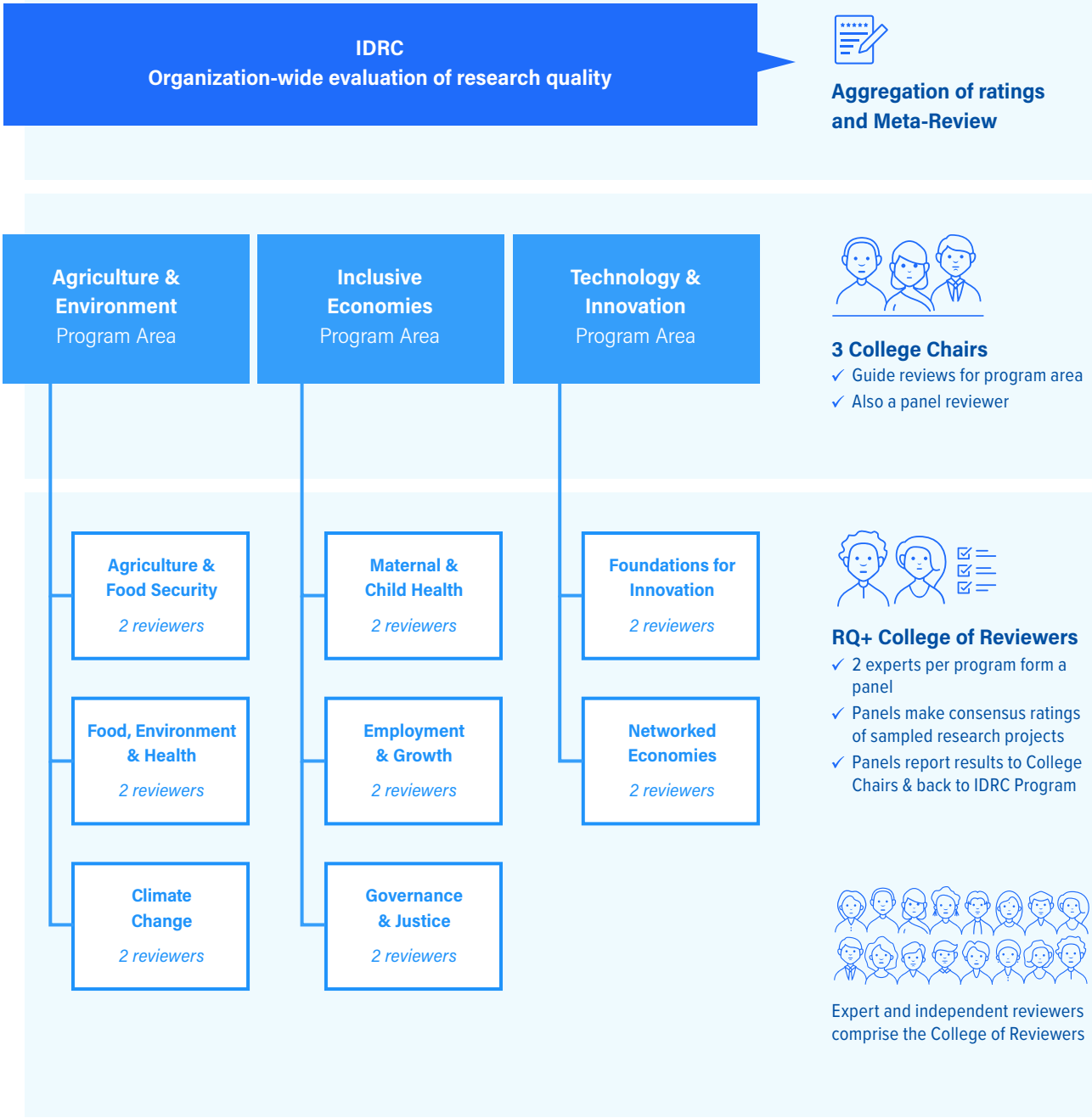
We recognize that other users of RQ+ may wish to tailor the framework to a particular context and select the criteria that best encapsulate their values and objectives.

