



Social protection for building the resilience of forest dependent people

Background document

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Acronyms

BDH	Bono de Desarrollo Humano
CCT	Conditional Cash Transfer
FAO	Food and Agricultural Organization
ICDP	Integrated Conservation and Development Projects
PEPAS	Payments for Environmental and Poverty Alleviation Services
PES	Payment for Environmental Services
PSNP	Productive and Safety Net Programme
REDD	Reducing Emissions from Deforestation and Forest Degradation
SAFE	Safe Access to Firewood and alternative Energy
UNFCC	United Nations Framework Convention on Climate Change
WFP	World Food Programme

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1. Introduction

Social protection is increasingly being adopted as a key strategy for reducing vulnerability in developing countries. Populations residing in rural areas and those reliant on ecosystems for their livelihoods are vulnerable to any global shocks (food prices, financial and debt crises, and climate change) and are continually exposed to multiple local risks and shocks such as natural disasters, disease and income losses (Davies et al 2013). Social protection is aimed at not only alleviating the impact of these shocks and risks but at building resilience among vulnerable populations. The effectiveness of social protection in reducing vulnerability and improving risk management is widely documented (IEG 2011; Tirivayi, Knowles and Davis 2013, Barrientos 2012).

In light of this evidence, there are now calls for enhancing coherence and coordination between social protection and other economic and development policies (Tirivayi, Knowles and Davis 2013). Much of this discourse has focused on the potential synergies between social protection and agriculture (Tirivayi, Knowles and Davis 2013) or as a key component of climate change adaptation strategies (Stern 2009). Yet, there has been little mention of the role of forests, despite their link to social protection, agriculture and climate change adaptation. Forest dependent people mostly reside in rural areas and rely on trees and forests in their surroundings for food and livelihoods. They are thus affected by both agriculture and climate change. Forest dependent people are also likely to be among the rural beneficiaries of both social protection measures and forestry policies, thereby enabling the interaction between social protection and forestry.

The interaction between social protection and forestry is possibly characterized by both synergies and conflicts between the two sectors. It is reasonable to assume that there are synergies between the two, since they both substantially contribute to poverty reduction and the improvement of livelihoods. On one hand, forests provide direct and indirect socio-economic benefits to billions of people around the world (FAO SOFO 2014). These include income generated from forest products and environmental services, employment in the formal and informal forest sector, and consumption of wood fuel, forest food and forest products for housing and medicine (FAO SOFO 2014). For instance, at least 1.3 billion people rely on forest products for their shelter. By providing access to income, food, energy, medicine and shelter, forests enhance food security and help poor households manage risks and reduce vulnerabilities to shocks. On the other hand, forest dependent people are currently facing a number of threats which include high deforestation rates (in some areas) and climate change. Depending on their location, forest dependent people face different incentives regarding the exploitation of natural resources. Börner and Wunder (2008) indicate that in remote areas such as the Amazon region in Brazil there is less pressure on natural resources when compared to better-connected areas. This disparity is attributed to factors such as market dynamics, basic economics of deforestation, and infrastructure (Börner & Wunder, 2008).

Forest dependent people are highly likely to be asset and income poor and thus have greater environmental dependence than other segments of society (Wunder, Angelsen, & Belcher, 2014). They are also usually located in remote and poor areas with missing or incomplete markets, few economic resources, and therefore have limited income generating opportunities. Hence, they are highly vulnerable to poverty, food insecurity, risks and shocks. Social protection interventions can reduce the poverty and the

vulnerability of forest dependent people by smoothing consumption, improving risk management and building resilience by boosting adaptive capacities. As an example, social protection interventions like cash transfers can enhance the resilience of forest dependent people during times of environmental and income stress by enhancing food and nutrition security, preventing the unsustainable consumption of forest products and preventing the use of other adverse risk coping strategies that decrease future income earning potential. Social protection interventions can be used to specifically encourage the sustainable management of forests. As climate variability and the effects of climate change increase, social protection may become an important adaptation strategy. However, there is limited documentation of the use of social protection schemes in sustainable forest management and forestry related climate change adaptation strategies.

Since, social protection alone may not lead to sustainable or permanent poverty alleviation; there is need for complementary livelihood policies. Due to the wide range of benefits derived from forests and their centrality to climate change adaptation strategies, forestry policies can also complement social protection measures (e.g. green jobs and reforestation). In fact, forestry interventions like unconditional payments for conservation or payments for environmental services (PES) that are targeted to poor, rural and communal households arguably resemble social protection measures like unconditional and conditional cash transfers. This complementarity is enhanced by the likely overlap in the targeted geographies and beneficiaries of social protection and forestry policies. This may translate into synergies that would strengthen the livelihoods of forest dependent people. Linking both approaches would sustainably fulfil the basic needs of forest dependent people and build resilience to poverty, shocks and changes in forest ecosystems. However, there is limited evidence of the interaction between social protection and forestry policies and the potential synergies and conflicts.

This study seeks to provide a rationale for exploiting the complementarities and potential synergies between social protection and forestry in developing countries. This will be achieved in three ways. First, the study reviews evidence of the role of forestry policies in managing risks and reducing vulnerabilities among forest dependent people. Second, the study reviews evidence of the impact of social protection instruments on forest management and forest-dependent people, and evidence of the integration of forestry policies with social protection schemes. Finally, the study identifies the potential synergies between forestry and social protection and discusses the key policy issues for strengthening linkages between sustainable forest management and social protection. By documenting empirical findings, the study aims to advance the understanding of how social protection and forestry policies can be integrated or coordinated for the purposes of achieving sustainable forest management and securing sustainable sources of livelihoods for forest dependent people. As such, this study advocates for a new approach that recognizes the potential complementarities between social protection and forestry and encourages the close coordination of these policies.

2. Social protection and sustainable forestry

2.1 Vulnerability of forest dependent people

A range of environmental, economic, health and demographic, social and political factors are key drivers of the vulnerability of forest dependent people. They are:

Economic factors: Since forest dependent people reside in remote rural areas they are constrained by limited access to economic resources and poorly functioning markets, which increase their vulnerability to *economic risks and shocks* that threaten their livelihoods. Forest dependent people are also highly vulnerable to the effects of climate change and environmental degradation which increase *food insecurity*. Moreover, the size of their landholdings creates a trade-off between subsistence and conservation uses (de Koning et al., 2011). Without insurance and other formal risk mitigation instruments, exposure to risks and shocks can deepen food insecurity and poverty. Examples of risks include covariate (macro-level) ones such as, financial crises, global food price hikes and economic collapse. At the household level, forest dependent households are vulnerable to idiosyncratic shocks such as illness, job loss, family deaths, migration and accidents.

