



Small, but many, is big

Challenges in assessing the collective scale of locally controlled forest-linked production and investment

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The aim of the Natural Resources Group is to build partnerships, capacity and wise decision-making for fair and sustainable use of natural resources. Our priority in pursuing this purpose is on local control and management of natural resources and other ecosystems.

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Photo caption: Guatemalan nursery workers in the FEDECOVERA cooperative federation.

Photo credit: Duncan Macqueen.

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Small and locally controlled forest-linked investments are crucial to development and environmental protection. Patchy and anecdotal evidence suggests that the aggregate scale of local investment in goods and services from forests – on farms and by small enterprises and producer organisations – is huge. For example, one estimate puts the number of individual forest-linked producers, small-scale forest and farm producer organisations, and small enterprises at one billion globally. But their numbers have not been properly assessed and neither has their full potential for forest conservation, climate change adaptation and mitigation, returns on investment and local development outcomes. This paper reviews some of the issues in assessing the scale and exploring the scope of small and locally controlled forest-linked production and investment internationally. It lays out a plan for a fuller assessment and proposes how the results could help generate higher levels of commitment to measurable improvements in policy, organisation, business practice, technical capacity and practical initiatives that generate acceptable returns from investment with local people in the driving seat.

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Executive summary

Small-scale forest-linked producers are crucial to development and environmental protection. But because of the nature of their activities and the difficulty in capturing their impact in national data sets, these groups are largely overlooked by policymakers and donor programmes. Numerous factors converge to reinforce misleading narratives of necessarily difficult trade-offs between economic returns, social development and forest conservation, which in turn guide investment decisions against locally controlled forest-linked production.

Yet the collective scale seems to be huge. We review estimates, for example, suggesting that:

- 2.4 billion people (34.5 per cent of the global population) depend on fuelwood and charcoal to cook, which is 6.1 per cent of the total primary energy supply globally.
- 28 per cent of total income among households living in or near forests is contributed by forest and environmental income.
- US\$125-130 billion of gross value-added may be contributed by small-medium forest enterprises worldwide.
- 80–90 per cent of all forestry enterprises in many countries are SMFEs.
- 1.5 billion people globally use or trade non-timber forest products.

Knowledge of the roles, in aggregate, of forest-linked smallholders, indigenous peoples, local communities and their organisations and enterprises, and their importance in delivering solutions for local and global challenges, such as climate change, food security, and poverty, is however weak and not well shared.

This paper seeks to highlight the extent of this knowledge gap, and suggests a way forward for evaluating the role and contribution of small forest-linked producers. This is a preliminary step in a broader effort to assess the aggregate scale of small and locally controlled forest-linked production and investment internationally, and identify issues in, and scope for, increasing this scale.

We consider three key characteristics of production that affect how individual small-scale forest-linked producers are converted into a collectively large-scale private sector with large gains for human welfare and ecological integrity: 1) the individually small scale, where decisions are made by those close to the source of production; 2) goods and services derived from trees and forests – ‘forest-linked’ production; and 3) ‘investments’ in this type of production, interpreted as a broad concept involving sweat, support and money. We propose that investment in locally controlled forestry may be most productive and sustainable, or may only be possible at all, when it involves all three of these investor types.

Working definitions and other parameters to consider in clarifying the scope of small and locally controlled forest-linked investment are proposed, and some of the common forms of available data and how they overlap with one another are characterised, revealing considerable complexity. Despite these challenges, we review some of the estimates of scale that are available. While these give a useful impression of the extent of forests, products trade and employment involved, they do little to shed light on the people behind forest-linked production, their dependence on forests and their control over them.

Some strong international thematic reviews, local analyses and case studies that can, however, be revisited, others unearthed and connected in new ways, and these present exciting prospects for challenging some of the recycled figures and unquestioned assumptions. This in turn may identify improvements in data collection and analysis, as well as prospects for clear and consistent definitions which can be applied globally to encompass the wide scope of small and locally controlled forest-linked producers. This paper lays out a plan for a fuller assessment and proposes how the results could help generate higher levels of commitment to measurable improvements in policy, organisation, business practice, technical capacity and practical initiative to enable locally controlled forest-linked investments to thrive.

Introduction: potential and challenge



1.1 What this paper is about

Small-scale forest-linked producers are crucial to development and environmental protection. But this group is notoriously challenging to track. Overlapping categories of actors, informal trade of goods, and persistent policy narratives favouring large-scale, industrial forestry, mean that small-scale forest-linked producers and small enterprises are not only not counted – they are overlooked. It has been suggested that locally controlled forest-linked land use – by individual forest-linked producers, small-scale forest and farm producer organisations, and small enterprises – exceeds, in its collective scale, all other forms of private sector land use (Campbell 2015). Yet the full potential of this land use for local development outcomes, forest conservation, climate change adaptation and mitigation, and returns on investment remains elusive to researchers and policymakers alike.

Meanwhile, increasing numbers of outside investors seek to deploy capital in initiatives that can improve human welfare and ecological integrity at scale. Increased investment in productive and resilient forest use is both necessary and possible from new combinations of local and outside investors, and at scales and locations previously unattainable. An inclusive approach to locally controlled forest-linked producers is centre stage in the Sustainable Development Goals (SDGs) and their associated targets (Macqueen *et al.* 2014a). Indeed the contribution of such producers to achieving the SDGs is increasingly recognised (Hoare 2016). What is now needed is commitment to measurable improvements in policy, organisation, business practice, capacity and practical initiative that generate acceptable returns from forest-linked investment with local people in the driving seat.

But for this to be a reality, the scale of existing and potential production by these local forest producers needs to be much better recognised. Collectively, these groups contribute towards wider public goods beyond the level of local households. However, because of the nature of their activities and the difficulty in capturing their impact in national data sets, these groups are largely ignored by policymakers and donor programmes. Knowledge about the roles, in aggregate, of forest-linked smallholders, indigenous peoples, local communities and their organisations and enterprises, and their importance in delivering solutions for local and global challenges, such as climate change, food security, and poverty, needs to be better generated and spread.

