Background Paper – International context and current thinking on 4Fs[1]

4Fs Brasil - The Forest Dialogue (TFD) 11-14 November 2012, Capão Bonito, Brazil

Purpose of 4Fs Initiative

The 4Fs Initiative is designed to:

- Provide thought leadership, catalyse debate, and rally influential stakeholders around meeting the growing global need for food, fuel, and fibre while sustaining ecosystems and biodiversity;
- Identify key global issues of land-use, trade, and lifestyle that warrant further dialogue at international or geographically specific levels;
- Explore if and how these issues can be reconciled with local or national aspirations;
- Establish specific and practical steps forward on key issues; and
- Prepare stakeholders involved in, or targeted by, dialoguing to pursue these steps.

Background

One of the biggest challenges of the 21st Century is how to meet the needs of a growing human population and growing development pressures with the resources of a single planet. Key projections from influential models and reports forecast:

- 0.9 billion people are currently under-nourished[i]
- Global population will surpass 9 billion by 2050;[ii]
- Food supplies must expand 100 per cent by 2050;[iii]
- Food systems contribute 19-29% of global anthropogenic GHG emissions, including the indirect effects on land cover change[iv]
- Climate change will reduce crop yields in many countries;[v]
- Beyond 2030, food, fibre and fuel production will compete intensively for limited land and water resources;[vi]
- Demand for wood and fibre products will continue to increase;[vii]
- Developing 100% renewable energy will require bio-energy production from an additional 250 million ha of crop and tree plantations by 2050, in addition to 4.5 billion m^3 of wood;[viii]
- Global warming can be kept below 2°C through strategies including reduced emissions from forestry and agriculture; the costs and investment needed are fairly low, but implementation will be challenging.[ix]

A recent WWF report[x] concluded that, with better governance, the world would have enough productive forest and land available for agriculture to meet current demand for food, fuel, and fibre without further conversion of forests. However, as we get closer to 2050, maintaining a "near zero" deforestation rate will require forestry and farming practices that produce more with less – less land, water, and pollution. It will also require new consumption patterns that meet the needs of the poor while eliminating waste and over-consumption by the affluent.

Discussions within and outside of the forest sector are seeking solutions to the challenge outlined above. WBCSD's Vision 2050 highlighted new and adapted policy frameworks and business solutions to ensure nine billion people can live within agricultural and forest limits.[xi] The recently published book *Timber*

[1] Prepared by Rodney Taylor and Bruce Campbell. October, 2012.

analysed and identified the power of big retailers to influence supply chains and push for better forestry governance.[xii] The Roundtable on Sustainable Biofuels has developed sustainability standards and a certification system to promote the the sustainable production of bio-fuels and bio-energy.[xiii] The World Resources Institute's recent study on landscape restoration identifies global opportunities for restoring forests at a landscape level while fulfilling other land-use needs.[xiv] Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN) emphasized the importance of, and obstacles to, the recognition of women stakeholders, awareness of their rights, and integration of their perspectives in discussion of the 4Fs.[xv]

The recent Commission on Sustainable Agriculture and Climate Change concluded that business as usual in in our globally interconnected food system will not bring us food security and environmental sustainability.[xvi] Extreme weather events, such as high temperatures, droughts and floods, are already more frequent and severe, and have dire impacts on food security.Global climate change will have an adverse overall effect on agricultural production and will bring us toward, and perhaps over, critical thresholds in many regions. Areas currently suffering from food insecurity are expected to experience disproportionately negative effects. To reduce the effect of climate change on food supplies, livelihoods and economies, we must greatly increase adaptive capacity in agriculture – both to long-term climatic trends and to increasing variability – as an urgent priority. Food systems must shift to better meet human needs and, in the long term, balance with planetary resources. This will demand major interventions, at local to global scales, to transform current patterns of food production, distribution and consumption.

Wollenberg et al. (2011) explore the actions needed to enhance food production while decreasing agriuclture's impact on forests. Climate-smart agriculture that achieves the triple-win of food security, adaptation and mitigation is needed, and is feasible in many contexts.[xvii]This must go hand-in-hand with improved forest giovernance and greater recognition of the role of forest-based ecosystem services in sustainable agriculture.