Forest-dependent households are less likely than non-forest dependent people to have *diverse income sources*. Hence, exposure to economic risks and shocks could lead to them engaging in adverse risk coping mechanisms that are detrimental to their future livelihood prospects and also lead to unsustainable forest management. For instance, in response to energy price hikes or income loss, households may increase the consumption/sale of wood fuel and other extractive activities which may lead to deforestation. Or they could engage in the destruction of important tree species like mangroves, poaching and unsustainable farming (Bene et al 2013). Other adverse coping mechanisms include distress sale of assets, school withdrawal, reduction in food consumption and increased child labour. *Employment* in forestry is also characterized by a high degree of informality. Informal forest workers are usually engaged in activities like illegal logging which directly cause deforestation (Bene et al 2013). Informal forest work is generally carried out under poor working conditions such as low pay, poor job security and inadequate health and safety protection (Bene et al 2013). Consequently, the lack of job security and hence a regular source of income heightens the vulnerability of informal forest workers to risks and shocks.

Social and demographic factors: By living in remote rural areas, forest dependent households are also easily *marginalized and excluded* from society. Among forest dependent people are indigenous peoples who usually comprise an ethnic minority in developing countries. As a result they are most likely to have limited access to social networks of solidarity and mutual exchange that can assist households in risk-sharing. In times of *conflict*, forest dependent people are exposed to shocks such as displacement, death and increased competition for resources from other displaced people. Gender is another source of vulnerability. Among forestry activities, fuelwood collection has a clear division of labour. Women are most likely to be involved in the collection of fuelwood for household use which diverts time away from other tasks such as caring for children or improving family health (FAO, 2014). Men are mainly involved in the collection of fuelwood for sale (FAO SOFO 2014). In remote rural areas experiencing forest degradation,

women may be required to travel long distances to collect fuelwood thereby increasing their vulnerability to gender based violence.

Environmental and health factors: Forest diseases and pests, forest fire, natural disasters like droughts and floods, competition for natural resources, disease epidemics and climate change are some of the environmental and health risks that increase the vulnerability of forest dependent people and push them to adopt adverse risk coping mechanisms.

Political factors: Environmental protection and climate change adaptation strategies and policies that may not take into account the needs of forest dependent poor people and may thus threaten their livelihoods. For instance, a stronger enforcement of conservation regulations may displace and impoverish forest-dependent people (Rutt, 2014). Due to their remote location, forest dependent people may also be underrepresented in leadership and may easily be excluded from political constituencies. This may impede them from participating in activities and contributing their voice to policies that affect their livelihoods. Laws on land titling are of utmost importance, given that some form of land ownership is usually required for eligibility to forest conservation programmes. The poor are mostly landless or have no land rights. This excludes them from participating in forest conservation programmes.

2.2 Role of social protection in forestry

Theory and evidence show that social protection instruments can be used to fulfil several of the UN Forests Forum's Global Objectives on Forests. They can be used to i) promote sustainable forest management by encouraging forest conservation behaviour, facilitating the implementation of forest conservation practices and improving risk management, ii) enhance forest-based economic, social and environmental benefits by improving and diversifying the livelihoods of forest-dependent people, iii) increase the proportion of forest products derived from sustainably managed forests through skills training and better worker conditions, and iv) boost funding for sustainable forest management by leveraging existing climate funds and the substantial financial resources devoted to developing social protection systems in low income countries.

In the same vein, several of the proposed Sustainable Development Goals give new impetus to the roles of both social protection and forestry in fulfilling the global development agenda. Sustainable development goals 1 (end poverty) and 2 (end hunger) emphasize the need for building resilience among the poor to shocks and climate related risks. Goals 7 (sustainable energy), 12 (sustainable consumption and production), 13 (combat climate change), 15 (sustainable ecosystems and forests) promote the strengthening of resilience, adaptive capacity to climate related events and the efficient use of natural resources. Goals 8 (decent work) and 10 (reduction of inequality) highlight opportunities for interaction between social protection and forestry in promoting decent formal employment in forestry and in reducing inequalities between forest-dependent and non-forest dependent people.

This section defines social protection and classifies its different instruments by function and type. The section also explores the potential mechanisms through which social protection may affect forest conservation.

2.2.1 Definitions

Social protection can be *defined* as a set of “interventions whose objective is to reduce social and economic risk and vulnerability and to alleviate extreme poverty and deprivation (Tirivayi, Knowles and Davis 2013)”. A more comprehensive definition states that social protection is a “set of all initiatives, both formal and informal, that provide social assistance to extremely poor individuals and households; social services to groups who need special care or would otherwise be denied access to basic services; social insurance to protect people against the risks and consequences of livelihood shocks; and social equity to protect people against social risks such as discrimination and abuse” (Devereux and Sabates-Wheeler, 2004).

Social protection interventions are ideally suited to alleviating poverty, reducing vulnerability and building the resilience of forest dependent people. This is because social protection measures are usually regular and predictable and therefore can relax credit, liquidity, savings and insurance constraints. The alleviation of such binding constraints cushions households from shocks and enables households to better manage risks. Consequently, forest dependent people can invest in resilient and productive livelihood strategies that not only increase food security but also enhance adaptive capacities.

2.2.2 Type and function of instruments

There are different types of social protection instruments. They are generally classified into five different sets:

- i. **Social insurance** comprises contributory transfers that are based on the pooling of contributions by individuals in public or private employment. These contributions can be used to financially support individuals in the event of experiencing a shock. They are commonly used to prevent risks from old age, disability, illness, and unemployment. Examples include health insurance, retirement pensions, social security, unemployment benefits, maternity benefits and disability benefits.
- ii. **Social assistance** refers to non-contributory transfers that are targeted to specific vulnerable and deprived populations e.g. people with disabilities, elderly, labour-constrained households, women and children, poor working age adults. Examples include unconditional cash or in-kind transfers (social pensions, cash benefits, supplementary feeding, food aid and humanitarian transfers, vouchers) and conditional transfers (cash for work, food for work, cash for school attendance, school feeding and fee waivers).
- iii. **Labour market policies** which comprise legislation to protect workers, policies aimed at increasing the demand for labour and that actively encourage work. Examples include minimum wage guarantee, occupational safety standards, employment subsidy, wage subsidy, job training vouchers, placement assistance and matching.
- iv. **Subsidies** aimed at controlling prices in order to maintain affordability of goods by the poor. They are meant to encourage consumption of a good in fulfilment of certain objectives e.g. promote food

production and food security. Examples include agricultural input subsidies (fertilizer, seed), energy subsidies, housing subsidies, food subsidies (staple foods).

- v. **Social services** refer to the provision of public services such as education, health, nutrition and agriculture.

Social protection instruments can be classified into four different categories of function: preventive, protective, promotive and transformative, also known as the 3P+T framework (Devereux and Sabates-Wheeler 2004). Table 1 describes the different functions and provides examples of instruments.

