



# General information and guidelines for relevant and robust FSC-related scientific research

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Bonn, February 2020



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## Background information

As the FSC certification scheme has grown over the years, so has the interest of academics and independent researchers to explore its various elements, from the functioning of its governance system, legitimacy and market uptake, to its outcomes and impacts on forest values and society. Unfortunately, several scientific studies remain too inaccurate or use less-than-optimal research designs to produce results that are relevant and usable to feed back into the FSC system and support its development. The below information provides some general information on the functioning of the FSC system, its geographical variation, and recommended research designs for impact evaluations. We encourage students, researchers and other evaluators to carefully consider these various elements when developing research projects and interpreting their findings. We are open to further suggestions and discussions to make this document as useful as possible.

## On the functioning of the FSC system

### Origin, goal and scope of FSC certification

FSC was founded in the 1990's to promote good forest management (socially beneficial, environmentally appropriate and economically viable) and to allow consumers to identify forest product from these sources.

Therefore, FSC's range of action is so far mostly limited to the scale of forestry operations (not discounting the systemic impacts and spill-over effects). FSC is to be understood in this context and not as a silver-bullet solution for the problems affecting all forests globally. For instance, FSC is not designed to stop deforestation globally in all contexts, for instance in non-productive forests and protected areas.

Keeping in mind the scope and functioning of FSC, outcomes/impacts evaluators should not expect FSC certification to have strong impact in contexts other than forestry. Yet, outcomes/impacts assessments through comparison with other forest uses (e.g. protected area, national parks, etc.) remain legitimate and informative to position FSC's benefits for forest-related values in broader contexts (e.g. *what is the potential of FSC certified forests for biodiversity conservation?*). It is a matter of precisely defining what is expected from FSC certification and



why (see section below). Any outcomes/impacts assessment should provide a clear narrative on the working hypothesis being tested and predictions that can realistically be made.

### **FSC as a voluntary, market-based certification scheme**

Forest managers themselves decide to apply for certification. FSC does not proactively decide and select which forests should be managed according to its standards. This has two major implications.

Firstly, comparative approaches aimed at evaluating the specific added-value of FSC certification (see section below on research design) should always account potential selection bias: certified forest management operations are not necessarily a random subset of forest management operations in a given region. Forest managers deciding to apply for certification might share characteristics that limit the possibility to select for true control scenarios (Blackman et al., 2018; Medjibe et al., 2013).

Secondly, the temporal and spatial uptake of certified operations is not determined by FSC but by various factors, including the willingness of forest managers to certify their forests, over time and space which is itself influenced by other factors such as market demand. Consequently, the evaluation of the accumulation of benefits/outcomes from FSC certification over time and across spatial scales (beyond a single management unit, for example in a given forested region) should be evaluated carefully with respect to the history and dynamic of certificates issued.

### **FSC's multi-stakeholder governance model and research disciplines**

Generally, forest management covers different disciplines (environmental, social, economic, legal etc.). Therefore, researchers should be aware that the research topics relevant for FSC are often interdependent and multi-faceted. Learning and improvement potential from scientific research could greatly benefit from holistic, interdisciplinary approaches.

More specifically, FSC's governance system is organized at an international and a national level with members at both levels belonging to one of three chambers representing specific interests (economic, environmental and social). International members negotiate the development of requirements that are internationally applicable. Then, national working groups, including various stakeholders, translate international requirements into national requirements, so they match the social, environmental, economic and legal context of their country. In this national adaptation, the stakeholders are following defined requirements set for the desired contents and the process of national adaptation. Thus, FSC certification standards reflect the diverse interests that different stakeholders have in forests and forestry. They can be seen as agreements that result from democratic negotiations between stakeholders organized in three chambers. Understandably,



these stakeholders have potentially conflicting interests. Therefore, FSC must strike the delicate balance between these interest groups while adhering to process and contents requirements. These include but are not limited to forest workers, Indigenous Peoples, communities engaged in forest product trade, stakeholders willing to access forests for non-commercial purposes, and conservationists. Therefore, scientific findings on any specific topic should ideally be discussed in light of potentially conflicting practices or requirements in the same forest. Generally speaking, exploring the balance, trade-offs and synergies among environmental, social and economic outcomes across scales could be very insightful to better understand the potential impacts and limitations of FSC certification.

## On the geographical variation of (FSC-certified) forest management

### Variations of FSC national standards

As a direct consequence of the national interpretations of the certification standards, there are variations among countries with respect to the specific social, environmental, economic and legal requirements, their level of specificity and stringency. Therefore, researchers are strongly encouraged to consult and understand the standards effective in their country or region of interest to precisely understand the requirements and the subsequent outcomes that can be expected from FSC certification. Any outcomes/impacts evaluation should use national FSC standards to clearly and precisely define their working hypothesis and predictions: what are the specific effects of certification that are to be expected, and why?