The Forest Dialogue's 4Fs scoping dialogue (Washington DC, 2011) concluded that the time is ripe for cross-sectoral, multi-stakeholder discussion of the 4Fs, and that this topic has the potential to help bridge communication gaps between different sectors and serve as an umbrella for bringing together other important issues, including Free Prior and Informed Consent (FPIC) and Intensively Managed Planted Forests (IMPF). Discussion of the 4Fs demands a new landscape-level perspective, new decision-making models, and integrated systematic solutions.

Key cross-cutting issues and "fracture lines" identified during the scoping dialogue are described below.

Key issues

Global vision linked with local reality:

By presenting multiple scenarios and their projected impacts, global land-use models can help decision-makers evaluate different options and link long-term visions with practical, short-term work plans; improved data sets can make the models more powerful. Some suggested that if land-use models included scenarios in which production forests are part of the solution, these models could facilitate 4F discourse between the environmental and agricultural communities and their respective private sector players. The models could also help the forest products industry identify areas where sustainable forest management tools can deliver optimal land-use and identify priority areas for food production, forest conservation etc.

Global models should also be linked to local contexts such that location-specific data can be integrated into global land-use modelling. This modelling can then be used to inform local land-use decisions. Crowd-

sourcing was suggested as a way to gather local information where lacking. An incentive system could encourage countries to apply global models at the national level, and to contribute data to the improvement of modelling at a global level.

Social factors should be considered when using models to make land-use decisions. Extreme care is required to reconcile global-level vision with local perspective. The legitimate needs and wishes for self-determination and wellbeing of communities living, and directly dependent, on the land must be reflected in global vision.

Governance:

WWF's Living Forest Report pointed out that valuable forests are being "squandered" today due to poor governance. The contributing practices are poor forest management, inefficient livestock production, unregulated forest conversion, low-yield crop production, high-impact fuel wood collection, and failure to make productive use of idle, yet arable, degraded land.[xviii] In addition, the frequent exclusion of women and labourers within the food and energy sectors as key stakeholders has limited the effectiveness of governance mechanisms. Better governance in the food system is also required to raise yields while decreasing the ecological footprint, to reduce price volatility, to reduce food losses and waste, and to limit expansion of agriculture into natural systems.

To improve governance, one approach suggested is to identify areas where better governance can benefit both businesses and government officials, thus leveraging mutual interests to make change.

Waste Reduction:

Waste exists on both the production and consumption sides of the supply chain. A recent study by FAO suggests that roughly one-third of food produced for human consumption is lost or wasted globally, which amounts to about 1.3 billion tons per year. In medium- and high-income countries, a significant portion of food is wasted at the consumption stage, meaning consumers discard food even if it is still suitable for human consumption. Significant losses also occur early in food supply chains in industrialized nations. In low-income countries, food is lost mostly during the early and middle stages of the food supply chain, with much less food wasted at the consumer level. [xix]

It is important to analyze where waste exists and identify approaches to reduce waste in the food, fuel, and fibre sectors. For example, investments in storage, transportation, and packaging methods can help reduce supply-side waste in the food industry.

Rights-based approaches:

Strategies to reduce deforestation should protect hard-won rights to access and benefit-sharing, ensure traditional communities can give or withhold their Free Prior and Informed Consent (FPIC) to activities affecting their territories, and ensure communities receive fair compensation for conservation introduced for the global good. Secure land tenure can lay a good foundation for rights-based approaches and can help avoid a new round of land grabbing. Small landowners are easily marginalized by industrialized production due to the disproportionate influence of larger organizations in the global market. Policies should be put into place to protect small landowner rights and livelihoods.

Value-based approaches:

Not all land-use and consumption decisions are rationalized, and many are made based on individual values. It is important to look at values that underpin consumer behaviours and policies to understand key fracture lines on the 4Fs topic. For example, what are the values that underpin different views on

population policies? What about different reactions towards climate change? What values cause different consumption patterns?