This paper seeks to highlight the extent of the knowledge gap identified above, and suggests a way forward for evaluating the role and contribution of small forest-linked producers. It is a preliminary step in a broader effort to assess the aggregate scale of small and locally controlled forest-linked production and investment internationally, and identify issues in, and scope for, increasing this scale. The paper does not attempt to assess this scope and scale *per se*, rather we list some of the partial estimates that we have gathered from the literature, develop an initial typology of locally controlled forest-linked investment, and discuss the challenges in making a full assessment. Finally, we develop a way forward for the broader effort described above.

1.2 Why investment in locally controlled forest-linked production is crucial

There is also good evidence that investing in locally controlled forest-linked production is better than investing in alternative private sector models because the proximity of those who exert local control (to forest, community and market) means that forest condition and social impact are contemplated alongside economic returns. For example:

- **Landscape-scale improvements in forest condition** have been documented where communities have been granted secure control in countries such as Mexico, Nepal and Tanzania (Seymour *et al.* 2014). Forest condition has generally been found to improve through community management (Bowler *et al.* 2010).
- **Stemming forest loss** through community forestry has been at least as effective as state-enforced protected areas in global comparative studies (Porter-Bolland *et al.* 2012).
- **Substantial livelihood benefits** have accompanied improvements in local control of forests across a wide range of contexts, including family smallholdings (Ackzell 2009), community forests (Bray *et al.* 2003; Molnar *et al.* 2007; Charnley and Poe 2007; Ojha *et al.* 2009), small and medium forest enterprises (Cerutti *et al.* 2015; Kozak 2008; Lescuyer and Cerutti 2013), and indigenous peoples' territories (Nepstad *et al.* 2006; CEESP 2008).

- **Securing both local and global public goods is much more likely** to be achieved fairly through the multi-functional mosaics of locally controlled forestry than through the monotypic expanses of large-scale industrial forestry (Macqueen 2013). Locally controlled forestry is not only highly effective in generating economic wealth, it also distributes that wealth more equitably (Macqueen and DeMarsh 2016).
- **These examples contrast sharply with private sector forestry controlled by large-scale industries** where little alignment has been found between commercial activity and either forest protection or poverty reduction (Mayers 2006a).

At the level of individual projects and to some degree also countries, there is a relatively strong qualitative case to be made in existing literature for the benefits of investing in locally controlled forestry (see Macqueen *et al.* 2012, 2014b, 2015). In addition, some programmatic data collection efforts can also be drawn on to make the case through quantitative monitoring and learning systems (see FFF 2015). But as yet, these project and programmatic works cannot readily be aggregated to a global synthesis of the likely impacts of investing in locally controlled forest-linked producers.

A convincing case can thus be made that, within the subset of forestry that is locally controlled, economic returns, social benefits and forest protection can sometimes be complementary. But, of course, it all depends. Some locally controlled forest-linked production is insignificant, even collectively, from the point of view of poverty reduction (Hobley 2007; RECOFTC 2009). Some local control is despotic – with elites capturing all the benefits from forest resource use – as is apparently the case in some Nepalese community forest user groups in the higher value forest of the lowland terai (Iversen *et al.* 2006). Some informality and illegality is socially regressive and environmentally destructive – such as the uncontrolled chainsaw logging in many countries (see for example Lescuyer *et al.* 2011). So the pre-conditions required to frame successful locally controlled forest-linked production (eg secure commercial tenure, technical support, business development, and enterprise-oriented organisation) are clearly of critical importance (Macqueen and DeMarsh 2016).

Putting these pre-conditions in place over extensive geographical areas is a formidable challenge. It requires investment by a range of actors to unleash the potential of locally controlled forest-linked production. Investors at every level have to grapple with multiple products, many of which never enter conventional markets. They have to deal with scattered part-time employment. They have to contend with extremely limited financial, communication and physical infrastructure, rudimentary technology and high transaction costs for any formal activities that are engaged in. Above all, they have to contend with knowledge gaps – as data collection is generally neglected because each production unit is so small and collectively they are diverse.

These factors converge to reinforce misleading narratives of necessarily difficult trade-offs between economic returns, social development and forest conservation, which in turn guide investment decisions against locally controlled forest-linked production. So while investing in such production may be crucial, the need to assess its global scale requires some justification that is not entirely self-evident. We advance here the proposal that it makes sense to attempt such an assessment because: (a) investing in locally controlled forest-linked production is yet to be well recognised as important; and (b) there seems to be potential for it to take off if global scale information is well wielded. Filling crucial knowledge gaps about how extensive locally controlled forest linked production is – and how it can better be aligned with social development and forest conservation – would seem to be a useful starting point.

1.3 Meaning of ‘small and/or locally controlled’, ‘forest-linked’ and ‘investment’

The numbers of locally controlled forest-linked producers are important, but as illustrated above, their significance is not just a function of their numerical scale. In our exploration of the issues involved in assessing their numbers, we consider three key characteristics of production that affect how individual small-scale forest-linked producers are converted into a collectively large-scale private sector with large gains for human welfare and ecological integrity:

Firstly, we are interested in **the individually small scale**. For example, our focus is on individual units of production that involve relatively small numbers of people, small areas and small amounts of money. However, the focus on small scale is less about size and more about the crucial importance of local control of resources, **where decisions are made by those close to the source of production**. Indeed, it is frequently the case that collective action in associations or federations by individual small-scale producers amounts to large, locally controlled landscapes. Thus we aim to assess the overall collective scale of multiple small and/or locally controlled producers.

Secondly, we are interested in people working the land and producing **goods and services derived from trees and forests** – ‘forest-linked’ production. Many, perhaps a majority, of smallholder farmers have some trees on their land which they use for a variety of purposes including fuel, fodder, construction materials, fruit, cosmetics, dyes and medicines, maintaining soil fertility. These forest- or tree-based-production systems may not be a primary source of income. But their collective contribution to livelihoods, and to the maintenance of forest and tree cover, is enormous – and, we suggest, deserves to be counted.