A recommended approach to work with a robust hypothetico-deductive approach is the development of a Theory of Change. A Theory of Change is a causal chain that links an intervention, such as forest management certification, and its subsequent consequences, to the long-term impact and changes that are intended by the intervention. Examples can be found in Blackman et al. (2018) for testing effects of FSC certification on deforestation, and Romero and Putz (2018) for testing effects of FSC certification on timber yield sustainability.

### Variations of conventional practices: business-as-usual is not universal

Proper outcome/impact evaluations should use counterfactual scenarios through a comparative analysis to be able to evaluate the specific added value of FSC certification compared to conventional forest management (see section below on research design). However, conventional forest management cannot be considered as a universal set of practises. As conventional forest management is largely defined by national legal requirements, there are great variation among countries or regions with respect to what is legally required, and what is usually done or not done



with regard to the local context. For instance, FSC impacts in regions where national requirements already contains some elements of responsible forest management and where these are effectively controlled (e.g. Western Europe, Scandinavia) are likely less prominent than in regions where it is not the case (e.g. tropical regions). Therefore, any evaluation of FSC impacts should consider the national or regional conventional forest management practises where FSC impacts are being evaluated. Notably, variations in legal requirements related to specific issues within a given country can be observed. When developing specific research hypotheses, calibrating expectations, and interpreting findings, researchers are encouraged to consider the national requirements for the specific topic of interest.

### FSC research across the world

With approximately 40 percent and 50 percent of total FSC-certified forest area in the temperate and boreal biomes, respectively, research efforts spent on these biomes are disproportionately low compared to efforts spent on the tropical biome. This imbalance needs to be corrected to get a fair representation of the overall accumulated impacts across forests. Although we acknowledge that some of the most pressing issues and threats are found in tropical regions and that evidence of positive impacts of conservation and development strategies are more urgently needed for tropical forests, FSC impacts in temperate and boreal forests are largely unknown.

### On research design

Most of the key aspects of FSC certification that have been presented above should be considered when planning a research project along with the experimental design for data collection. Robust designs for impact evaluations have already been described by some academics, and researchers and impact evaluators are strongly encouraged to consult these recommendations (Romero et al., 2013; Romero and Tuukka, 2013; van der Ven and Cashore, 2018). Some of the most important points include:

### Comparison with counterfactual scenarios

Research describing values in FSC certified forests are valuable, but their use is limited because they cannot highlight the specific added value of certification. Comparative approaches using uncertified conventional forestry as a counterfactual (control) should be preferred, to quantify the effects of FSC certification compared to business-as-usual. Additionally, comparative approaches using unmatched counterfactuals such as protected areas, national parks, or forest uses other than forestry are valuable. However, such comparisons should have clearly defined predictions and well-discussed findings since their respective objectives are not similar. They remain



informative to understand the value for specific objectives such as the economic development of local populations or biodiversity conservation.

### Before versus after certification comparison

Before vs after certification comparisons are complementary to the use of counterfactuals. They shed light on the influence of FSC certification on, and the development of, a given forest management operation. They have the benefit of reducing the influence of neighboring confounding factors, although temporal confounding factors should not be overlooked (e.g. macro-economic/market dynamics).

### Confounding factors

The challenge of finding perfectly similar (i.e. comparable) statistical replicates and the importance of considering confounding factors in field impact evaluations is now widely acknowledged. Several studies have demonstrated that the omission of contextual variables in statistical analysis can bias results and lead to wrong conclusions about the effect of certification. Yet, the quantification of confounding factors is becoming increasingly easy with modern statistical tools.

### History of certification and management regime

Longitudinal research (e.g. over time since certification) can provide answers to some key questions, such as whether entities that seek certification are different from those that do not, or how values and benefits (such as biodiversity, access to forest resources by local communities etc.) accumulate over time from the date of certification. Overall, making efforts to understand the history of forest management activities with respect to the specific forest areas (e.g. set-aside area; recently logged area; area not yet logged) and specific research objectives (e.g. biodiversity conservation; volume of timber extracted; habitat degradation) is important and strongly encouraged.

Additionally, it is worth mentioning that research can be based on quantitative or on qualitative evaluation of data collected in the field work. The application of mixed research methods (i.e. including qualitative and quantitative data collection) is often a constructive way to address complex issues and is encouraged.



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