With a better understanding of different stakeholders' values, communication strategies can be developed based on differentiated stakeholder value propositions to engage more key stakeholders in the 4Fs issue. Areas of common interests can also be identified as the starting points for tackling the key fracture lines for 4Fs.

Communication:

In order to advance multi-stakeholder, cross-sectoral dialogue, a focused communication strategy on the 4Fs is crucially important. Model Scenarios can be used to communicate the impacts of business-as-usual to different stakeholders. A successful communication strategy can encourage participants to step outside their comfort zones and engage in a solution-oriented dialogue with stakeholders and sectors that are typically isolated from each other.

Technologies beyond intensification:

New appropriate technologies that go beyond increased productivity are needed to:

- Facilitate communication and exchange of learning-experiences among sectors;
- Reduce waste throughout the supply chain;
- Monitor, report, and verify governance and implementation of policies related to land-use and food systems;
- Encourage people to prioritize sustainable land-use and change consumption patterns through social media networks and tools.

It is important to think out-of-the-box and identify appropriate technologies for overcoming each fracture line related to the 4Fs topic.

Key Fracture Lines

Is it possible to move incrementally towards a sustainable land-use vision, or are tectonic shifts from business-as-usual unavoidable?

Some think that incremental shifts in our current consumption and business models will be enough to meet the land-use challenges our planet faces. Others argue that we are underestimating the severity and urgency of the problems, and that incremental changes are far from adequate: Radical shifts from the business-as-usual model are needed to make sure that there will be enough land for food, fuel, fibre, and forests in the future.

Complicating the situation, some argue that, although radical changes in our behaviours are needed, it is simply beyond human nature to proactively make radical changes. History has demonstrated human resistance to radical changes in social systems; only chronic disasters or crises that exceed adaptation capacity wake society and prompt radical transformation. Others believe that tactics exist to scale incremental changes up to transformational shifts. Some potential scale-up tactics include:

- leveraging Corporate Social Responsibility models to bring big changes to the business sector;
- applying soft and hard regulations to level the business "playing field" not only within a sector but across sectors;

- leveraging big retailers to bring changes along the supply chain; providing incentives to promote sustainability in different industries while regulating and punishing unsustainable practices.

Is it possible to do-it-all, or are trade-offs and prioritization of 4Fs unavoidable?

Some argue that it is a must to "achieve all": control the world's greenhouse gas emissions to a targeted level; protect biodiversity; maintain a sustainable ecosystem; reconcile the competitions among food, fuel, fibre, and forests; and feed the increasing world population. Others argue that the "do-it-all" mantra is too idealistic and prevents stakeholders from considering more practical approaches to the 4Fs issue. All stakeholders may need to wake up to the hard truth that we all must make sacrifices in order to feed the increasing world population and meet peoples' basic needs. Politicians should consider, for example, that it is not currently possible to mitigate temperature rise to two degrees Celsius while increasing attention to and resources for climate change adaptation.

If sacrifices must be made, what are the "must-haves" and what can be "traded-off"? Do we need to prioritize the 4Fs for the sustainable use of our limited land resources? If prioritization is needed, what will be the criteria and framework for prioritization to create a practical and optimal land-use scenario? And will different stakeholders with different priorities be able to compromise and reach consensus as to what the "optimal" land-use scenario is?

How can voluntary and mandatory approaches be combined to achieve sustainable land-use?

It is generally recognized that market forces alone don't make for optimal land-use choices, partly due to inefficiencies and externalities. Better governance from both government and corporations is central to the 4Fs issue. But questions remain: how do you harness both regulatory tools and markets synergistically? What types of voluntary approaches can be most effective? Will market approaches designed in the western world bring the appropriate changes to emerging economies? Are market-based standards more effective if set at very high levels along the supply-chain, or at levels that are more attainable in frontier regions with weak governance? How can political will be created to implement mandatory approaches?

Participants suggested that successful examples of utilizing both voluntary and mandatory approaches that brought positive change should be documented and studied to see if these successes can be duplicated elsewhere. There is a need for more cross-sectoral dialogues and knowledge sharing at national and sub-national levels among all key-stakeholders to catalyse cooperation among state and non-state actors and to create synergy among their efforts.

