



Cross-RDC

Impact Assessment Program:

Management Procedures

Updated April 2018



ruralR&D CORPORATIONS

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1. The Cross-RDC Impact Assessment Program

In 2007 the Council of Rural Research and Development Corporations (the Council) established a program to assess the impact of research, development and extension (RD&E) funded by rural research and development corporations (RDCs). The program estimated the overall return to the portfolio of RDC RD&E from the results of ex-post cost-benefit analyses (CBAs) of a sample of the investments in RD&E by individual RDCs.

The Cross-RDC Evaluation Program was governed by procedures that set out the purpose of the program, the basis on which the RDCs participated, the selection of RD&E investments (Projects) for evaluation, guidelines for methodology to be used in conducting the evaluations and the process for analysis and reporting of results¹. During the first several years of the program (2007 to 2011), 36 'highly successful Projects' (known as 'hero' Projects) and up to 160 randomly selected Projects or clusters of Projects were evaluated in two published reports (CRRDC, 2008 and CRRDC, 2010) and one unpublished report (completed in 2011).

The existing Evaluation Program was reviewed in 2011 after which the Council determined that the program should be continued, but with some refinement of the administrative procedures and the assessment methodology. The revised Cross-RDC Impact Assessment Guidelines (*Guidelines*) and Program Management Procedures (*Procedures*) documents were published on the Council's website in May 2014.

In 2016, following up on the revision of the *Guidelines* and *Procedures*, the Council commissioned an independent evaluation team to conduct a Cross-RDC Impact Assessment and Performance Reporting Update.

This Project was undertaken in two stages carried out concurrently. Stage 1 reviewed and reported on existing impact assessment and performance information to fill in the gap since the last published cross-RDC impact assessment report with information covering the period 1 July 2009 to 30 June 2015. Stage 2 set out to identify and develop a future framework for the collection and reporting of data and evidence of impact across the RDCs, building on the existing Cross-RDC *Guidelines* and *Procedures*.

In light of the findings of the 2016 Cross-RDC Impact Assessment and Performance Update reporting process, the Cross-RDC Impact Assessment Working Group (WG) sought to again update the *Guidelines* and to also have the *Procedures* rewritten and simplified. The purpose of these revisions was to provide an improved framework for conducting impact assessments of RD&E by all RDCs, to improve consistency and comparability of evaluation reporting, and to improve and simplify the future aggregation and analysis of individual RDC RD&E evaluations for cross-RDC impact assessment by the Council.

¹ Council for Rural Research and Development Corporations, various dates, *Guidelines for Evaluation*, Canberra

This document (*Procedures*) sets out the new, simplified administrative procedures that will govern the Program, under the title of the Cross-RDC Impact Assessment Program, for the purpose of assessing the impact of the RD&E investments of the RDCs. These new procedures retain some elements of the procedures developed by the Council in 2007, to maintain continuity between the results from the initial years of the program and results from subsequent years. The procedures have been adjusted to clarify the Program administration and, where possible, to better integrate the Program with other evaluation activities that RDCs undertake.

These *Procedures* should be read in conjunction with the *Cross-RDC Impact Assessment: Guidelines* (updated, April 2018) which set out a standardised methodology by which CBAs should be undertaken for the purposes of the Cross-RDC Impact Assessment Program.

The following sections describe the purpose of the Program, its structure and processes, procedures for selecting RD&E investments (Projects/Project Clusters) that are to be assessed, governance of the program, and compiling, aggregating and analysing, and publishing results.

2. Purpose

The purpose of the Cross-RDC Impact Assessment Program is to:

- assess and report on the overall returns to rural industries from the portfolio of investments in RD&E by RDCs;
- assess and report on the non-market benefits (including public and spillover benefits) arising from the portfolio of investments in RD&E by RDCs; and
- inform government and the public about the nature of those non-market (i.e. public and spillover) benefits from rural RD&E that are conditional on public contributions to the RDCs.

This purpose will be achieved by systematic ex-post assessment of RDC investments in rural RD&E. The results of these assessments will be pooled and analysed to estimate the aggregate, net social returns from the portfolio of RD&E investments by RDCs – that is, both the benefits to rural industries and the non-market benefits that flow to others in the community (often referred to as social and environmental or spillover benefits) – on a biennial basis.

