Striving for success in international forestry research

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EDITORIAL

Striving for success in international forestry research

This second special issue of Australian Forestry presents some of the results from ten international forestry research projects that have been funded by the Australian Centre for International Agricultural Research (ACIAR). Since 2005, when the international community agreed to the Paris Declaration on Aid Effectiveness (OECD 2005), there has been a commitment to increase monitoring and evaluation efforts to enable periodic qualitative and quantitative assessments of aid effectiveness. While progress is being made on this commitment, these efforts focus on ten high-level indicators of aid effectiveness, rather than on the effectiveness of particular programs or projects (OECD/UNDP 2016). With forestry research projects, very often there is a long lag time before the desired impact from the research is achieved, which should be taken into account when evaluating effectiveness.

The ACIAR currently spends about $115 000 000 annually on agricultural Research for Development (R4D) projects in partner countries (ACIAR 2017), including about $10 000 000 on bilateral forestry research projects that cover many different themes of research and are implemented in many different situations. How then should the effectiveness or success of these investments be evaluated and what do we mean by the terms 'effectiveness' and 'success'? In the development literature 'effectiveness' is defined as the extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance (OECD 2002), whereas for 'success' there is no agreed definition.

Most donor organisations, including ACIAR, commonly use economic impact assessments to estimate the economic benefits that result from such research investments. Certainly this approach can demonstrate impressive returns on investment from selected forest research, as evidenced from ACIAR's investments in plantation forestry in Indonesia (Lindner 2011) or domestication and improvement of Australian trees in Vietnam (Fisher & Gordon 2007). However, as Lindner et al. (2013) have demonstrated, much of the aggregated economic impacts from ACIAR's projects come from a small number of highly successful projects. Therefore, it is desirable to consider a range of criteria in determining success of forestry projects.

To improve the understanding of what success means for ACIAR forestry projects and what factors affect project success, 90 scientists were interviewed (Bartlett 2018c). They were selected using a purposive strategy because they had worked as project leaders, in-country coordinators or as collaborating scientists on one or more of the 30 selected projects and could still be contacted. From their responses, the following working definition of a successful ACIAR forestry project was developed: a project that uses high quality but flexible scientific methods to achieve planned outputs; enhances the capacity of partners; generates knowledge or technologies that can improve the system under investigation; facilitates ongoing scientific relationships and networks; and results in tangible scientific impacts and benefits for project stakeholders and local communities. This definition recognises that, when judging the success of research projects, there are multiple dimensions to consider and individual projects may only result in partial or incremental improvements to the system being researched as part of a long-term program.

While economic impact assessments have a useful role, understanding the cumulative economic benefits arising from research projects does not necessarily help those who fund or implement such projects to understand what causes differential success in research projects. As Stern et al. (2012) have advocated, evaluations should seek to understand what works, what does not work, and why, so that these lessons can be used to replicate, generalise and scale up the results from development interventions. However, there are challenges in trying to compare the results from large numbers of projects that cover many different research themes and that are implemented in many different countries under a wide range of implementation contexts.

To help address these challenges and improve the understanding of what enables some research projects to be more successful than others, a new methodology for evaluating the relative success of multiple projects has been developed (Bartlett 2016). In this methodology, two dimensions of project success are considered: the extent to which planned research outputs are achieved and adopted (achievements) and the extent of the impacts resulting from wider adoption, typically outside of the project and beyond its life (impacts). Under each dimension, four different criteria are evaluated, with scores out of ten given for both the achievements and impacts. This approach produces four categories of project success: high achievements-high impacts, high achievements-low impacts, low achievements-low impacts and low achievements-high impacts.