Table 1 Function of social protection instruments

Category	Function	Examples of instruments
Preventive	Stave off deprivation and shocks (risk mitigation)	Social insurance security (pensions, health insurance, maternity, disability, unemployment benefits.) Cash transfers User fee waivers (health, education) Minimum wage
Protective	Promote recovery and relief from shocks (risk coping)	Cash transfers Public works Social pensions (non-contributory) Feeding programmes Humanitarian relief
Promotive	Enhance income earning and productive capacity (risk reduction and diversification)	Conditional and unconditional cash transfers Asset transfers User fee waivers School feeding programmes Skills training Public works Wage subsidy
Transformative	Address power imbalances that sustain inequality and social exclusion (empower and protect)	Workers' rights laws Anti-discrimination laws Inheritance and succession laws

Source: Adapted from World Bank (2012) and Sabates-Wheeler and Devereux (2008).

Social protection interventions can be implemented before (preventive, promotive, transformative) or after (protective, promotive) households are exposed to shocks. Table 1 shows that social protection can;

ensure food security, help forest dependent people recover from shocks, mitigate risks, and enhance their productive capacity which strengthens resilience. As Table 1 shows, several instruments can have multiple functions depending on when they are provided to beneficiaries. The preventive, protective and promotive instruments all enhance the adaptive capacity of forest-dependent people i.e. build resilience.

2.2.3 Mechanisms through which social protection instruments affects forestry and forest dependent people
The mechanisms through which social protection measures affect forest management and forest dependent people are potentially ambiguous. As explained below, social protection interventions can either support or undermine the sustainable use of forests.

Risk coping

During times of stress and shocks, social protection interventions may help households avoid using risk coping strategies that lead to unsustainable forest resource extraction. For instance cash or food transfers may prevent beneficiaries from depleting forest foods or increasing the sale or use of firewood. They can work as a risk management device for landholders providing fixed, regular and predictable income, thus smoothing income fluctuation when crop production is affected by weather and market conditions. Conversely, if cash transfers are eroded by inflation or food transfers are of poor quality, beneficiaries may resort to forest resource extraction.

Risk taking

By alleviating credit, liquidity and savings constraints, social protection interventions increase income and can encourage risk taking. On one hand, this can lead to increased investments in practices that reduce pressure on marginal lands (Wilebore, Voors, Bulte, Coomes, & Kontoleon, 2015). Foster and Rosenzweig (2003) hypothesize that an increase in income would raise the demand for forest products and strengthen incentives to conserve and manage forests. For example, forest dependent people or other rural households could engage in agroforestry which when done properly increase crop output, income and improve land use, ultimately enhancing adaptation to climate change. Income transfers represent a sufficient, predictable, and reliable income to small landholders, making it the preferred option over highly volatile and unpredictable alternatives (de Koning et al., 2011). Unconditional cash transfers could enable forest dependent people to engage in off-forest employment or the rise in unearned income could increase the demand for leisure, ultimately diverting labour away from the forests (Wilebore et al., 2015). Cash transfers could also increase fertilizer use and agricultural efficiency, thereby reducing pressure on land at the extensive margin (Wilebore et al., 2015). On the other hand, since forests are common pool resources, the additional income from social protection interventions may motivate farmers to hire more labour or invest in crop production resulting in forest clearance. In addition, cash transfers may increase household consumption and consequently increase the demand for firewood for cooking, resulting in deforestation.

Encourage forest conservation behaviour

Social protection interventions that are intended to incentivize conservation (e.g. cash transfers) could engender goodwill towards forest conservation authorities and elicit positive perceptions on conservation

from forest dependent people (Wilebore et al., 2015). Beneficiaries of social protection interventions like cash transfers can be encouraged to conserve forests, if the cash transfers are made conditional to sustainable forest management. Cash transfers would correct the market failures that make forest clearance activities more valuable than conservation i.e. compensate for the opportunity costs of forest conservation (Börner & Wunder, 2008). However, in areas with missing credit and factor markets, social protection measures like cash transfers can alleviate credit or liquidity constraints, but the subsequent rise in income could encourage beneficiaries to instead shift forest degrading practices to non-targeted forests (substitution leakage) (Robertson and Wunder 2005, Alix-Garcia and Wolff 2014). Missing or incomplete markets are a typical constraint for forest dependent people. In the absence of markets, there are *no market price signals* for demand and supply of forest products (Pattanayak, Wunder, & Ferraro, 2010). Similar to the challenges experienced in PES programmes, conditional cash transfers for forest protection/conservation could initially reduce labour allocated to harmful behaviours like the collection of firewood or wood for housing. Yet, the increase in household income from the transfers could raise the demand for firewood or wood for housing (Pattanayak et al., 2010).

Increase knowledge and facilitate the implementation of conservation practices

Social protection schemes can also be used to facilitate sustainable forest management practices. Social protection instruments like cash or food for work schemes usually require beneficiaries to work on agroforestry or reforestation in exchange for food or cash. They also enable beneficiaries to acquire knowledge and skills on reforestation or afforestation. However, public works programmes are administratively demanding and require close monitoring and supervision of forest rehabilitation work. Therefore, in some instances the forestry work may not be done properly.

Change prices of non-forest products

Agricultural input subsidies directly influence forest resource extraction. For instance, fertilizer or seed subsidies can increase input use and enhance agricultural efficiency, thus preventing further land clearance. However, the same subsidies could increase the disposable income of beneficiaries who may increase their investments in crop production resulting in forest clearance.

Labour protections

Labour market policies can improve the working conditions of forest workers. For instance, labour legislation can be enacted to protect formal and informal forest workers' rights to organize. Labour legislation can guarantee a minimum wage for the formal forest sector. Legislation could also be used to guarantee formal and informal workers' safety. These protections help increase job security and may guarantee predictable incomes. In the formal forest sectors, higher pay and benefits (social insurance) help workers mitigate against risks.

Local economy effects

Similar to PES, social protection interventions can affect the local economies surrounding forests. First, they can lead to local spillover effects (externalities) on non-beneficiaries including non-forest dependent peoples. Positive changes in the conservation behaviour of forest dependent people (beneficiaries) can diffuse to surrounding non-beneficiaries and encourage additional conservation in non-protected areas (Pattanayak et al., 2010). Alternately, social protection interventions may discourage deforestation in non-protected areas by raising expectations among non-beneficiaries of future participation in social protection schemes (Alix-Garcia & Wolff, 2014). Additionally, a social protection intervention could be perceived as a sign that government would not be developing infrastructure or industries in the local region and thus reduce the incentive for forest clearance (Alix-Garcia & Wolff, 2014). Most conservation programs target beneficiaries most likely to engage in forest degradation in the absence of incentives. Consequently, those already practicing good conservation practices are excluded.

However, the exclusion of non-beneficiaries may create unequal power structures and foster rent-seeking behaviour (Rodriguez et al., 2011). Negative externalities may occur when the targeting of social protection schemes is deemed as unfair by non-beneficiaries who may respond to exclusion by clearing forests in their areas (Alix-Garcia & Wolff, 2014; Alpizar, Nordén, Pfaff, & Robalino, 2013).