The impact assessments, their results, and the collective summary reports will inform stakeholders in RD&E - including rural producers, governments, consumers and taxpayers - about the benefits flowing from the investments. Alongside the publication of individual cost-benefit analysis reports (Impact Assessment Reports) by the RDCs, and a statistical summary of aggregated results by the Council, every second year a meta-analysis of the results of the assessments will be captured in a summary report (Impact Assessment Program Summary Report) to provide a narrative description of the nature of the RD&E and impacts produced.

The Cross-RDC Impact Assessment Program sets out a procedure for selecting and evaluating a subset of the investments in RD&E by each RDC. RDCs

may undertake additional ex-ante evaluations, ex-post evaluation of other RD&E investments, and/or re-evaluation of Projects that have been subject to earlier ex-post assessment. The Impact Assessment Program is not intended to take over or replace evaluation processes that RDCs undertake for their own purposes, but to integrate with, draw on, and complement those independent evaluation processes.

The Program relies on cooperation between the RDCs, and the Council acknowledges the respective responsibilities and contributions of its members to the Program.

3. Structure and Process

The Cross-RDC Impact Assessment Program provides for consistency in the evaluation of investments in rural RD&E made by the Rural RDCs in their respective industries. The Program involves aggregating the results of regular and rigorous assessment of completed RD&E investments by each RDC. These assessments provide accountability to RDC stakeholders, including government, levy payers, researchers and the community. The aggregation will generate estimates of the performance of the RDC portfolio as a whole and over time. The scope of the Program includes evaluation of:

- RD&E in which the RDC is the sole investor;
- RD&E in which the RDC has invested in collaboration with a research agency or other research funding organisations; and
- RD&E investments made through collaboration among RDCs

Impact assessments are to be completed according to methodology described in the Council's *Guidelines*. The *Guidelines* have been developed jointly by the RDCs and endorsed by the Council to guide ex-post assessments for the purposes of the Cross-RDC Impact Assessment Program. The *Guidelines* have been written to be readily applicable by RDCs to other ex-post evaluations, ex-ante analyses, or later stage re-evaluation of previously evaluated investments. The use of a common methodology by RDCs for all their impact assessments facilitates aggregation and analysis among their assessments.

The Cross-RDC Impact Assessment Program does not currently include results of ex-ante assessments or re-assessment of previously evaluated investments in its estimates of the net benefits produced by the RDC portfolio.

The Program also does not include evaluation of industry marketing activities or other functions of industry-owned corporations not directly related to industry RD&E and its administration

The RDCs have agreed to set a benchmark figure of evaluating the equivalent of at least 10 percent of their total RD&E expenditure for a given project population each year. The number of investments assessed each year will vary between the RDCs depending on the size of each organisation and their own monitoring and evaluation programs. In the interests of efficiency and flexibility, the unit of analysis for the Cross-RDC Impact Assessment Program is a 'Project' (defined as a single RD&E investment) or 'Project Cluster' (two or more related Projects).

Individual RDCs have responsibility for determining what RD&E investments within their respective portfolios will be evaluated and how they will be evaluated. However, as a matter of policy it is expected that all cross-RDC collaborative RD&E investments will be subject to evaluation and the results captured as part of the aggregated analysis.

The Council assumes in all cases that RDC evaluations are credible and rigorous. This is assured through the use of appropriately qualified and skilled independent analysts who have experience and training in performing social CBA. RDCs may cooperate in retaining external consulting services as appropriate to reduce costs. The cost of engaging an independent analyst to complete assessments is borne by each RDC as a cost of administering its RD&E portfolio.

The results of the assessment of each investment will be submitted to the Council. The Council will be responsible for pooling, aggregating, and analysing the results of the assessments and preparing a Cross-RDC Impact Assessment Program Summary Report.

3.1 Timelines for the Impact Assessment Program

The cycle of the program entails a number of steps as outlined in Table 1.

Table 1. Time-line for steps in the Cross-RDC Impact Assessment Program

	2018 report	2020 report	2022 report
Period of report	1 July 2013 – 30 June 2018	1 July 2015 – 30 June 2020	1 July 2017 – 30 June 2022
Deadline for completed RDC evaluations	30 September 2018	30 September 2020	30 September 2022
RDCs to provide evaluation information and data	31 October 2018	31 October 2020	31 October 2022
Aggregation and analysis	November- December 2018	November- December 2020	November- December 2022
Finalisation, endorsement publication of results	February 2019	February 2021	February 2023

4. Sampling and Selection of Projects for Assessment

4.1 Conceptual Basis

At its outset in 2007, the Cross-RDC Impact Assessment Program established a process of rigorous random selection of a sufficiently large sample of Project Clusters to provide a statistically reliable estimate of the mean overall returns to the RD&E in which RDCs invested. This reflected a strong desire by the RDCs to obtain an estimate of the rate of return to the funds invested in RD&E that had high statistical reliability.