This methodology has been applied in three case studies of ACIAR forestry projects, covering ten projects from Vietnam, reported by Bartlett et al. (2017), ten projects from Indonesia, reported by Bartlett (2018a), and ten projects from Papua New Guinea, reported by Bartlett (2018b). About one quarter of the 30 forestry projects (seven) were evaluated as having high achievements and high impacts, with three of these implemented in Vietnam and four in Indonesia. About half (16) of all the projects were evaluated as high achievements and low impacts, with projects in this grouping occurring in all three countries. The remaining one quarter (seven) of the projects had low achievements and low impacts, with two of these occurring in Vietnam, one in Indonesia and the other four in Papua New Guinea. By graphing both of
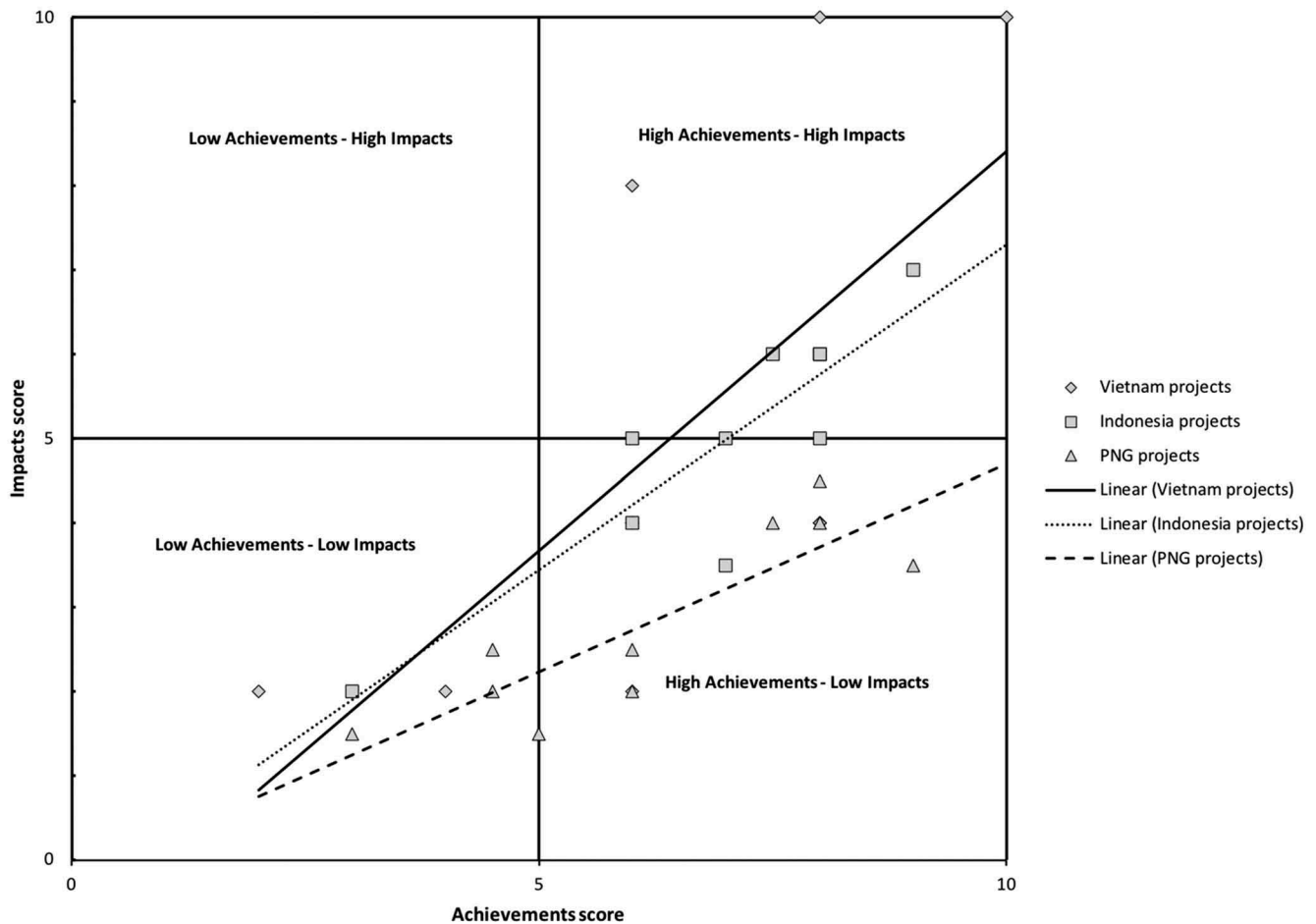
Figure 1. Relative success of 30 forestry research projects implemented in Vietnam, Indonesia and Papua New Guinea (PNG)

the evaluation scores for achievements and impacts comparisons of relative success of these 30 projects can be made as shown in Figure 1.