There are also diverse views on the distinct responsibilities of government and business in creating synergies between voluntary and mandatory approaches. Some argue for shared burdens: government should work on building accountability, addressing corruption, and developing new policy frameworks; businesses should share responsibilities to enhance governance by looking after internal governance, managing supply chains, advocating for government to improve government' s performance, and offering capacity building/social services to local communities. Some think that more of the burden should fall on government, IGO, and NGO shoulders, and that the main responsibility of business is technology development, productivity improvement, and waste reduction.

Is bio-energy a threat or a solution to sustainable use of land?

Opponents of biofuels argue that allocating land for biofuel will tip the balance between food, fibre, and forests land-uses and, ultimately, lead to food scarcity and forest loss. Proponents of biofuels state that bio-energy is a type of renewable energy with layered benefits including local energy security, reduced emissions, re-use of waste products, and potentially vital income for rural populations.

Some argue that perverse market incentives skew the playing field, preventing biofuel from becoming more sustainable. One such example is US government subsidies for ethanol, which unfairly favour ethanol production over food production[xx]. If the right policies are in place, however, biofuels can be part of solutions promoting sustainable land-use. Some of the policies suggested include:

- Produce bio-fuels without conversion of forests and other ecosystems;
- Create incentives for advanced liquid biofuels[xxi];
- Limit biomass-based energy plant sizes to ensure they fit local supply with efficient combined heat/power;
- Stop investments in infrastructure dedicated to first generation crop-based biofuels;
- Develop sustainability standards and certification for biofuels and bio-mass.

Is intensification technology a threat or a solution to sustainable use of land?

Intensification technologies can help address supply-side problems for 4Fs by increasing productivity, utilizing marginalized land, and adapting to predicted changes related to climate change (e.g. increases in temperature, droughts, outbreaks of pests, and shifts in ecosystems). In many developing country situations there are enormous yield gaps,in agriculture largely because of insufficient inputs into production. Intensification technology is thus viewed by some as a key pathway towards reconciling the competition for land among food, fuel, and fibre while conserving the world's remaining natural forests.

Others are concerned about bio-safety related to the use of Genetically Modified Organisms (GMOs) and fear that small landowners and traditional farming practices will be out-competed and displaced by high-tech industrialized production. Some also argue that intensification may not necessarily lead to less usage of land, as commonly believed, given that increased profitability brought by intensification will lead to more production of goods from increased demand.

The precautionary principle provides reasonable grounds to limit the proliferation of intensification technology where there are potential risks (e.g. with GMOs, in regions where there is weak governance and where land use conflict is intense). Some case studies, especially concerning GM food, have cast more public suspicion over intensification technology and established the debate as a value issue instead of a technical issue. However, in other cases the need for intensification is crucial; e.g. in regions of food insecurity where yield gaps are enormous and could be rectified by various agronomic practices.

What's the best approach towards sustainable land-use decision-making?

Traditionally, land-use planning is a primarily top-down decision-making process that does not involve all stakeholders. Some deem this type of top-down decision-making essential in the allocation of limited and geographically confined resources. Others think this approach inevitably impinges on local stakeholders' rights. This argument manifests itself best in the debate between food security and food sovereignty: do population growth, urbanization, and climate change require centralized food resource reallocation to feed all people? How do we respect local community and indigenous peoples' rights while feeding all? Are we imposing western values and practices onto others despite good intentions?

There is a strong call from dialogue participants for a new generation of land-use decision-making. This would take into account global priorities for land-use optimization while retaining local decision-making and participation of all key stakeholders. It would respect local groups' rights, especially the rights of marginalized groups, including indigenous people, women and small landowners. It would involve negotiation amongst all stakeholders, facilitation from a trusted entity, and integration of different land-use needs. To make this type of bottom-up land-use decision-making possible, there must be a trusted

governance structure that can fairly distribute benefits generated from optimized land-use to all stakeholders.