However, with a highly diverse population of Projects and assessment results that individually may have high standard errors, a high rate of random sampling is required to achieve an estimate of the population mean with an acceptably small standard error. Even determining the appropriate size of the sample may be difficult.

Instead of focusing on a point estimate of the average rate of return, these *Procedures* take an alternative approach that will provide an economically meaningful and informative understanding of the returns to the RDC investment portfolio that is more consistent with recent practice and practical possibilities. The following elements are combined to represent the returns to the RDC portfolio as a whole:

- A population of eligible RD&E investments (Projects and/or Project Clusters) is identified by each RDC.
- A sample of the total population of eligible investments is selected by each RDC according to their individual monitoring and evaluation requirements.
- The chosen investments then will be subjected to a CBA, to be completed according to the Council's *Guidelines* by an independent and suitably experienced analyst who will carefully estimate the benefits (with detailed sensitivity analysis, and documentation of non-market benefits and non- or less-quantifiable aspects) and costs.
- The sensitivity analysis will generate an upper and lower estimated impact for each sampled Project/Project Cluster.
- The upper and lower estimated benefit cost ratio (BCR) for the sampled Projects/Project Clusters will be applied to the relevant Project Clusters of the population as a whole. The aggregation of the population level Project Clusters, and resultant investment criteria, will be reported as an upper and lower estimate for the population impact.
- Every two years, the Council will pool, aggregate and analyse the evaluations carried out by each RDC and report the findings in a Cross-RDC Impact Assessment Program Summary Report.

4.2 Defining the Population of Eligible RD&E Investments

4.2.1 Projects Eligible for Impact Assessment

The life-cycle of rural RD&E Projects or Programs frequently extends over a period of many years from initial research planning, Project funding, implementation and extension, until a new technology reaches a 'mature' stage when adoption starts to plateau.

For the purposes of the Cross-RDC Impact Assessment Program the net benefits from RD&E can be estimated usefully at the stage when the research has produced 'new knowledge' or 'new technology' but the results (outputs) have not yet been widely adopted so the benefits are, largely, yet to be realised. As a matter of policy, it is preferred that RD&E Projects are evaluated after the RDC's investment has finished and the Project is completed.

Such 'early' ex-post assessment requires a prediction to be made of the time-line of adoption of the innovations stemming from the research and the consequences for adopters and others across the range of relevant agro-ecological environments. The evaluations are speculative in that sense but provide a more-timely estimate of the net benefits expected from the research than waiting for evidence from widespread, actual adoption.

RDCs will identify and select investments to be evaluated for the purposes of their own monitoring and evaluation programs, being mindful that:

- there needs to be some evidence of outcomes and impact or potential impact from the investments,
- the Projects assessed are at an approximately similar stage in their life cycle, and
- CBA results are representative of 'current' RDC RD&E investment performance over time.

4.2.2 Defining the Population for Sampling

Each RDC will determine their preferred approach to selecting investments to be evaluated, and a unit of analysis (individual Project or Project Cluster) for the sample consistent with their own monitoring and evaluation requirements. This should take into account:

- The size of the RDC in terms of annual RD&E expenditure,
- The size of the population submitted in terms of total RD&E investment and number of Projects,
- An expectation that a minimum of 10% of the total expenditure in the Project population should be evaluated in any given year, and
- The RDC's budget for ex-post evaluation of RD&E investment.

The RDCs agreed, through the Evaluation Working Group, that best practice will be for each RDC to use an appropriately qualified and experienced third party to randomly select a sample of eligible RD&E investments for evaluation as part of their individual monitoring and evaluation processes. An example of a random sampling process is described in Appendix 1 for reference.

4.2.3 Collaborative Project Clusters

All Projects/Project Clusters undertaken collaboratively between two or more RDCs shall be assessed separately as part of the Cross-RDC Impact Assessment Program. These Projects are expected to have greater multi-industry, spillover or public benefits than Projects undertaken by a single RDC.