Thirdly, we **interpret ‘investments’ in this type of production as a broad concept, involving sweat, support and money**. Locally controlled forest use is characterised by improving productive and resource-sustaining enterprises managed through decision-making by local rights-holders and other stakeholders. To grapple more effectively with the crucial importance of investments and overcome the current knowledge gap, we propose a research lens that considers ‘investments’ in three forms: 1) **local investors** (smallholders, farmers, small-scale producers and natural resource users) invest labour, savings and capabilities; these may be joined by 2) **enabling investors** (government agencies, donors/philanthropists/multi-lateral or national agencies and NGOs) who are investing in capabilities, policies, and security of rights; and/or by 3) **asset investors** who seek profit and generally work within the private sector. Indeed, we propose that it may be the case that such investment in locally controlled forestry may be most productive and sustainable, or may only be possible at all, when it involves all three of the above investor types.

Issues of scope of small and locally controlled forest-linked investment



2.1 Forms of small and locally controlled forest-linked investment

Small-scale locally controlled forestry is managed within diverse ownership models and different units of organisation from family and smallholders, to community forestry and indigenous territories (see, for example, Kozak 2008; Macqueen and DeMarsh 2016). Furthermore, the mosaic nature of rural landscapes makes 'forest' and 'agriculture' challenging to demarcate (Bakkegaard *et al.* 2016). Because of this diversity, assessing the scope of small-scale locally controlled forest producers can quickly become confounded by variations of categorisation, with different sources relaying different elements, using different lenses, or drawing different boundaries around these producers. For example, in the *2014 State of the World's Forests Report*, FAO attempted to develop a systematic examination of individual-level, small-scale forest producers, towards an analysis of the socioeconomic value from forests. This effort was hampered by scarcity of data, methodological limitations, lack of clear definitions, and divergent approaches to what was measured in different data sets (Bakkegaard *et al.* 2016; FAO 2014).

In a separate attempt to revive the debate on the state and importance of family farms in the world, Graeub *et al.* (2015) reviewed data from 105 countries and territories with new data from the 2010 World Census of Agriculture, covering an estimated 85 per cent of world food production. Their research revealed the many challenges and complexity in defining the scope, and therefore also the scale, of family farm production (including forest-linked farm production). They found that the number of family farms in the world is significant, representing 98 per cent of all farms (475 million out of a total of 483 million farms) and at least 53 per cent of global agricultural land and production; however, there is tremendous diversity in the way these numbers are derived between countries and intergovernmental organisations.

The way that smallholder farmers and forest-linked producers are identified depends on interests in the production unit size (smallholder versus large scale farms), level of commercialisation (traditional versus commercial) or ownership (family versus corporate). The FAO and the Committee on World Food Security and High Level Panel of Experts base their definitions of

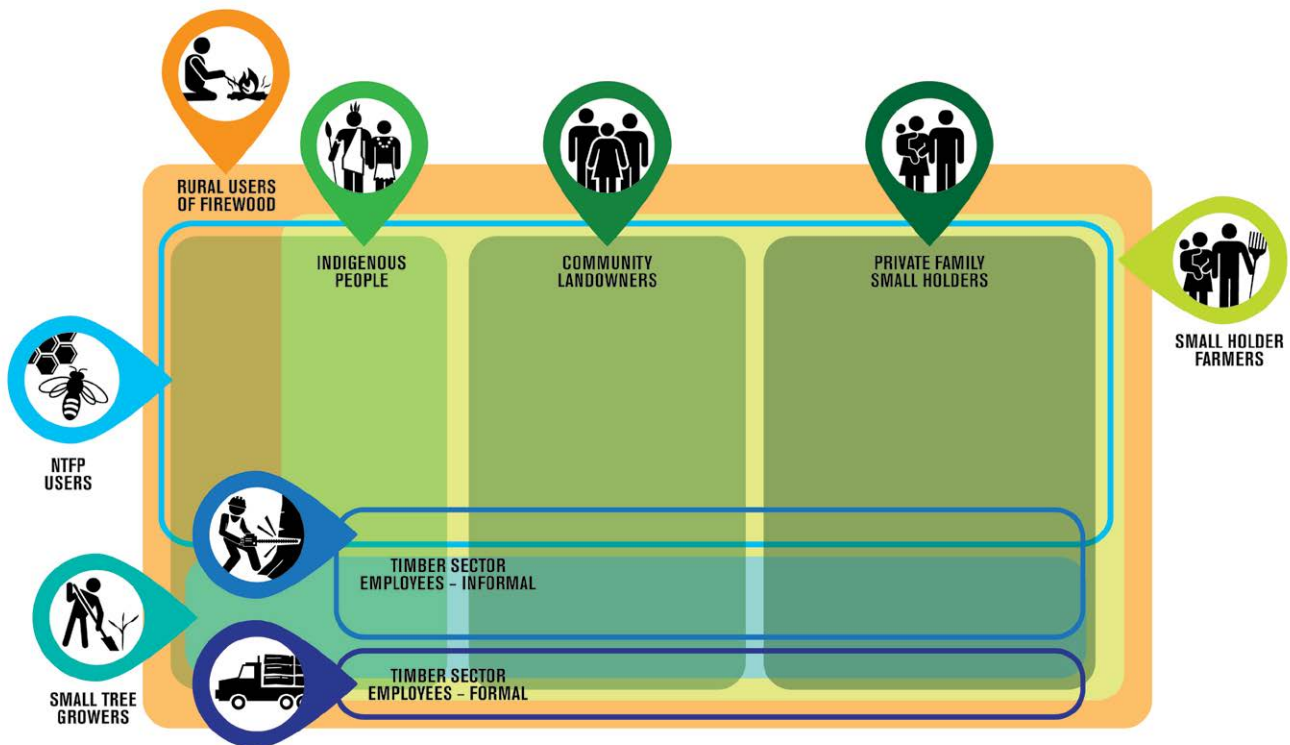
family farming and smallholder agriculture on ownership and labour being concentrated in one or more families, incorporating multiple land uses such as agriculture, forestry and fisheries, whereas the World Bank use landholding size (under 2 hectares (ha)) to identify smallholder farmers. Both approaches have their own limitations.