Furthermore, the targeting of certain forests for conservation via social protection could inadvertently increase the prices of forest products or agricultural crops and therefore incentivize production leading to forest clearance in non-targeted areas (Chomitz 2002). Social protection interventions directly or indirectly inject a substantial amount of income into the local economy, triggering multiplier effects characterized by changes in local forestry and non-forestry labour and commodities. For instance, an injection of income via cash transfers could increase the local demand for agricultural labour, raise wages and increase agricultural production (Wilebore et al., 2015).

All the mechanisms are mediated by various factors including programme design (type of intervention, targeting, benefit levels, coverage, delivery, regularity), climatic variability, economic context (prices, markets, infrastructure), social context (exclusion, cultural norms), and demographic characteristics of target groups (Tirivayi, Knowles, Davis 2013).

2.3 Social protection instruments most relevant to sustainable forestry

In this section, we first highlight selected examples of social protection instruments that are currently being applied in sustainable forest management programmes. We then review evidence of the impact of social protection on forestry outcomes and on forest-dependent people. We also discuss the potential applications of social protection in sustainable forestry, especially the avenues for integrating social protection with forestry policies. The section concludes with an overview of social protection instruments most relevant to sustainable forestry and how they may interact positively or negatively with forest management goals.

2.3.1 Current applications of social protection in sustainable forestry

There several examples of programmes using social protection instruments to promote forestry activities:

Public works programmes. Public works schemes are a widely used instrument. Public works programmes allow poor beneficiaries to work in exchange for cash or food payments. Work is usually labour intensive and involves environmental conservation activities including the rehabilitation and construction of public infrastructure e.g. irrigation, roads, schools, trees, watershed protection and dams. Public works programmes also enhance the conservation skills and knowledge of beneficiaries. They can be timed to respond to a shock (ex-post) or to prevent and mitigate shocks (ex-ante). For example, during the drought in 2012, the World Food Programme (WFP) provided cash or food vouchers to over 450 000 people in Kenya in exchange for work on soil and water conservation and agro-forestry (WFP 2012). In Ethiopia, the Productive Safety Net Programme (PSNP) delivers public works to poor working age adults, where the beneficiaries work on environmental restoration activities which include the establishment of woodlots, area enclosures and construction of hillside terraces. Since 1995, the South African Working for Water programme (a public works scheme) has employed about 30 000 people per annum, of whom 52% are women (Stevens 2009, Cock 2009). The programme aims to remove invasive alien plants that threaten biological diversity and water security. This is accomplished through provision of training and education in tree planting, species identification, and life skills such as financial literacy and HIV/AIDS information (Stevens 2009). In addition, the programme also promotes ecologically friendly jobs for women (Stevens 2009). Further examples of public works are presented in Box 1.

Unconditional in-kind transfers. A prominent example is the Gola Forest Programme in Sierra Leone which provides unconditional in-kind transfers in the form of vouchers for purchasing food, inputs and building materials (Wilebore et al., 2015). The Gola Forest is the largest tract of Upper Guinea rainforest in Sierra Leone. It is home to 14 globally threatened bird species and is considered a biodiversity hotspot. The programme established a conservative concession to protect the area from logging and set up a fund to manage the forest and compensate local communities for giving up their logging rights and support community development programmes. In 2011, the programme provided communities around the forest with unconditional vouchers over a nine month period. Household vouchers were worth about 15 USD and allowed beneficiaries various livelihood goods including food, agricultural inputs, building materials, water tanks, and generators (Voors, et al., 2013; Wilebore et al., 2015). The payments were intended to elicit support for forest conservation by reducing forest clearance and increasing the amount of fallowed land (Wilebore et al., 2015). The majority of the beneficiaries used the vouchers to order public goods (e.g. water tank), followed by investment goods (e.g. agricultural inputs) and consumption goods (Voors et al., 2013).

Conditional transfers. Recently, several governments have implemented what is referred to as environmental CCTs (Rosa 2014). Unlike normal PES which do not distinguish between poor and non-poor beneficiaries, environmental CCTs are specifically targeted at poor forest dependent people and thus combine specific poverty alleviation goals with environmental conservation goals. One example is the Bolsa Verde (green grant) Programme in Brazil. The programme is aimed at encouraging forest conservation, alleviating poverty and promoting social inclusion. Beneficiaries include indigenous communities and reside near national forests and extractive reserves. They are selected via the Bolsa Familia (CCT) registry and are required to be enrolled in both programmes. Beneficiaries receive quarterly cash grants in return for maintenance of forest cover and other conservation activities. Another environmental CCT in Brazil is

the Bolsa Floresta programme. The programme is implemented in the state of Amazonas and targets poor families and local community associations in selected protected areas (Rosa 2014). Bolsa Floresta aims to improve the livelihoods of forest dependent people through the provision of cash transfers conditioned on forest conservation practices and children's enrolment in schools (Rosa 2014). The different components of the cash transfers encourage household investments in sustainable income generating activities and community investments in education, health, sanitation, and infrastructure (Rosa 2014). In Ecuador, Sociobosque is an environmental CCT aimed at increasing income and human capital, and conserving forests and ecosystems in poor rural areas (Rosa 2014). The programme provides cash transfers whose benefit levels vary by land size, ownership and location in a targeted area.

Box 1 Other examples of social protection applications in sustainable forestry

Safe Access to Firewood and alternative Energy (SAFE) programme

In Uganda the SAFE programme is implemented via a public works programme called the Karamoja Productive Assets Programme. This is a large-scale food- and cash-for-work and asset-creation programme implemented by WFP in collaboration with FAO and the Prime Minister's Office. Karamoja is the poorest and most marginalized region in Uganda. It is also semi-arid and lies in part of the pastoralist belt of the Horn of Africa and has experienced significant environmental degradation and recurrent droughts. The programme's food and cash transfers provide relief from droughts and build resilience. The cash and input transfers promote the diversification of livelihoods which in turn reduce dependence on natural resources like forests.

Activities

- Cash or food transfers to food insecure pastoralists and agro-pastoralists in exchange for work on land/soil conservation measures, livestock watering points and reforestation. Beneficiaries also establish woodlots dedicated for the collection for firewood as an alternative to women travelling long distances in search of firewood which increases their vulnerability to gender-based violence.
- Training and inputs for drought resistant crops, vegetable home gardens, fruit orchards and gum trees.
- Training on fuel-efficient stoves manufacturing. Fuel efficient stoves can reduce the amount of fuelwood consumed by households.

Achievements

Nearly 14000 trees were planted. 30,931 fuel efficient stoves were provided. 755 people received training in the making of fuel efficient resources.

Source: FAO 2013.

Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security in Mauritania

This WFP project seeks to promote the rehabilitation of land and forests in Mauritania via food for work, cash for work and food for training schemes.