9 For more information about IDRC's approach to evaluation and other strategic evaluations, please see: https://www.idrc.ca/en/about-idrc/accountability
10 IDRC's Research Quality Plus Assessment Instrument 2020: https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/56875/IDL-56875.pdf?sequence=5&isAllowed=y

FIGURE 6

Structure of the RQ+ College of Reviewers

The RQ+ College of Reviewers was comprised of eight review panels. Each two-person panel focused on one IDRC program. Embedded in these panels were three College Chairs who held significant expertise in the application of RQ+ and provided support to each panel. Each review panel was responsible for selecting a sample of 20 projects and a data collection strategy, characterizing the context of the projects, and assessing the quality of research using empirical data.



The RQ+ College of Reviewers noted that some possible complementary elements could be added to the framework as quality dimensions and thereby shed new light on the value of the research, such as: 'Research Applicability' with sub-dimensions of external validity and scaling; or 'Value for Money' with sub-dimensions of efficiency and return on investment. Furthermore, alternative contextual factors could be constructed to examine the extent of participation required by different research methods, or the composition of the research team itself (e.g., gender and diversity, interdisciplinarity, career stage).

Defining the scope of review: embedded or targeted, static or dynamic design?

An examination of research quality can be done as a component of a larger planning, implementation or evaluation process or it can be a targeted area of focus. It can also be looked at in a static moment in time, or in a dynamic way.

As a research funder, IDRC typically embeds RQ+ Assessments in broader program evaluations. For example, the 2015 External Reviews of IDRC Programs used RQ+ to assess the quality of research alongside evaluating the significance and relevance of program outcomes and coherence of strategy implementation.[11] In 2020-21, IDRC experimented with a targeted evaluation design. The RQ+ College of Reviewers was assigned the scope of assessing research quality on its own, with an intentional cross-program focus to support meta-analysis.

A targeted design focusing on research quality allowed IDRC to make more intentional decisions about reviewer expertise, project samples and ensuring consistency in assessments. However, there were some trade-offs in terms of connecting research quality assessments to program outcomes and strategy.

While IDRC's RQ+ College of Reviewers evaluation asked for static assessments of each contextual factor and quality dimension, this proved to be challenging, particularly when the context assessed at the start of the project changes because of contributions from the project (e.g., a project may have contributed to a shift in the 'Maturity of the Research Field' from an emerging to an established field). We believe that RQ+ could be used to describe the dynamics set in motion by the project, and that this could be a possible advantage of the RQ+ Approach when used accordingly.

We have some concern that applying RQ+ as a static evaluation methodology can lead to an incomplete view of quality. Implementing RQ+ as a dynamic evaluation methodology could support the consideration of changes over time that can be attributed to (or contributed by) the project.

Unit of analysis: research outputs or project or portfolio?

Defining the unit of analysis is an important consideration when scoping an RQ+ application. The RQ+ College of Reviewers placed focus on the 'research project' as evaluand in their reviews. To accomplish this, reviewers were asked to provide a composite score at the project level based on evidence gathered from multiple data sources.

Focusing on the 'research project' as the unit of analysis worked well and allowed for a more holistic and substantive assessment, based on all the information gathered by the reviewer about a project's research (and not only from a sample of reviewed outputs).

In some previous RQ+ applications, the unit of analysis was the research output. However, we learned that rating individual outputs could lead to a narrow focus that did not adequately represent the research project and, in some cases, could be counterproductive because of confirmation bias and anchoring effect when assessing the project.

2. Who will conduct the assessments?

Requirements for expertise and perspectives of reviewers.

RQ+ assessments rely on expert judgement combined with an analysis of empirical evidence. Different types of expertise and perspectives will be valued in different contexts. To conduct the 2020-21 strategic evaluation, the RQ+ College of Reviewers was comprised of 16 leading academics with research for development experience.[12] From a pool of approximately 500 applications, candidates were selected on the basis of individual strengths and expertise as well as how individuals fit together in a team that could address the thematic and geographic breadth of the programming under review. Regional and linguistic diversity was an explicit part of the recruitment process, as was achieving a balance of women and men.[13] Selected reviewers were brought together for a two-day RQ+ training workshop at IDRC headquarters in Ottawa, Canada. It should be noted that IDRC does not follow such an intensive process for all applications of RQ+. Other users should develop implementation designs that match their knowledge needs.