Economically viable smallholder family farm size varies greatly across geographies. For example, Graeub *et al.* (2015) found that in Latin America, the upper limit for family farms varies from 50 to 1,000 ha, whereas in Asia, Africa and Oceania, it tends to average 2 and 10 ha. The way ownership is recorded, if it is recorded at all, also varies greatly. A farm might be locally controlled and based on family labour but registered under a different entity, such as an association or cooperative. For example, the European Union identifies family farmers based on sole holder ownership, and this excludes any other forms of joint ownership or partnerships, such as producer cooperatives.

Considerable gaps thus remain in how data has been collected and presented – in some cases missing entire markets and subsets of people. For example, the informal logging sector dominates the domestic market in many African countries, but is not captured in employment statistics, and remains beyond the scope of legislative frameworks (Cerutti *et al.* 2015). Existing data collection often falls between the policy mandates of multiple ministries of agriculture, forestry, trade, industry and commerce, and rarely grapples well with informal sectors. Global and national datasets on forestry sector employment, income, and impact on forestry resources are based on formal businesses, and largely focused on timber. This is problematic in the sense that it does not capture the many other types of products or income-generating activities derived from forests. Data collection on forests and trees and formal employment needs to be complemented more systematically with surveys on the roles of people and forest-linked activities as well as the mechanisms for investment that result in sustainable economic outputs and management of forests.

Figure 1 introduces some of the main types of small-scale or locally controlled forest-linked producers – for which there is some data available – and indicates how these types overlap. The idea is to give some indication of relative scale of the types – but not in any quantitative way – and to show a small part of the complexity of the overlaps. Data for some types are subsets of that for other types.

Figure 1. Main types, and overlaps, of players in locally controlled forest-linked investment



Of the overall population of rural people, the vast majority collect and use fuelwood or charcoal for cooking fuel and sometimes heat (the outer orange rectangle in Figure 1). Within that group, most are smallholder farmers of some sort (the large inner pale green rectangle). But there are also landless people or peri-urban wage labourers who collect and use fuelwood or charcoal (not represented). Of the smallholder farmers' group, some may belong to private family smallholders (individual forest farm tenure, represented in dark green), community smallholders (collective forest farm tenure, represented in medium green) or indigenous peoples (represented in light green). Some indigenous people are not smallholder farmers but hunter gatherers who may or may not access forest resources, including non-timber forest products (NTFPs) (represented in pale blue). A small subset of those categories of smallholder farmers may actually plant and grow trees commercially (these are represented by the teal rectangle of small tree growers). Some of those small tree growers may fall within either

formal forest employment figures (represented in dark blue), or alternatively informal employment figures (represented in light blue). But there are also timber sector employees who fall outside the smallholder farm sector entirely, either migrating into rural areas for work in industrial-scale concessions, or as small-scale chainsaw lumberers, etc. or based full-time in urban and peri-urban processing facilities. Finally, there are many smallholder farmers and some landless and peri-urban wage labourers who collect NTFPs either for subsistence or sale.

Each of these categories of individuals has an associated body of data. So with all of the variable overlaps between categories (for which there is often no data), the challenge in deriving aggregated figures for locally controlled forest-linked producers is clear.

The next section proposes some working definitions and other parameters to consider in clarifying the scope of small and locally controlled forest-linked investment.

2.2 Some working definitions

Here follows an initial set of simple definitions which can provide a set of 'lenses' to assess information that can be accessed. These definitions can then be further sharpened and developed as work proceeds. Some related key words and synonyms are also considered:

- **Producers** – Women and men within smallholder families, indigenous peoples and local communities who have strong relationships with landscapes. Such producers grow, manage, harvest and process a wide range of natural-resource-based goods and services for subsistence use and for sale in local, national and international markets.
- **Forest-linked producers** – People working the land and producing goods and services derived from trees and forests. 'Forest and farm' can also be useful, distinct from 'forest farm' which tends to imply farming of forest products, but potentially misleading if it implies farm producers are included in their own right – and here they are not unless they produce something from trees and forests.
- **Organisations** – Groups of people with a collective means of making decisions
- **Producer organisations** – Formal or informal associations of producers created to secure clear benefits for their membership by, for example: helping their members share knowledge and experience; engage in policy advocacy; secure tenure and access rights to forest, land and other natural resources; gain access to finance; improve forest-and-farm management; expand markets; build enterprises; and increase income and well-being.
- **Private sector and enterprise** – In it for profit. Synonyms to consider in the research might also include: business, firm, company and entrepreneur. Consider also: informal and formal sector; enterprise development, start-ups, young firms, established firms; employment numbers, creation, growth and quality.
- **Small scale** – A relatively small number of people and small amount of money or value involved. Synonyms to consider might include: medium and micro. Consider also area and volume as dimensions in forest and tree production.
- **Local control** – Decisions made by those close to the source of production.
- **Investment** – Sweat, support or money.

2.3 Some further parameters to consider

There are various boundary issues that need initial consideration and can also be fine-tuned through the further assessment:

- **Numbers** – Numbers of people involved, of organisations, of jobs. Disaggregation at times by indigenous people, youth, gender and other dimensions of difference. Estimates of volume and area where relevant. Estimates of value involved and contribution to economies. Percentages of production and trade in major products and sectors.
- **Quality, depth, strength of effects** – Aggregate and disaggregated numbers tell us little about the quality and intensity of impact of the effects. For example, not all jobs are decent and fulfilling, not all income enhances livelihoods, many practices are ecologically unsound or have little basis in local decision-making. These issues of quality need consideration.
- **Geography** – Worldwide. Particularly rich information may come from (initial thoughts – by no means exclusive): Tanzania, Kenya, South Africa, Central America, Bolivia, Brazil, India, Nepal, China, Vietnam and Indonesia. Focus primarily on the global South, referring to the North mainly for comparison – Sweden, Finland, USA, Canada and UK.
- **Potential groupings** – Small-scale forest producers, commercial forestry, community-based forestry, smallholder forest-linked production, indigenous peoples' forestry, agroforestry farms, NTFP producers (eg fuel, medicines, foods, building materials, furniture) and management of forest ecosystem services, eg carbon, watershed, biodiversity or tourism. Consider differentiating primary production from value addition enterprise.
- **Timing, trends and history** – Information should be as recent as possible – within the last five years as a rule of thumb - and judgements made about its contemporary relevance. Include historical trends and before-now/earlier-later comparisons where possible.