Activities

- Food transfer in exchange for tree planting, building water retention dams and planting of forests dedicated for the supply of community fuel wood.
- Beneficiaries are especially planting the recently depleted acacia sénégalaïse which is a source of gum Arabic (income generating product). Other tree species also being planted to promote diversity and enhance food security and livelihoods.

Achievements

Nearly 300 000 trees planted in protected areas through the food for work programme.

2.3.2 *Impacts of social protection programmes on forests*

A survey of the literature shows that the application of social protection instruments to promote sustainable forestry is still narrow and in most cases still at a conceptual stage. Evidence of the impact of social protection interventions on forests is sparse. Most social protection interventions are aimed at alleviating poverty and reducing the vulnerability of beneficiaries. Most interventions do not promote any specific conservation goals and are targeted to large populations which may or may not include forest dependent people. A study from Mexico evaluated the impact of conditional cash transfers on forest cover. Alix-Garcia et al (2013) find that the *Oportunidades* conditional cash transfer (CCT) program increases consumption of land-intensive goods and increases deforestation in Mexico, especially in areas with poor roads. Piperata et al (2011) find that the Bolsa Familia (CCT) in Brazil increased height in young forest dependent males.

There are few rigorous impact evaluations of social protection instruments that have been specifically linked to forest conservation programmes or goals. Andersson et al. (2011) find that the PSNP, a public works scheme that includes reforestation activities, increases the number of trees planted by beneficiaries in Ethiopia. In fact, when exposed to shocks, PSNP beneficiaries reduced their livestock rather than their treeholdings (Andersson et al., 2011). Other studies find that the PSNP increased wood and herbaceous vegetation cover, increased watershed biomass by 24 percentage points and sequestered about 1.45 million tonnes of carbon dioxide in sampled watersheds (Metafaria Consulting 2013, Sutcliffe 2011). In South Africa, the Works for Water (WfW) programme (public works) increased stream flow in riparian areas by nearly 46 million m³ per annum (Turpie et al., 2008)

Börner et al. (2013) find that in reserves that benefited from the Bolsa Floresta programme, an extra monetary incentive for conservation given in addition to Bolsa Familia¹ transfers (CCT), forest loss has declined by about 12% more than in non-beneficiary reserves. They also find moderate reductions in illegal invasions and deforestation which are attributed to a decline in externally induced land and resource grabbing. Wilebore et al (2015) experimentally provided unconditional vouchers to communities living near the Gola Forest (protected area) in Sierra Leone. The vouchers would allow beneficiaries to purchase consumption, investment and public goods. The vouchers were intended to elicit support for forest conservation by reducing forest clearance and increasing the amount of fallowed agricultural land. Wilebore et al. (2015) find that the unconditional vouchers did not affect forest conservation as there were no impacts on land clearance, amount of fallowed agricultural land and plot sizes.

2.3.3 *Potential linkages between relevant social protection instruments and sustainable forestry*

There are several opportunities and avenues for creating linkages between social protection and sustainable forestry. The global climate change agenda is being implemented through a plethora of initiatives. All these initiatives present attractive opportunities for incorporating social protection instruments. Existing climate change initiatives like climate change funds, REDD, PES, integrated conservation and development projects (ICDPs) can plausibly be linked with social protection initiatives to build resilience and promote forest conservation. The largest climate funds like the World Bank Climate

¹ Extra monetary incentive on top of CCT from Bolsa Familia.

Investment Funds, the planned UNFCCC's Green Climate Fund Currently being designed by the UNFCCC, the Green Climate Fund and UNFCCC Least Developed Countries Fund sponsor climate change adaptation and mitigation interventions around the world (Béné et al, 2013). One way of including social protection measures in the funds would be to dedicate some funding windows to interventions that incorporate social protection instruments. Integrated conservation and development projects (ICDPs) have been criticized for excluding minority groups and women. Incorporating social protection instruments could help ICDPs target extremely vulnerable households and become more inclusive.

The following instruments can potentially be linked with sustainable forest management programmes:

Public Works

Public works can be incorporated into programmes like REDD-plus and the Clean Development Mechanism that are aimed at reducing greenhouse gas emissions. As shown in Ethiopia, the PSNP programme successfully sequestered about 1.45 million tonnes of carbon dioxide (Metafarria Consulting 2013, Sutcliffe 2011). Public works programmes are desirable in that they can be used to directly mobilize local community participation in environmental rehabilitation projects. At the same time, they provide local employment, build community infrastructure, enhance skills, protect against shocks, and build resilience.

Training grants and vouchers

Climate change funds like the World Bank's Clean Technology Fund can be used to finance training in the use of renewable energy and green technologies that supports income diversification (Bene et al, 2013). For instance, forest dependent people can receive vouchers for training in the making and use of biogas stoves and small scale wind technologies (Bene et al 2013). Training vouchers or grants can also be given to communities as part of the technical assistance and training components being introduced in several PES programmes around the world, as complementary instruments to boost development and conservation projects (Rosa 2014). Climate funds can also be used to finance the adoption and use of alternative fuels. A successful example is the WFP's SAFE program which trains beneficiaries, mainly women, in how to make and market fuel efficient stoves. Another possible use of training grants or vouchers would be to provide training and education in the event that forest dependent people are relocated from irreversibly damaged habitats (Bene et al 2013).

Conditional Cash Transfers

A conditional cash transfer (CCT) shares similarities with PES and REDD+ interventions in that they all provide incentives in exchange of certain socially desirable behaviours. They all attempt to address market failures (Martin Persson & Alpizar, 2013; Pattanayak et al., 2010; Rodríguez et al., 2011; Rosa, 2014; Wong, 2014). PES programmes have been referred to as a CCT type of environmental mechanism (de Janvry and Sadoulet, 2004). There are many similarities between CCT and PES that support the consideration of linking CCT programmes with sustainable forest management programmes. In recent years, CCTs and PES have increasingly become popular in developing countries as they are easy to implement in contexts with weak regulations, have wider political and public appeal and they can achieve

poverty alleviation (Ferraro et al 2012, Wong 2014). A CCT and PES can potentially be integrated into one framework. Rodriguez et al (2011) suggest the integration of CCT and PES into what they term Payments for Environmental and Poverty Alleviation Services (PEPAS).

Some income transfer programmes have been implemented in the sphere of PES, but diverge from the usual PES in that they target poor communities and households and as such they are referred to as environmental CCTs (Rosa 2014). These programmes can easily be combined with social protection instruments. For instance, the Bolsa Verde programme (environmental CCT) in Brazil is already implemented within the framework of Bolsa Familia (the national social protection-CCT programme). Both programmes share the same beneficiaries and utilize the same registry. On the other hand, Bolsa Floresta (Brazil) and Socio Bosque (Ecuador) which use both environmental factors and poverty levels in targeting criteria are not fully integrated or linked with the national CCT programmes, i.e., Bolsa Familia and Bono de Desarrollo Humano (BDH). This means they may or may not overlap in geographies and beneficiaries but this is not recorded by the different government agencies in charge. These environmental CCTs provide avenues for coordination and linkage with the national CCT programmes.