The purposes of this element of the Program are different from the more general ex-post assessments. The principal purposes in undertaking these analyses are to describe:

- the types of research undertaken in collaborative Projects/Project Clusters;
- the efficiencies and wider scope of benefits emanating from collaborative investments,
- the types of private and public benefits being created by collaborative RD&E; and
- the balance between public and private benefits derived from collaborative RD&E.

The results from this part of the Impact Assessment Program will be reported separately from the analysis of other investments in the RDC RD&E portfolio, to avoid the potential for double-counting.

5. The Aggregation and Cross-RDC Reporting Process

5.1 The Process

Each RDC will assemble completed impact assessment reports and accompanying data (CBA spreadsheet including benefit and cost cash flows) and submit them for aggregation upon request and in line with timelines agreed by the RDCs (see Table 1).

Every second year, the Council will undertake a cross-RDC impact assessment (through an appropriately experienced, independent analyst or analysts) to aggregate results from CBAs across all RDCs and report on the overall performance of the RDCs

The aggregation of completed evaluations will encompass a rolling five-year window. This will accommodate differences in RDC evaluation programs and ensure that a sufficiently large population of evaluations can be captured to deliver meaningful results without being subject to year-on-year volatility.

5.2 The Summary Report

The Council will publish a Cross-RDC Impact Assessment Summary Report at the end of the cross-RDC evaluation process every two years. The report will include information pertaining to:

1. The overall performance of the RDCs each year and over time through the aggregation and analysis of RD&E investments,
2. The collaborative efforts of the RDCs based on a summary of the separate analyses of collaborative RD&E investments.

The biennial Summary Report also will address:

- the range and type of RD&E investments within the RDC portfolio and the range and types of benefits that are produced, and their distribution, in a narrative description;
- industry benefits from the RDC portfolio;
- non-market benefits, other public benefits and spillovers from the RDC portfolio;
- the counterfactual to the RDC portfolio and its consequences (likely outcomes in the absence of the RDC funding and management of rural RD&E);
- additionality (i.e. that government funding through RDCs has resulted in additional RD&E that would not otherwise have occurred).

The report will also discuss the structure of the sample of Projects/Project Clusters assessed and the impact of the RDC program as a whole, giving particular attention to key features of the results, factors impinging on the impact of the RDC portfolio, and any strategic matters relating to rural research, extension and adoption.

6. Governance

To be accepted as a reliable and authoritative assessment of the performance of the RDC portfolio, the results of the RDC's assessments must be verifiable and based on a consistent, technically sound methodology. The governance framework for the Cross-RDC Impact Assessment Program is designed to ensure consistency in the application of the methodology, and in the quality and transparency of the analysis.

6.1 Consistency

To ensure consistency in the application of the evaluation methodology, RDCs must undertake to ensure that all evaluations undertaken within the Cross-RDC Impact Assessment Program are conducted in accordance with these *Procedures* and the methodology set out in the *Guidelines*. When external consultants are retained to complete an impact assessment, the terms of engagement should stipulate that the analysis is to be conducted in accordance with the methodology contained in the *Guidelines*. In particular, all evaluations should include key results derived on a consistent basis and reported in a standard format to ensure that the results can be pooled for meta-analysis by the Council.

6.2 Transparency

To ensure that the Impact Assessment Program is transparent and open, the Council undertakes to make publicly available all relevant documents including:

- these *Procedures*;
- the *Impact Assessment Guidelines*;
- all Impact Assessment Reports; and
- all results of independent auditing, summaries of results, and Cross-RDC Impact Assessment Program Biennial Summary Reports.

RDCs and the Council should select and appoint consultants through appropriate procurement processes.

Appendix 1: Example of a Random Sampling Process

It is the responsibility of each RDC to determine what and how its RD&E investments will be evaluated. Consistent application of the agreed Council *Guidelines* will enable the analyses to be aggregated for the Council's biennial summary report.

Box 1 provides a detailed example of a random sampling technique using the expected, minimum expenditure criterion which may be used as part of the process applied by the RDCs. The example focuses on an individual Project as the unit of evaluation, however, a similar approach could be used where a Project Cluster is chosen as the unit of evaluation.