11 https://www.idrc.ca/en/research-in-action/external-program-reviews-2015
12 The global call for the RQ+ College of Reviewers – including application requirements, costing details and IDRC's evaluation criteria – is available at: https://www.idrc.ca/en/funding/global-call-inaugural-idrc-college-reviewers
13 An introduction to the members of IDRC's 2020 College of Reviewers, including short biographies, is available here: https://www.idrc.ca/sites/default/files/sp/Images/rq_cor_bios.pdf

Recruiting a formal RQ+ College of Reviewers allowed IDRC to leverage the value of external expertise from the global research community to evaluate the quality of the research it funds. Selecting College members based on a combination of academic expertise with implementation/ practitioner perspective provided a high standard for credibility and confidence in the process and conclusions of the evaluation. Given the significance of the evaluation for organizational learning and accountability for IDRC, the investment in peer expertise, training and teambuilding was important.

Facilitating consistency and consensus.

When multiple reviewers are conducting RQ+ Assessments, it is critical to ensure consistent understanding of the factors and dimensions in the framework and to enable consensus scoring that is informed by complementary expertise across reviewers. The College of Reviewers was designed to facilitate fairness, comparability and synthesis of assessments. A key consideration was the structure of the College of Reviewers, comprised of eight review panels (see figure 6 above). Embedded in these panels were three committee who held significant expertise in the application of RQ+, provided support to each two-reviewer panel, and ensured normalization of RQ+ application across all eight panels.

The review panels were required to use a standardized template to capture both quantitative and qualitative assessments independently, and then collaborate to produce consensus scores per project. The College Chairs reviewed these instruments for each review panel at three discrete stages in the evaluation, hosted consensus meetings to resolve differences in ratings of projects within panels (which were not a significant occurrence; they were solved with relative ease), and reported back to IDRC at regular intervals on progress.

A review process and structure that supported high-quality collective assessments was important for facilitating rigour and consistency. This included two-person review panels supported by RQ+ experts to produce consensus scores using standardized templates. It is critical to note that not all applications of RQ+ require the degree of intensity and focus suggested here.

3. How will assessments be conducted

Managing portfolio diversity.

The standardized RQ+ Framework may not always fit perfectly with the specific design and implementation of individual projects. One way to accommodate diversity in portfolios is to build flexibility into the framework. As an example, in the IDRC RQ+ Assessment Framework, under 'Research Legitimacy,' reviewers could indicate that the sub-dimensions of 'Inclusiveness,' 'Engagement with Local Knowledge' and 'Addressing Potentially Negative Consequences' are 'not an area of focus' in a research project. It is important to provide justifications in these circumstances and this can be an interesting/valuable part of portfolio analysis. For example, asking: Why was 'Addressing Potentially Negative Consequences' not an area of focus?

IDRC was able to accommodate diversity in the portfolio of projects under review by building some flexibility into the RQ+ Framework. However, it was important to give careful consideration to where that flexibility is required and what quality sub-dimensions can be considered 'optional' under specific circumstances.

Balancing qualitative and quantitative assessments.

To produce a comprehensive metadata set, IDRC required the College of Reviewers to document an explanation for each quantitative rating given to a contextual factor and quality dimension. The requirement for this qualitative reasoning also facilitated robust inter-rater consensus seeking.

Documenting qualitative reasoning behind quantitative scores is essential for contextualizing the decisions and judgements made, and critical for the meta-analysis phase of the evaluation. It helps answer not only what the quality of IDRC-supported research is, but also a deeper understanding of why and how it can be improved.

Ratings and their implications for quantitative analysis.