Similarly, CCTs can also be packaged together with global climate change initiatives such as REDD+. The initiative to reduce emissions from deforestation and forest degradation, REDD+ is one of the international approaches to provide incentives for improved forest management and reduce carbon emissions and provides opportunities for linking social protection with forestry (Rutt, 2014). CCT programmes can potentially be linked with REDD+ interventions which are widely implemented as climate change adaptation strategies (Wong, 2014). Some REDD+ interventions have been criticized for failing to protect and empower poor and excluded minority populations like indigenous peoples (Rutt, 2014). Social protection instruments have long aimed to achieve equity, social and economic inclusion. Existing empirical evidence shows that CCT programs can be paired with complementary interventions to develop human capital, alleviate poverty and build resilience (Wong, 2014). These aspects show how social protection instruments can be incorporated into REDD+ interventions to ensure equity and poverty alleviation.

Table 2 summarizes the social protection instruments most relevant to sustainable forestry and illustrates how they can be aligned with several forest management goals and aid forest dependent people.

Table 2 Social protection instruments most relevant to sustainable forestry

Instrument	Category	Function	Forest management goal	Pathways of impact	Forestry outcomes	Outcomes for forest dependent people
Public works	Social assistance	Protective Preventive Promotive	Reforestation Reduce greenhouse gas emissions Impart conservation knowledge Soil and water conservation	Knowledge, skills Implement forest conservation practices (tree planting)	+ forest cover +carbon sequestration	+skills +knowledge +income
Unconditional cash transfers	Social assistance	Protective Preventive Promotive	Stop forest clearance Target minorities or extremely vulnerable	Risk coping Risk taking Encourage good behaviour	+/- forest cover +leakage +/- externalities +/- local economy effects	+income +investments and income diversification +food security +/- leisure +/- hired labour +consumption +resilience +/- social tensions +inclusion of minorities
Conditional cash transfers	Social assistance	Protective Preventive Promotive	Reforestation Reduce greenhouse gas emissions Soil and water conservation Target minorities or extremely vulnerable	Encourage behavior Risk coping Risk taking	+/-forest cover +leakage +/- externalities +/- local economy effects	+income +investments and income diversification +food security +/- leisure +/- hired labour +consumption +resilience +/- social tensions +inclusion of minorities
Training grants/vouchers	Labour market	Promotive	Increase use of renewable energies Green technologies Promote non-forest work/income diversification	Knowledge and skills Encourage forest conservation behaviour	+ renewable energies + green technologies +forest cover -fuelwood - deforestation	+skills + income + food security

Labour rights laws	Labour market	Transformative	Improve formal and informal working conditions (workers safety, minimum wages, job security, unions)	Risk coping Risk mitigation	+/- forest cover	+ skills + income + food security + empowerment
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Notes: + refers to positive impact. – refers to negative impact

3. Key policy and programme issues

Building synergies between social protection and sustainable forest management can be achieved by integrating sustainable forest management interventions/goals with social protection instruments. However, this is influenced by a variety of policy and programme factors.

3.1.1 Targeting

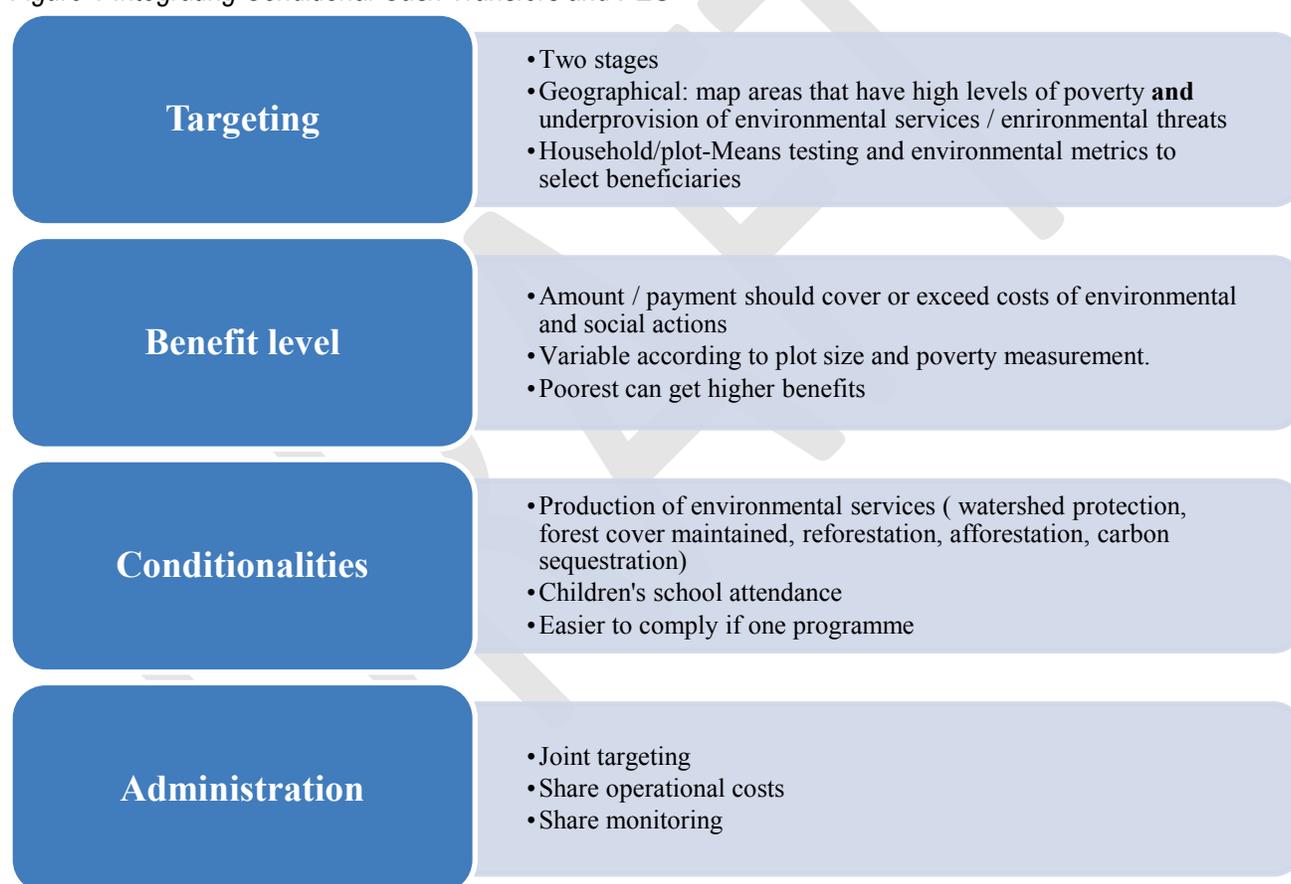
Targeting is fundamental to the effectiveness of social protection and sustainable forest management programmes. For instance, PES interventions can be packaged together with a CCT. Under an integrated scheme, targeting criteria can be used to identify overlapping beneficiaries and communities who would participate in both programmes (Rodríguez et al., 2011). Similarly, linking REDD+ with social protection instruments would require careful targeting and identification of overlapping geographies (Rodríguez et al., 2011; Wong, 2014). Integrating these measures would require careful consideration of the potential trade-offs and conflicts from targeting (Wong, 2014). For instance, REDD+ interventions usually target only those who are the largest contributors to deforestation and in some cases these beneficiaries may be large private landholders or private companies thus creating a trade-off between efficiency and equity (Wong, 2014). Conditional cash transfers usually target the poorest and most vulnerable households (equity). An integrated package would require well defined but overlapping target groups and objectives that can be monitored properly (conservation and poverty alleviation). As an example the unified implementation of the Bolsa Familia (CCT) and Bolsa Verde (environmental CCT) in Brazil relies on the enrolment of beneficiaries in both programmes and the monitoring of poverty reduction conditions of Bolsa Familia and the conservation conditions for Bolsa Verde.