Box 1: Sampling Projects Representing 10% of the RDCs Project Population – Individual Project as the Unit of Evaluation

Step 1: Identify and describe the population

The RDC will prepare a spreadsheet that lists a population of all RD&E Projects completed in the previous five fiscal years. A completed Project is defined as a single RD&E investment where a final deliverable has been submitted and subsequently accepted by the RDC. The data in the spreadsheet will include (where applicable): Project code, Project title, start date, end date, total RDC expenditure for the life of the Project.

Example –RDC X prepares a spreadsheet containing a list of 300 Projects completed over the period 1 October 2013 to 30 September 2018 (including associated Project data). These 300 Projects represent the RDCs evaluation population. The total investment by RDC X in all 300 Projects (over the total life of all Projects) is \$60 million (nominal value).

Step 2: Identify the minimum sample level

It is expected that a minimum of 10% of the RDC's total investment in the population will be evaluated over a 12-month period.

Example – RDC X determines that at least 10% of the \$60 million investment in the 300 Project population will be evaluated over the next 12 months. Thus, Projects representing a minimum of \$6.0 million (nominal dollars) will be randomly selected for impact assessment (including CBA).

Step 3: Sample selection

From the RDC's population of Projects, a random number technique is used to select a number of individual RD&E Projects for evaluation. Projects will continue to be added to the selection until the minimum 10% of total expenditure criterion is met. The RDC, may choose to set a maximum number of Projects and/or use a *stratified* random sample so that the Projects selected are more representative of the RDC's overall RD&E portfolio. This option provides increased flexibility and the evaluations conducted may then be used to serve other RDC reporting requirements, such as those under Statutory Funding Agreements with the Commonwealth Government.

Example – RDC X limits the number of Projects randomly selected for evaluation at a maximum of 20 Projects and stratifies the sample by Project size (no more than four ‘large’ projects and no fewer than six ‘small’ projects). Each of the 300 Projects in RDC X’s population is assigned a random number, then the RDC (or their nominated agent) uses a random number generator to select Projects for evaluation. The first Project selected has a total investment of \$250,000 (nominal dollars). A second Project then is selected worth \$50,000, for a running total of \$250,000. This process of random selection is carried out iteratively until the cumulative investment in the sample reaches the evaluation minimum of \$6 million and any stratification criteria are met. Figures A and B show an example of such a sample meeting the size stratification criteria.

Figure A: Example Sample of Randomly Selected Projects for Evaluation

Project Selected at Random	RDC Investment in Project (nominal \$)	Project Size Small < 250,000 Medium 250,000 to 499,999 Large ≥ 500,000	Cumulative Total Investment in the Random Sample (nominal \$)
Project 1	250,000	Medium	250,000
Project 2	50,000	Small	300,000
Project 3	1,325,000	Large	1,625,000
Project 4	180,000	Small	1,805,000
Project 5	35,000	Small	1,840,000
Project 6	340,000	Medium	2,180,000
Project 7	205,000	Medium	2,385,000
Project 8	640,000	Large	3,025,000
Project 9	15,000	Small	3,040,000
Project 10	95,000	Small	3,135,000
Project 11	980,000	Large	4,115,000
Project 12	170,000	Small	4,285,000
Project 13	415,000	Medium	4,700,000
Project 14	75,000	Small	4,775,000
Project 15	30,000	Small	4,805,000
Project 16	270,000	Medium	5,075,000
Project 17	120,000	Small	5,195,000
Project 18	85,000	Small	5,280,000
Project 19	315,000	Medium	5,595,000
Project 20	535,000	Large	6,130,000

Figure B: Stratification Criteria for Example Sample

<p>Small Projects: 10 Medium Projects: 6 Large Projects: 4</p>
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Step 4: Evaluation

Once the final random sample is confirmed by the RDC, impact assessments (including CBA) are completed according to the Council *Guidelines* for each Project by a suitably experienced and qualified analyst.

Example – RDC X plans to evaluate 20 Projects over the next 12-month period. RDC X contracts ABC Consulting to carry out 20 individual impact assessments. ABC Consulting provides RDC X with 20 separate impact assessment reports, and an integrated summary report including aggregate investment criteria across all 20 investments, according to the Council *Guidelines*

Step 5: Cross-RDC Aggregation

Each RDC, upon request, will submit all completed RD&E impact assessment reports and associated data (e.g. cash flows/CBA spreadsheets) to the Council for aggregation.

Example – RDC X submits 20 individual impact assessment reports, along with their associated CBA spreadsheets, to the Council at the end of the financial year.