Individual quantitative ratings facilitated by standardized RQ+ rubrics are useful for benchmarking and learning, and for identifying cases which may serve as exemplars to emulate and lessons. There are different ways to define and aggregate the quantitative rating process. The overall quality rating could be an unweighted average of the dimensions, or it could be an index of overall quality that assigns weights to quality dimensions or

sub-dimensions based on their informative contents (for example through factor analysis). Another possibility is to complement the unweighted overall quality rating with a weighted index, with weights decided on the basis of priorities. For the College of Reviewers, IDRC required composite scores for each quality sub-dimension that were not simply an average. Instead, scores were balanced across all data sources reviewed (e.g., outputs, interviews, internal documentation, etc.) through consensus-seeking in the two-person review panel, and guidance/oversight of the College Chair.

When sample sizes are adequate, quantitative ratings can be used for meta-analysis and higher-level learning for the RQ+ user. For example, a meta-analysis of a 2015 IDRC RQ+ Assessment dataset was able to answer questions about which contexts had the highest and lowest ratings, what the influence of contextual factors was on quality dimensions, and whether there were significant relationships between dimensions (see: McLean & Sen, 2019). However, users of RQ+ should recall that ratings are only one aspect of RQ+ complementing the qualitative description and explanation, which ultimately provides the justification of the rating. As such, there is likewise value in examining qualitative justifications for ratings using qualitative synthesis methods. This is an area IDRC will further develop and aim to share. If other users do the same, we look forward to learning from this experience.


Tra Que Village, Vietnam
Photo by Rod Long

PART 5

Moving forward

The preceding sections of this paper have presented the why? and the how? of IDRC's experience with RQ+. To recap:

Why RQ+?

Research can be a force for good in our world. Yet, we have struggled globally to find systematic and practical ways to connect research to societal and environmental challenges. As we enter the Anthropocene, and mounting evidence shows that human actions are changing the face of our planet at unprecedented rates, it is now necessity to adapt scientific governance to uplift, not undermine, a sustainable and prosperous future for all.

How?

RQ+ is one immediately practical contribution to this effort. The approach suggests three fundamental changes to the way we design, manage and evaluate research. First, accept that research happens in a context, and consider this context carefully as work is designed and assessed. Second, hold a multi-dimensional view of 'quality' that embraces the multiple values and objectives embedded in the work. Third, science must turn its own method on itself: evaluate scientific quality using multiple methods and sources of evidence and document the results systematically. Sub-section 3.2 of this paper has detailed how these three tenets have been operationalized and validated specifically for IDRC.

In this final sub-section, we detail next steps and suggest implications. These four directions open new opportunities for experimentation, learning and improvement and we encourage readers to join us in this effort.

1. New uses

Move RQ+ into the research cycle at multiple entry points.

At IDRC, RQ+ has been implemented most often as an external summative evaluation approach. In these cases, it has been used by independent reviewers to retrospectively assess completed projects and deliver conclusions at the project, program and organization level. IDRC benefitted from these summative evaluations for both learning and accountability purposes – and will continue to use RQ+ this way. Others interested in learning and accountability could reap similar benefits doing the same.

However, RQ+ shows potential for other stages of research management. In figure 1 of this report, we outlined how the RQ+ Approach may benefit at least five stages of science governance: 1) Priority-setting (setting a transparent vision for research quality), 2) Design (planning research efforts), 3) Implementation (monitoring and course correction), 4) Evaluation (learning and accountability), and 5) Communications (telling meaningful stories). IDRC is already experimenting with the approach across this spectrum of uses and we are encouraged by early results. For example, with funding partnership development (a priority-setting use) RQ+ allows IDRC to communicate its values and mission when negotiating and presenting the Centre to others who may have similar or different aims.

We also have concerns. Currently IDRC is considering building RQ+ into program monitoring (an implementation use), with high expectations for how this will help keep programs on positive trajectories. However, where the approach is economized for entry points such as performance monitoring, users must be vigilant that any reduction of meaning (say to monitor quantitative scores as a "KPI") is clearly articulated and actual data/evidence behind these figures are systematically explained. Not doing so may lead RQ+ into the same traps the mainstream analytic approaches – such as bibliometrics and altmetrics – find themselves in today. Likewise, we realize that routine reporting on quantitative measures may give rise to a false sense of control and detrimental comparison (what we have called at IDRC, "avoiding the Program Olympics"). We have learned that monitoring only drives improvement when its meaning and implications are endorsed, and agreed corrective actions are put in place by those who monitor and those who are to be impacted by the change.