Both social protection and forest management can implement a two-stage targeting criteria. The first stage would be geographic targeting where a “hotspot” is identified. This can be combined with a second stage that identifies the poorest groups and those who are more likely to degrade forests in the absence of incentives. This can be accomplished through means testing or community targeting where the community takes an active role in identifying eligible households. Community targeting is not data intensive and may be deemed legitimate by the community (Kuriakose et al, 2013). For example, beneficiaries under both Bolsa Familia and Bolsa Verde (Brazil) are targeted geographically and at household/plot level. The Bolsa Verde programme uses the already existing Bolsa Familia beneficiary registry which enables fast and efficient targeting (Rosa 2014).

3.1.2 Financing and coordination

An integrated programme could reduce fragmentation by building upon existing social protection systems and environmental programmes. A unified programme could face several challenges, including high costs of targeting, greater effort and costs for enforcing conditionalities, poor capacities, and coordination among different government agencies and state and non-state actors (Rodríguez et al., 2011). Proper coordination would create administrative synergies and ensure costs are shared and cheaper than implementing separate interventions in the same area (Rodríguez et al., 2011; Wong, 2014). Inter-agency collaboration is one of the key elements of poverty reduction strategies in developing countries (Rosa 2014). The lessons and institutional gains from these experiences need to be exploited in favour of conservation policies (Rosa 2014). Figure 1 illustrates how an integrated CCT/PES scheme could operate.

Figure 1 Integrating Conditional Cash Transfers and PES



3.1.3 Institutional issues

Strong institutional capacities can enable a successful alignment of social protection interventions with forest management goals or the creation of integrated schemes. Interventions should avoid undermining traditional institutions. One of the advantages of social protection instruments is that they can help guarantee a participatory process that strengthens the voices of beneficiaries. Some large scale transfer systems already employ community targeting and grievance mechanisms to ensure the voices of the



poorest beneficiaries are heard. Integrated and overlapping schemes in Brazil (Bolsa Familia + Bolsa Verde) and Ecuador (BDH + Socio Bosque) ensure equitable community participation in design and implementation. These schemes need to be studied carefully to provide further understanding on the inner dynamics of integrating or aligning social protection instruments with forest management programmes.

3.1.4 Mediating factors

The design of a unified scheme would require careful consideration of the goals, socio-economic and political context and local capacities (Rodríguez et al., 2011; Wong, 2014). Preconditions for incorporating social protection instruments into sustainable forest management include: land tenure, programme design, population density, markets, agricultural sector and policies, climate variability, economic development and policies (roads, energy subsidies), social and cultural institutions, and initial endowments of beneficiaries.

DRAFT

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Appendix 1 International organizations and scholars working on social protection for sustainable forestry

Organization	Activities	Region / Country	Programme	
GIZ	Funding / Research	Perú, Colombia, Ecuador	Pastoral Project Environmental CCTs	Silke Spohn ² silke.spohn@giz.de Matthäus Hofmann ³ matthaeus.hofmann@giz.de Eberhard Goll ⁴ eberhard.goll@giz.de
IDB	Funding	Brazil (Amazon state of Acre)	Technical assistance, financial support and basic infrastructure (rehabilitation of secondary roads)	Hector R. Malarin ⁵ hectormal@iadb.org
ILO	Technical assistance	Brazil	Bolsa Verde (green grants/cash transfers)	Anita Amorim ⁶ amorim@ilo.org Cristina Maldonado ⁷ maldonadoc@iloquest.org ⁸
Center for International Forest Research (CIFOR)	Research	Several countries	Several programmes, mostly PES	Arild Angelsen ⁹ arild.angelsen@umb.no Jan-Christoph Börner ¹⁰ j.borner@cgiar.org Kaisa Korhonen-Kurki ¹¹ K.Korhonen-Kurki@cgiar.org Bruno Locatelli ¹² b.locatelli@cgiar.org William Sunderlin w.sunderlin@cgiar.org Sven Wunder s.wunder@cgiar.org
UNDP – Global Environment Facility SGP – The GEF Small Grants Programme	Funding	Several countries	Several programmes	Mr. Charles Nyandiga ¹³ charles.nyandiga@undp.org Ms. Angelica Shamerina ¹⁴ angelica.shamerina@undp.org Mr. Nick Remple ¹⁵ nick.remples@undp.org
World Bank	Funding	China, India, Mexico, Tanzania	Poverty reduction in forest projects	Linked to PROFOR
3ie	Research	Low / Middle Income Countries	Effects of Decentralized Forest Management (DFM) on Deforestation and Poverty in Low and Middle Income	Cyrus Samii ¹⁶ cds2083@nyu.edu

² Project: *Contribution to the environmental objectives of Peru*

³ Project: Environmental Policy and Sustainable Management of Natural Resources in Colombia

⁴ Project: Regional project Trinational Initiative: Strengthening national protected area systems in Colombia, Ecuador and Peru

⁵ Project: Acre Sustainable Development Program (BR-0313)

⁶ Head, Emerging and Special Partnerships Unit, Department of Partnerships and Field Support, ILO

⁷ South-South Partnerships Officer, Department of Partnerships and Field Support, ILO

⁸ Project: South-South cooperation to strengthen Brazil's Bolsa Verde programme (national government)

⁹ Deforestation models, REDD+ reference level setting, national REDD+ policies, effectiveness of REDD+ projects, forest-based livelihoods

¹⁰ Payments for environmental services, Reducing emissions from deforestation and forest degradation

¹¹ Social sustainability and social impacts of forest conservation, political ecology, science-policy interface

¹² Ecosystem services and adaptation to climate change.