In the next section we move from considering issues of scope to those concerning the scale of locally controlled forest-linked investment.

Issues of scale of small and locally controlled forest- linked investment

3

3.1 Strengths and weaknesses of current information sources

Efforts to assess the world's forest resources have a rich history. The first attempt to quantify these resources was published in 1910 by the US Forest Service (Zon 1910). The Food and Agriculture Organization of the United Nations (FAO) later took up the responsibility for making World Forest Inventories (WFIs) and latterly Global Forest Resource Assessments (Holmgren and Persson 2002). These collected, in a systematic fashion, data compiled by in-country forest authorities. Initially data was restricted to forest cover and trade – with forest employment being covered by the International Labour Organization (ILO) (eg Poschen and Lovgren 2001). But more recently FAO has started to collect employment data, albeit with difficulty due largely to resource constraints amongst collecting authorities (see Matthews and Grainger 2002). More recently still, the FAO has also attempted to use a similar methodology to compile product-specific data on, for example, traded volumes of woodfuel, industrial roundwood, sawnwood, wood-based panels, pulp for paper and paper and paper board – with employment and gross value added by sector (see FAO 2011). By 2014, this data was further differentiated into formal and informal employment (which is very interesting with regard to locally controlled forest-linked production, but is not sufficiently nuanced to allow us to discriminate what is or is not locally controlled with any certainty). FAO has also been able to add figures on food security, use of wood for shelter and use of wood for energy (see FAO 2014). The latter figures are useful to us as they form probably the largest subset of forest user (see Figure 1).

While the above allows for statements on the scale of forests, and forest products trade and employment, it does little to shed light on the people behind forest-linked production, their dependence on forests and control over them. A study commissioned by the UK Department for International Development (DFID) Forestry Research Programme (FRP) in 2000 concluded that most prior statistics on forest peoples were little more than educated 'guesstimates' (SSC 2000 - citing prior reports by Lynch and Talbott 1995; Pimentel *et al.* 1997, Krishnaswamy and Hanson 1999; and World Bank 2003). In 2012, the first systematic attempt was made to gather information about forest peoples from a wide range of institutions, including various UN bodies (FAO, ILO, UNEP, ECOSOC), national governments, national and local non-governmental organisations and indigenous peoples' organisations, human rights and environmental institutions, regional human rights bodies and academics (see Chao 2012). This assessment

advances our knowledge considerably – but, as the authors of the resulting report acknowledge, statistical numbers of 'forest peoples' depend to a great degree on the perceived proximity of different communities to forests (Byron and Arnold 1999), and perceived nature of dependency on forests (Angelsen and Wunder 2003) – both of which are open to interpretation.

The fact that almost all 'forest peoples' are smallholder farmers to some degree (whether operating in either family smallholdings, community tenure or indigenous territories) – excepting of course small numbers of pure hunter gatherers – it is also possible to draw upon data relating to smallholder farming. Here the data on farm size has improved over time through the work of the FAO and the Committee on World Food Security's High Level Panel of Experts. There has been increasing recognition that size alone needs to be qualified by the degree to which agricultural holdings have different productivity in different regions (Graeub *et al.* 2015). Further advances have come from the expansion of a joint Hivos-IIED Knowledge Programme on *Small Producer Agency in the Globalised Market* (eg Proctor and Luchessi 2012). Yet within this data – there is very little that distinguishes farmers who depend on and use forest or tree products from those that do not. But we would expect most smallholder farmers to make some use of tree products – which would lead us to expect that the numbers for smallholder farmers and forest peoples would be roughly similar - which is indeed what we find.

The final area of data relates to smallholder tree growers, and NTFP users. Both sets of data struggle with the spectrum of species and product types involved. But while the data on tree growers is rather weak, we might expect again that most smallholder farmers would use NTFPs to some extent, so that numbers would be roughly equivalent – and this is again the case (Shanley *et al.* 2016).

The persistent lack of data on smallholders generally is largely driven by a dominant paradigm favouring large-scale industrial production and a myopic focus on trade volumes and profits. However, even where research does aim to take a more holistic approach to explore the socioecological and economic benefits of alternative forest-linked investment, it quickly runs into challenges of overlapping categories as shown in Figure 1, and further, of inconsistent definitions and unclear scope.

However, a wide range of organisations have significant repositories of relevant information, from UN agencies such as FAO, ILO, UNEP and ECOSOC; to CGIAR centres such as CIFOR and ICRAF; international membership-based organisations such as IUCN; NGOs such as the Rights and Resources Initiative, World Resources Institute; forest and farm producer organisations such as the International Family Forestry Alliance, the Global Alliance for Community Forestry,

the International Alliance of Indigenous and Tribal Peoples of the Tropical Forests, and others. These will be the focus for further digging for data on numbers, ranges and depth of effect, and for discussion on implications (see Section 4).

3.2 Some initial figures – treat with caution!

Here follows, in a series of text boxes, some examples of the categories of data and kinds of statement currently made in the literature about the collective scale of small and locally controlled forest-linked production. Some are a little old, some recycle the bold extrapolations of others. Some are based on rigorous survey and analytical work, many make heroic assumptions. None of them have been produced in response to the question, 'what is the collective scale of small and locally controlled forest-linked investment?' So, we suggest that all the following figures should be treated with caution.

With about one in three people on Earth estimated to rely on fuelwood to cook, this is a huge category of users of forest production. So is the large proportion globally of users of forest products for shelter (Box 1). To what extent can we unpack these 'users' to gain some understanding of the scale to which different people have decision-making control over, and investment in, the resources involved?

One in five people globally are dependent on forests in some way, and forest resources are especially important sources of income for smallholder farmers and people in poor countries (Box 2). With smallholders representing 90 per cent of the world's farms and providing some 80 per cent of the food supply in Asia and sub-Saharan Africa and many having trees on their farms, this is an important group for investment in forest-linked production. In addition, many of the 500 million people worldwide who identify as indigenous live in proximity to forests, but their forest-linked activities are often overlooked in research on forest investment. Better data is needed on tree cover forest-linked income and livelihoods in family and smallholder farming and in indigenous communities.