At IDRC, we plan to experiment with self-assessments, for example as a tool for program officers to use in ongoing project

management. We are also exploring using RQ+ to facilitate program learning and exchange, for example through internal staff cross-project reviews. We expect these self-evaluation and internal evaluation applications will serve to complement, not replace, the value of external review.

2. New users

Organizations, people and specific works. IDRC – a funder of research for development across the Global South – has used RQ+ to assess its work largely using 'research projects' as the unit of analysis. Doing so has allowed deep understanding of individual projects, and the systematic nature of RQ+ project level ratings has facilitated robust meta-analysis across thematic categories of interest to IDRC. For example, quality by research program, geographic location, type of organization doing the work, or type of funding mechanism supporting the project (McLean & Sen, 2019).

Following this experience using RQ+ at a funding agency, we encourage others to adapt RQ+ for similar efforts. Although IDRC is a research for development funder within the Global South, we believe there is significant potential for RQ+ across the Global North and Global South.

Just a few examples:

- ✓ Journals may wish to iterate a version that embodies their values and objectives and apply it systematically via peer review to manuscripts submitted. Doing so can reinforce the transparency, and in our view quality and consistency, of their critical editorial and gate-keeping role in the science ecosystem.

- ✓ Universities might use a tailored iteration to assess the body of work of staff for hiring or promotion; or a think tank might use RQ+ to support capacity building for new staff or affiliate researchers. In effect, both users would contribute to establishing ways of teaching new colleagues how to embed institutional values into their work. The same organizations might examine the aggregate results of individual assessments to understand trends, such as for a faculty or think tank division. Or conversely, without relying on aggregation of individual scores, they might draw upon the RQ+ approach to ask: what are our core values and objectives, and as a collective how do we measure up?

In essence, we have learned that the three tenets of the RQ+ Approach – expressing values as dimensions of quality, considering different aspects of the context and systematically seeking evidence beyond opinion – hold potential to expand and improve research governance for multiple users. So far, we have received positive responses from those who are beginning to experiment with doing so.

3. Open exchange

Share experiences, data and results. Globally, research organizations (funders, universities, academies, etc.) and individual researchers face increasing pressures to communicate and exemplify the benefits of their work. Given the potential of RQ+ to tell critical and meaningful stories about research, we hope to work together with others who choose to experiment with RQ+ and pursue a broader effort to improve it.

Researchers and research organizations of all types should collaborate and exchange experience openly following new applications – and these collaborations should address both the use of RQ+ as well as the findings about research quality produced. Documenting and sharing use experiences will support a more thorough assessment of the benefits and drawbacks of RQ+ vis-à-vis alternative research evaluation approaches. There is a pressing need to generalize this work outside of IDRC. The systematic nature of RQ+ lends itself to the possibility and potential of results synthesis. Where possible, users should work across organizations to aggregate data in support of large-scale meta-evaluation. Doing so would boost collective learning about a field, discipline or geography of research. In short, better and more can be accomplished as a collective.

4. Identify determinants of impact

Use RQ+ to lay the foundation for robust research impact evaluations. The comprehensive and systematic nature of RQ+ holds significant potential for strengthening the study of research impact. Although the RQ+ Framework focuses strictly on 'research quality' – a feature within the primary stakeholders' sphere of control – the information gathered during assessments provides a comprehensive snapshot of the status of the project, program or organization at a precise moment in time. Retrospectively combining such information with the tracing of project or program impacts (e.g., policy improvements, lives saved or improved, a notable improvement in practice, an environmental benefit, etc.) may deepen understanding of the research process and contextual factors that generated these positive – or negative – later-stage results and their sustainability.

Such insights have the potential to improve the stewarding of research and researchers towards long-term positive change. Questions of interest could include: Do the contextual factors used in the framework actually have influence on research impact (and what are the implications)? Do the prioritized sub-dimensions of research quality actually lead to real-world impact?

In summary, RQ+ data can open new doors for rigorous assessments of the longer-term benefits research and innovation generate for people and the planet.