¹³ Programme Advisor on Land Degradation and Sustainable Forest Management, and Community Based Adaptation Coordinator

¹⁴ Programme Advisor on Climate Change Mitigation and Regional Focal Point

¹⁵ Global Technical Advisor. Manager of the SGP upgraded country programmes (Brazil, Bolivia, Costa Rica, Ecuador, India, Kenya, Mexico, Pakistan, Philippines)

¹⁶ Leading researcher



			Countries: A Systematic Review	
WFP	Funding	Tajikistan, Honduras Ethiopia, Uganda Sudan Mauritania	Food for Work Managing Environmental Resources to Enable Transition	Tajikistan: WFP.Dushanbe@wfp.org Honduras: Hetze.Tosta@wfp.org Ethiopia: WFP.Addisababa@wfp.org
PROFOR - Donors: <i>The Department for International Development Cooperation of Finland The Department for International Development (DFID) of the United Kingdom The Japanese International Forestry Cooperation Office Swiss Development Cooperation (SDC) The European Union (EU) The German Government, through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH The Italian Ministry of Foreign Affairs Dutch Ministry of Agriculture, Nature and Food Quality</i>	Funding	Several countries	Livelihoods Sustainable Forest Management	profor@worldbank.org Diji Chandrasekharan Behr (PROFOR Manager) Daniel Charles Miller (Senior Forestry Specialist) Stig Johansson (Senior Forestry Specialist) *No specific emails on the website.
DFID – ESPA (Ecosystem services for poverty alleviation)	Funding / Research	Developing countries	Several programmes	Pr. Paul van Gardingen ¹⁷ P.Vangardingen@ed.ac.uk
FAO	Technical assistance / Training in public works schemes / Research	Burkina Faso Cambodia Central Africa Chile, China Colombia, Gambia, Ghana Kyrgyzstan Lao PDR Liberia, Mali Mongolia Mozambique Nicaragua Panama Serbia The Philippines Tunisia,	Community-based forest enterprise development Public works	Fred Kafeero ¹⁸ Fred.Kafeero@fao.org Soo-Yeon Laura Jin ¹⁹ Seeyeon.Jin@fao.org Lauren Flejzor ²⁰ Lauren.flejzor@fao.org Qiang Ma ²¹ qiang.ma@fao.org

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¹⁸ Forestry Officer FAO Forest Policy Service (FOEP)

¹⁹ Forestry Food Security Officer, Forest for Food Security and Nutrition

²⁰ Gender and Forestry, Forestry Officer

²¹ Gender and Forestry, Forestry Officer

		Uganda		
<i>Action Aid</i>	Technical assistance	Brazil	Bolsa Verde	
<i>Climate and Land Use Alliance</i> Donors: <i>David and Lucille Packard Foundation</i> <i>Gordon and Betty Moore Foundation</i> <i>Ford Foundation</i> <i>ClimateWorks Foundation</i>	Funding	Worldwide	Environmental CCTs	Daniel Zarin ²² daniel.zarin@climateworks.org Brazil Aurelio Vianna ²³ a.vianna@fordfoundation.org Guillermo Castilleja ²⁴ Guillermo.castilleja@moore.org Bob Buschbacher ²⁵ rbusch@ufl.edu Indonesia Chip Fay ²⁶ chip.fay@climateworks.org Steve Rhee ²⁷ srhee@fordfoundation.org Mexico & Central America David Kaimowitz ²⁸ D.Kaimowitz@fordfoundation.org
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<i>CIDA</i>	Funding	Worldwide	Public works	
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<i>Ithaca Environmental</i>	Research	Worldwide	Climate change, environmental CCTs	Jose Castro jose@ithacaev.com Bernardo Lazo bernardo@ithacaev.com
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³⁰ Office of Forestry and Biodiversity, Office Director

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Appendix 2 Outline of full report

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2. Methodology
3. Role of forests in risk management and livelihoods
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 - 3.3.3. Health risks and shocks
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 - 3.3.5. Political risks and shocks
4. Social protection and sustainable forestry
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 - 5.3. Policy considerations
6. Conclusion
 - 6.1. Knowledge gaps
 - 6.2. Policy recommendations

Appendix 3 Discussion questions

1. Role of forest policies and programs

- 1.1. What are the impacts of forest policy and programs on risks and vulnerability?

Tips: forest policies and programs could be: logging bans, management of protected forests, public forests and community forests, slope land restoration (supporting measures could be direct money transfer, subsidies, compensation and employment generation), reforestation/afforestation, forest fire insurance, forest tenure reform, payment for ecosystem services (PES), etc.

2. Social protection needs of forest dependent people

- 2.1. What are the major sources of vulnerability for forest dependent people?
- 2.2. What are the limitations of forest management policies and programmes in addressing some of these sources of vulnerability?
- 2.3. Which areas of vulnerability would be best addressed by social protection instruments?

Tips: Give examples from country experience.

3. Identify major social protection instruments that can promote sustainable forestry development;

- 3.1. From experience, do you know any social protection instruments that have been
- targeted to forest-dependent people
 - implemented with the aim of promoting sustainable forestry among the poor
 - integrated with sustainable forest management programmes

Tips: Give information on social protection need, objectives, design, target group and effectiveness regarding resilience.

- 3.2. What are the necessary conditions and elements for the design and implementation of social protection instruments that effectively promote sustainable forestry development?

Tips: Consider institutional, political, programme design, gender issues, and financial aspects among other issues. Give examples of country experiences.

4. Potential synergies and conflicts between social protection and forestry;

- 4.1. In your experience, what are the key best-practices and lessons learned from linking social protection and forestry policies?

Tips: Consider institutional, governance and political, design and implementation, and financial aspects among other issues.

- 4.2. In your view, what key factors influence the creation of synergies or conflicts between social protection and sustainable forestry?

Tips: Consider policy objectives, target group, institutional, governance and political, financial aspects among others. Give examples from country experience.

5. Coordination and harmonization of social protection and forest policies;

5.1. What are the key mechanisms for fostering coordination of and coherence between social protection and forestry policies?

Tips: Consider institutional, co-ordination, governance and political, design and implementation, key actors, and financial aspects. Give examples from country experience

5.2. What complementarities can be utilized to optimize the effects of social protection on forestry management?

Tips: Consider objectives, rationale, design and implementation (targeting, payment mechanisms), political, institutional and financial aspects among other issues. Give examples from country experience

5.3. What aspects of the global climate-change agenda present opportunities for harmonizing social protection and sustainable forestry policies?

Tips: Examples of aspects include climate change adaptation, disaster risk reduction, reduction of greenhouse emissions, climate change funds, climate-smart agriculture. You can cite protocols, agreements and country-specific climate change adaptation programmes, policies and interventions.

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