One in seven people globally are small-scale forest-linked owners and growers (Box 3). While governments own three-quarters of global forest land, the rest is owned by individuals, firms and indigenous communities. These smallholders dominate tree growing activities, and produce US\$10s of billions of value from forest-linked crops. Despite these important activities, forest managers and small forest enterprises, and small-scale forest and farm producers tend to be analysed separately making it difficult to appreciate the aggregate scale of their forest-linked investments.

In many countries, half of all forestry jobs appear to be in small- and medium-sized enterprises (SMFEs), which, it has been estimated, contribute at least US\$130

BOX 1. COLLECTORS OF FUELWOOD AND USERS OF FOREST PRODUCTS FOR SHELTER – SOME AGGREGATE AND COUNTRY-SPECIFIC ESTIMATES OF SCALE

Users of fuelwood and forest products for shelter

- 34.5 per cent or 2.4 billion, out of a total global population of approximately 7 billion people, depend on fuelwood and charcoal to cook, which is 6.1 per cent of the total primary energy supply globally (FAO 2014).
- 1.3 billion people, or 18 per cent of the world's population, use forest products as the main materials used for walls, roofs or floors in their home or shelter (FAO 2014).
- 177 million people are estimated to be biomass fuel users in the Miombo region of Africa, while 1.77 million people are estimated to be employed in the biomass supply chain (LTSI n.d.).



Country examples

- 56.9 million users of biomass fuel and 570,000 people employed in the biomass value chain – estimates for the Democratic Republic of Congo (LTSI n.d.).
- 41.8 million users of biomass and 418,000 people employed in the value chain – estimates for Tanzania (LTSI n.d.). Also US\$650 million total annual revenue is estimated to be generated by the charcoal sector in Tanzania, dwarfing the contribution of coffee and tea to the national economy – estimated at US\$60 million and US\$45 million respectively (Peter and Sander 2009).

BOX 2. SMALLHOLDER FARMERS AND FOREST DEPENDENT PEOPLE (FAMILY, COMMUNITY AND/OR INDIGENOUS) – SOME AGGREGATE AND COUNTRY-SPECIFIC ESTIMATES OF SCALE

Smallholder farmers

- 1.5 billion people, of the 2.5 billion people in poor countries making their living directly from the food and agricultural sector, live in smallholder households with between 1 and 10 ha (FAO 2012). Many have and use trees on their farms but data on this tree cover and tree use is scarce.
- 28 per cent of total income among households living in or near forests is contributed by forest and environmental income, according to recent comparative evidence (Angelsen *et al.* 2014).
- 80 per cent of the food supply in Asia and sub-Saharan Africa is estimated to be provided by smallholders (FAO 2012).
- 90 per cent of the world's farms are smallholder farms, despite controlling less than 25 per cent of the world's agricultural land, and they contribute 80 per cent of the world's food (GRAIN 2014).
- 309 million farms of less than two ha are found in China, India and Indonesia (Proctor and Lucchesi 2012; Vorley *et al.* 2012).



Indigenous people

- 500 million people worldwide identify themselves as indigenous people, many of them live in or near forest areas (Chao 2012).



Country examples

- 189 million farms of less than 2 ha are found in China, representing 98 per cent of all farms in the country (Proctor and Lucchesi 2012; Vorley *et al.* 2012). Some 95 million farms were registered under forest tenure reforms in which 110,000 forest-linked cooperatives were established. There are an estimated 400 million forest dependent people in China; 105 million of which might be classified as indigenous peoples (Chao 2012).
- 82 per cent of farms are less than 2 ha in India (Proctor and Lucchesi 2012; Vorley *et al.* 2012), and in 2001, of the 14.6 million cubic metres of timber produced per year in India, an estimated 83 per cent was derived from family farms (Snelder and Lasco 2008). There are an estimated 275 million forest dependent people in India, of whom 84 million are classed as indigenous peoples.
- 89 per cent of farms are less than 2 ha in Indonesia (Vorley *et al.* 2012). There are 80-95 million forest dependent people in Indonesia, of whom 30-70 million are indigenous (Chao 2012).

Family farms

- 98 per cent of the world's 483 million farms are family farms (which may involve either community or private smallholdings), and they cover 53 per cent of agricultural land (Graeub *et al.* 2016), but data on their contribution to forest-linked production is scarce.



billion worldwide (Box 4). The significance of SMFEs is even greater when the informal economy is taken into account: There are perhaps seven times more people employed by informal small-medium timber sector enterprises as by formal, and in some countries the informal sector is the sole supplier of domestic timber. Yet many of these jobs and this revenue creation remain invisible in the formal economy, and therefore in policymaking. Can we get better at counting and valuing SMFEs – both informal and formal?

If the informal timber sector is challenging to count and value, revenue from informal production of NTFPs is essentially invisible – yet it is likely nearly on a par with that of the timber sector, globally contributing some US\$88 billion in income alone and traded or used by at least one out of every five people (Box 5). These forest products are particularly important for their accessibility during times of need, yet their value is significantly underestimated.

BOX 3. SMALL-SCALE FOREST OWNERS AND TREE GROWERS – SOME AGGREGATE AND COUNTRY-SPECIFIC ESTIMATES OF SCALE

Forest dependent peoples

- 1.3 billion people are estimated to be 'forest peoples', mostly in developing countries (Chao 2012).

Forest owners

- 13 per cent of the world's forests are owned by indigenous peoples and local communities (and a further 3 per cent designated for them), and another 11 per cent is owned by individuals and firms (while governments still claim 73 per cent of total forest land – 2.4 bn ha) (RRI 2016).
- The forest area under legal community ownership or control in low and middle income countries has risen from 21 per cent in 2002 to over 30 per cent in 2013 (Stevens *et al.* 2014). These figures do not include extensive family smallholdings present in rural areas on all continents that are also locally controlled.
- 55 per cent of all forests legally recognised as community-owned are in China and Brazil; in Latin America, communities own or control more than 39 per cent of forests; and in Congo Basin countries, governments claim 99 per cent of forests (RRI 2016).