These evaluation results show very clearly that the relative success of these 30 forestry research projects varied considerably, both within the projects implemented in each country and between the three countries (Fig. 1). The evaluations for Vietnam and Indonesia generated a similar pattern across three of the four project success categories, but the Vietnam projects exhibited greater variability in relative success scores. This analysis indicates that ACIAR's forestry program in Papua New Guinea has been much less successful than its programs in Vietnam and Indonesia. No Papua New Guinea projects had high achievements and high impacts and 40% of the projects implemented over a 16-year period had low achievements and low impacts. These results suggest that the country context has some influence on the levels of success achieved by R4D programs.

The seven projects that had high achievements and high impacts can be regarded as successful projects. All three of the successful Vietnamese projects had focused on domestication and breeding of tropical acacia and eucalypt trees, involved the same team of researchers and benefited from an efficient government system for germplasm dissemination. Two of the four successful Indonesian projects had focused on timber furniture value chains and manufacturing,

while the other two examined different themes: teak agroforestry and plantation productivity. These projects addressed involved different teams of researchers, and engaged a wider group of stakeholders, including local government, the private sector and local farmers. Some of the commonalities from the successful projects across the two countries were having strong leadership, committed project teams, and focusing on both capacity building and dissemination of project outputs.

Those projects with high achievements and low impacts are partially successful and a closer examination of the project's circumstances would be warranted. For the seven least successful projects (low achievements and low impacts) the research identified a range of contributing factors, including: poor project design, particularly when the design was overly ambitious or inadequately funded; having too short a project duration; poor commitment and support from the partner institutions; low scientific capacity in the partner scientists; weak existing research and communications infrastructure; and having poor linkages to the impact pathway or a lack of interest in the partner institutions in utilising the research outputs.

Nearly 40 different success factors have been identified, from the interview data obtained from the 90 project scientists, each of which has the potential to either enhance or diminish the success of a project (Bartlett 2018c). In the R4D

domain, each project inevitably faces its own unique set of opportunities and constraints. Therefore, it is difficult to define which factors are unique and context-dependent, and those which may be more widely applicable. However, this research found that 15 of these factors could be considered to be 'key success factors', five of which should be considered during project design and the remainder should be considered during project implementation, in order to increase the prospects of project success.

While striving for greater success in ACIAR's forestry projects is important, it is not possible for every project to achieve a high level of success. By its very nature, research involves a degree of uncertainty and risk. The application of this knowledge on success factors could help reduce the risk of poor performing projects, but it is not intended that it be used in a way that might preclude higher risk R4D investments. In reality, some outcomes and impacts from R4D projects are unpredictable and others are context specific. Therefore, the factors that are able to be influenced by those responsible for design and implementation of these R4D projects are only part of the reasons for project success.

Disseminating scientific findings is an important part of achieving impact, and therefore ultimately in achieving success, from R4D projects. This special issue contains a range of articles that highlight some of the more recent findings and benefits from some of ACIAR's current and recently concluded forestry projects. Two articles highlight findings and lessons from recent research on agroforestry and community forestry in Nepal, including modelling the effects of different actions in the integrated farm-forest system and improved management approaches for realising improved financial returns from Nepal's community forests, with two other articles examining water use by trees in landscapes in China and Uganda. Another important article reviews recent advances in the knowledge of the nutrient, water and organic matter dynamics of acacia plantations on mineral soils in Southeast Asia, highlighting that water availability and appropriate management of nutritional requirements are key factors influencing productivity on different sites. The special issue also includes analysis of the application of the Australian Master TreeGrower training program in Indonesia, and from research to create future business opportunities for Indigenous communities in northern Australia based on growing the local sandalwood species. Two articles present findings on the management of balsa wood value chains in Papua New Guinea, and on the most appropriate silvicultural practices for growing teak planations in northern Laos. The other article reports on research related to managing significant tree diseases in *Acacia* plantations in Indonesia.

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