14 At IDRC we have used RQ+ to conceptualize a measure of individual capacity development. For the evaluation report, see: https://idl-bnc-idrc.dspacedirect.org/handle/10625/58086

Indonesia Photo by **Ines Álvarez Fdez**

Call to action

As the Anthropocene dawns, and as pandemic-intensified inequalities amplify, it is necessary and essential that science and innovation inform our way forward.

This paper raises a call to researchers and research organizations of all types, around the world: we need a new vision of research quality to meet our new challenges. Simply put, research must be re-imagined and re-built if it is to flourish in the emerging reality of the Anthropocene, and if it is to rectify – not exacerbate – spiralling social inequities and environmental crises.

RQ+ has helped to cultivate and reward precisely this type of work. IDRC has stewarded investments in research and innovation that break paths to sustainable development, as they highlight new solutions for social progress alongside planetary health.

Today, RQ+ offers a practical response to this pivotal moment in global development and science governance. Specifically, by accepting that context is always a part of a research process, by surfacing values transparently in our measures, and by being scientific about the way we evaluate science, RQ+ connects research to the social and natural systems that create, constrain and can carry it – and all of us – forward.

Annexes

RQ+ AT A GLANCE

RQ+

RESEARCH QUALITY PLUS

RQ+ provides a systems-informed approach to defining and evaluating the quality of research, and its positioning for use and impact. It allows tailoring to context, values, mandate and purpose, and can support planning, management and learning processes at any stage in the lifetime of a research project, program or grants portfolio.

PART 1

RQ+ Framework Components

The RQ+ Framework operationalizes the three tenets of the RQ+ Approach.

1 CONTEXTUAL FACTORS

Constraining and enabling contextual factors – within or external to the research effort – most likely to affect research performance are identified.

Examples from IDRC experience:

External factors

1. Maturity of the research field
2. Data environment
3. Political environment

Internal factors

4. Organizational research environment
5. Research capacity strengthening

2 QUALITY DIMENSIONS & SUBDIMENSIONS

The four dimensions and their subdimensions encapsulate the quality assessment criteria. Tailored for IDRC:

1. Scientific Rigour
- 1.1 Protocol
- 1.2. Methodological Integrity

2. Research Legitimacy
- 2.1 Addressing potentially negative consequences
- 2.2 Gender
- 2.3 Inclusiveness
- 2.4 Engagement with local knowledge

3. Research Importance
- 3.1 Originality
- 3.2 Relevance

4. Positioning for Use
- 4.1. User Engagement
- 4.2. Openness & Actionability

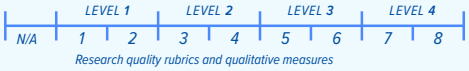
3 SYSTEMATIC AND EMPIRICAL APPRAISAL

Performance is characterized using customizable research quality rubrics.

Characterization of each contextual factor, dimension and subdimension is done using tailored rubrics that combine quantitative and qualitative measures.

Ratings on an 8 point scale show four levels of performance (or progress).

This is an example. Scales should be created to fit a purpose:



Research quality rubrics and qualitative measures

PART 2

A Dynamic Evaluation Stance

Use RQ+ to govern research from start to finish.

1 Priority Setting

E.g. A funding agency uses RQ+ to describe to applicants what they look for in quality work.

2 Design

E.g. A think tank constructs a research proposal for a local government, which embodies the attributes derived from their vision of quality research and acknowledges the contextual considerations built into the project.

3 Implementation

E.g. A research team uses RQ+ as checklist at a team meeting to identify areas for attention and action.

4 Evaluation

E.g. A journal assesses manuscripts received using a tailored version of RQ+, and at annual junctures examines metadata to understand strengths, weaknesses and opportunities within its community.

5 Communication

E.g. A university faculty uses RQ+ to identify, evidence and report compelling illustrations of their work.

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The Inaugural RQ+ College of Reviewers

The authors of this paper are grateful to each of the members of IDRC's inaugural RQ+ College of Reviewers. These thought leaders have provided significant insight and inspiration to this paper and have bolstered our confidence in using and sharing the RQ+ Approach.

Members of the RQ+ College of Reviewers are:

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