Tree growers

- 2.8 million ha of forest plantation per year between 2000 and 2005 on average was established primarily by smallholder farmers (Snelder and Lasco 2008).
- US\$10s of billions in annual export value are estimated to be produced from palm oil, coffee, rubber, cocoa and tea produced by smallholders, whilst other cultivated tree crops, such as avocados, cashews, coconuts, mangoes and papayas also provide additional valuable contributions (FAO 2015). More than 67 per cent of coffee produced worldwide is estimated to be from smallholdings, while the figure is 90 per cent for cocoa (Jamnadass and McMullin 2015).



Country examples

- 31,000 individual small timber growers are estimated to be active in South Africa, on a total area comprising about 6 per cent of the national forest estate (Howard *et al.* 2005).
- 3.47 million ha of forest, which is about 6 per cent of the land area, has been established by the Western Kenya Tree Planters Association in Kenya – the forest is classified as a combination of state forest, community forest and private forest (IFFA 2015).
- 19 million ha, or 9 per cent of productive forests (417.5 million ha), are owned by 425,000 family forest owners in Canada – the Canadian Federation of Woodlot Owners / La Fédération canadienne des propriétaires de boisés (IFFA 2015).
- 68 per cent of the 226 million ha of forest in the USA, which is about 30 per cent of total land area, is privately owned and 58 per cent by family forest owners (IFFA 2015). 4.9 million non-industrial private forest owners (families and individuals having forest properties) are found in the USA (Mehmood and Zhang 2001; USFS 2003, cited in Butterfield *et al.* 2005).
- 23 million ha of forest, or 60 per cent of the total forest area, is owned by 920,000 private forest owners in Finland – The Central Union of Agricultural Producers and Forest Owners / Maa- ja metsätaloustuottajain Keskusliitto (IFFA 2015).
- 50 per cent of the 31 million ha of forest in Sweden, which is 75 per cent of the total land area, is private family forestry - The Federation of Swedish Family Forest Owners / LRF Skogsägarna (IFFA 2015).
- 9.4 million ha of forest, which is 30 per cent of land territory, is owned by about 1.5 million forest owners in Poland (IFFA 2015).
- 42 per cent of palm oil, 96 per cent of coffee, 85 per cent of rubber, 94 per cent of cocoa and 46 per cent of tea in Indonesia in 2011 was estimated to be produced by small farms (Jamnadass and McMullin 2015).

BOX 4. SMALL-MEDIUM TIMBER SECTOR ENTERPRISES AND EMPLOYMENT – SOME AGGREGATE AND COUNTRY-SPECIFIC ESTIMATES OF SCALE

Formal forest sector employment

- 13.2-17 million are estimated to be employed in the formal forestry sector (FAO 2014; Poschen and Lövgren 2001).



Informal forest sector employment

- 30-41 million individuals worldwide are employed in the informal forestry economy (FAO 2014; Poschen and Lövgren 2001).



Small-medium forest enterprises

- 20 million individuals may be directly employed by SMFEs worldwide (Macqueen and Mayers 2006) – or perhaps 140 million when the informal sector (using different parameters to those of Poschen and Lövgren above) is taken into account (Mayers 2006b).
- US\$125-130 billion of gross value-added may be contributed by SMFEs worldwide (FAO 2014; Macqueen 2004; Mayers 2006b).
- 80-90 per cent of all forestry enterprises in many countries are SMFEs, and 50 per cent or more of the forestry-related employment in many countries is in SMFEs (Mayers 2006b).

Country examples

- 700,000 small-scale timber enterprises in Indonesia employ up to 1.5 million people (Obidzinski *et al.* 2014).
- 32 million Euros and 25,000 jobs are estimated to be contributed to the local economy from informal chainsaw milling in Cameroon. For DRC the figures are 34m Euros and 45,000 jobs; for Indonesia 63m Euros and 1,500,000 jobs; and for Ecuador 9m Euros and 3,600 jobs (Cerutti 2016; Lescuyer 2015).

- 511,530 SMFEs, with 500,000 of those being in the microenterprise category, are estimated to be operating in Uganda (Auren and Krassowska 2003).
- 23,000 sawmills and 12,000 safety match factories are estimated to be small scale in India (Saigal and Bose 2003).
- 87 per cent of the 14,907 registered forest enterprises are categorised as SMFEs and 90 per cent of the value generated in the furniture sector comes from SMFE activity in China (Sun and Chen 2003).
- 60,000 forest harvesting, forest processing, intermediate processing, and furniture enterprises with fewer than 100 workers are estimated to be operating in Brazil, providing employment for over 380,000 individuals (these estimates do not include the informal sector) (May *et al.* 2003).
- 1 job is created in a typical Chilean lumber mill with every US\$1.3 million invested, while the Nuevo San Juan community forest enterprise in Mexico creates a new job for only US\$12,000 (Jaffee 1997 cited in Scherr *et al.* 2004).
- 60 per cent of the entire industrial fibre base in the US is estimated to be harvested from non-industrial private forest owners' lands (families and individuals having forest properties) – about 44 per cent of the forestlands – in the USA, and the proportion is expected to grow in the future (Mehmood and Zhang 2001; USFS 2003, cited in Butterfield *et al.* 2005).
- 58 per cent of the wood supply generated in 15 EU member countries originated from non-industrial private forest owners in 2003 (FAO 2000, cited in Butterfield *et al.* 2005).

BOX 5. NON-TIMBER FOREST PRODUCT SECTOR MANAGEMENT, OWNERSHIP AND EMPLOYMENT – SOME AGGREGATE AND COUNTRY-SPECIFIC ESTIMATES OF SCALE

NTFP users

- 1.5 billion people globally are estimated to use or trade non-timber forest products, with the majority of use and trade occurring at local and regional scales, generally invisible to researchers and policymakers (Shanley *et al.* 2016).
- 3.6 million tonnes of animal protein is derived from forests each year (FAO 2014).
- US\$88 billion is estimated to be derived in income from non-wood forest products in 2011 (FAO 2014).
- US\$18.5 billion is estimated to be the value of non-wood forest products harvesting in 2005, although FAO notes that this is probably a significant underestimation of its true value (FAO 2011).
- 50 per cent or less of household income typically came from NTFPs in a global comparative study of NTFP – using case studies by CIFOR – the



importance of this contribution being linked to its accessibility during times of need, or when agricultural labour needs were low (Kusters *et al.* 2006; Malleson *et al.* 2014).

- 200,000 tonnes of raw gum, valued at close to US\$432 million, was imported by the European Union between 2003 and 2007 – from gum Arabic (from *Acacia senegal* and *A. seyal*) collected and sold in 17 countries across dryland Africa. The raw gum is processed and resold as additives for the food and drinks industry (FAO 2011).
- 376,000 million tonnes of fruits, berries and edible nuts, worth 459 million Euros, were harvested in 23 countries in Europe in 2011 (Forest Europe *et al.* 2011).
- US\$33 million per year in national income has been estimated to be derived from NTFP trade in Uganda (Lehoux and Chakib 2012).

Conclusions and next steps

4

This issue paper describes work in progress. At this stage, we are concerned primarily with making conclusions about the challenges in assessing the scope and collective scale of small and locally controlled forest-linked investment, and to outline what we intend to do next in collaboration with others.

4.1 Scope, scale and opportunity justify further detailed analysis

Results from this initial exploration are educative. They show that, with some investigation, the scope for small and locally controlled forest-linked investment is potentially huge, and they show that a collection of estimates of the scale of some of its components can be compiled. Both scope and scale information to date beg many questions, but together they indicate that a major opportunity is so far being missed – to deliver highly beneficial and widespread local development outcomes, forest conservation and returns on investment. This opportunity is about making and following through with commitments to measurable improvements in policy, organisation, business practice, capacity and practical initiative that can generate acceptable returns from investment with local people in the driving seat.

Opportunity to improve and spread small and locally-controlled forest-linked investment has perhaps never been greater. With the recent global finance crisis revealing a depth of uncontrolled financial gambling and collusion in the international economy that has stimulated many to seek alternatives, with momentum for tackling climate change growing with the 2015 Paris Agreement, and with the universality and potential accountability of the Sustainable Development Goals, many organisations and networks are interested in thinking and acting in new ways. People are valuing new forms of ownership, lending and doing business and this can be seen in the myriad and vibrant forms of local

organisation nurturing forest goods and services. New frameworks, such as those shaping discerning markets for legal and sustainable forest products, fostering Free, Prior and Informed Consent (FPIC), promoting responsible investments, and implementing *Voluntary Guidelines on the Governance of Land and Natural Resource Tenure* – all present further opportunities. Information based on rigorously analysed evidence is now key to further opening up these opportunities.

4.2 Gaps to assess; uncharted terrain to explore

Good data and tracking systems on forest cover are now available. Reasonably good data can be found on levels of production of forest products, and on forest ownership. Only weak data is available on types and dynamics of forest organisation, enterprise and activity in the informal economy, and on tree and forest use and management by farmers and smallholders. With some thematic and geographical exceptions, data on social, political and livelihood quality issues, and on distribution of value, is very poor. These are the gaps that need addressing and the terrain that needs charting.

Yet there are some strong international thematic reviews, local analyses and case studies that can be revisited, others unearthed and connected in new ways, and these present exciting prospects for challenging some of the recycled figures and unquestioned assumptions. We should not be surprised that potential information sources on small and locally controlled forest-linked investment have not yet been integrated – it is only recently that the potential and need for this have become recognised. In making progress with this, improvements in data collection and analysis are likely to be identified, as are prospects for clear and consistent definitions which can be applied globally to encompass the wide scope of small and locally controlled forest-linked producers.

4.3 Some next steps

With the above imperative, opportunity and necessary exploration in mind, the following next steps present themselves:

1. Engage with a range of identified organisations to build interest in the assessment, identify uses for the findings in each case, and access relevant compiled sources of data.
2. Identify and collaborate with particular organisations – those who research or implement some form of small and locally controlled forest-linked investment – who wish to play an active role in the assessment and can support themselves in doing so.
3. Liaise with and develop agreements with up to four organisations to produce assessments of particular subsets of the scope and scale of different types of locally controlled forest-linked private sector activity internationally. IIED has some resources to support these defined assessments.
4. Plan and develop a joint publication and appropriate targeted messaging, outreach and communications based on it, with those described above who become involved in the work.

IIED aims to steer work over the course of 2016 to cover the above ground. Please get in touch if this is of interest.

Acronyms

| | |
|---------|--|
| CATIE | The Tropical Agricultural Research and Higher Education Center |
| CIFOR | Centre for International Forestry Research |
| ECOSOC | Economic and Social Council of the United Nations |
| FAO | Food and Agriculture Organization of the United Nations |
| FPP | Forests and Peoples Programme |
| GACF | Global Alliance for Community Forestry |
| ha | hectare |
| ICRAF | World Agroforestry Centre |
| IFFA | International Family Forest Alliance |
| IIED | International Institute for Environment and Development |
| ILO | International Labour Organization |
| IUCN | International Union for the Conservation of Nature |
| NGO | Non-governmental organisation |
| NTFP | Non-timber forest product |
| RECOFTC | The Center for People and Forests |
| RRI | Rights and Resources Initiative |
| SDG | Sustainable Development Goal |
| SMFE | Small- and medium-sized enterprise |
| UNEP | United Nations Environment Programme |
| WRI | World Resources Institute |

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Small and locally controlled forest-linked investments are crucial to development and environmental protection. Patchy and anecdotal evidence suggests that the aggregate scale of local investment in goods and services from forests – on farms and by small enterprises and producer organisations – is huge. For example, one estimate puts the number of individual forest-linked producers, small-scale forest and farm producer organisations, and small enterprises at one billion globally. But their numbers have not been properly assessed and neither has their full potential for forest conservation, climate change adaptation and mitigation, returns on investment and local development outcomes. This paper reviews some of the issues in assessing the scale and exploring the scope of small and locally controlled forest-linked production and investment internationally. It lays out a plan for a fuller assessment and proposes how the results could help generate higher levels of commitment to measurable improvements in policy, organisation, business practice, technical capacity and practical initiatives that generate acceptable returns from investment with local people in the driving seat.

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