Barriers against realizing this new type of land-use decision-making processes, include the following:

- Social elements are not mainstreamed into land-use planning models and decision-making processes;
- Government interpretation of sovereignty often fails to recognize the right to self-determination for local peoples;
- Government and companies tend to sacrifice social justice for "fast solutions" for land-use allocations;
- The lack of clear and secure land tenure systems for local stakeholders subjects them to unfair benefit distribution;
- Existing rights (e.g. Free Prior and Informed Consent) and regulations that facilitate local decision-making are poorly implemented;

Many people have been working on these challenges for decades. Viewing them within the 4Fs scope presents an opportunity for out-of-the-box, cross-sectoral, and holistic thinking that may give rise to innovations in governance that supports efficient and equitable use of scare resources.

How do you drive big changes in consumption patterns for sustainable land-use?

Some argue that consumers should have the right to purchase whatever they want and can afford. With consumers' rights in mind, approaches to reduce consumption could include a media campaign for consumers to be more environmentally conscientious or the creation of systems (including certification) to provide consumers with more information for making better choices.

Perspectives on consumption patterns include:

- changing people's values and habits is a hard and slow process;
- sustainability is a complicated issue, even when consumers want to choose sustainable goods, they may not have access to information for making this choice; and
- if we do not change current global consumption patterns soon, then we won't have enough land to meet future demand for food, fuel, fibre, and forests.

Due to the above, sustainability should be a "pre-competitive" issue, meaning producers and retailers should be responsible for changing their business models and making sure their products are sustainable; the choice should not be left to consumers.

Sustainable consumption patterns can be encouraged by:

- "True pricing" of commodities: full environmental costs related with goods are reflected in the price;
- Supply Chain Management: applying high sustainability standards throughout the supply chain;
- Life Cycle Assessment studies.

Some argue that pressures from both the production and consumption sides are needed to bring fundamental changes in consumption patterns. But there are diverse views on which approach can be more effective and equitable. For example, reducing animal-based protein intake as modelled by WWF's Living Forest Model[xxii] would require changing consumer values.

Another fracture line identified related to changing consumption patterns is the notion of "buy less". Producers and retailers are more open to the push for "buy better" but are still reluctant to talk about the possibility of pushing consumers to "buy less". Selling more products is a basic business objective, though sometimes businesses adopt a quality over quantity marketing strategy that means higher returns can be achieved with less volume.

Others question whether buying less reduces impact. This is illustrated by examples in the forestry sector: the forest industry argues that if the environmental community pushes for less wood demand, the price of wood will fall, reducing private landowner incentive to keep production forests standing. The ultimate outcome will be more deforestation. The forestry industry thus argues that the key solution to reducing consumption while protecting standing forests is not "buy less"; but improving governance to capture the "true cost" and "true benefits" of sustainably-managed wood and eliminate illegal logging. By capturing the true cost of wood, the market price is likely to increase, leading demand to fall. Environmental groups argue, besides better governance, businesses are efficient in bringing changes and have a significant role to play in recognizing the need to "consume less". Innovative business models that steer product portfolios towards being service-centric instead of material-centric can bring transformational change to global consumption patterns.

The 4Fs Process so far

Drawing on the scoping dialogue, the 4Fs initiative has identified two broad questions that could focus multi-stakeholder dialoguing to advance solutions and bridge differences among stakeholders. They are:

1. What are the principles for a new generation of land-use decision-making that includes negotiation with local stakeholders, integrated international and national priorities, and local aspirations from multiple sectors?

   Key features of such principles illustrated by dialogue discussions include:

   - Protected, local livelihoods and rights of Indigenous peoples;
   - Trusted governance structures that can deliver fair benefits to local stakeholders;
   - Reconciliation of global, national and local priorities and needs;
   - Ensured water, food and energy security;
   - Maintenance of ecosystem services;
   - As a pre-condition, high quality data and accurate land use projection models.

2. What are the opportunities and risks related to land-use intensification by advancing technology?

However, these questions should not limit the future evolution of the 4Fs initiative, and its exploration of the key issues and fracture lines described above (including right-based approaches, governance, consumption patterns, equity and communication) or identified through future dialoguing.

The scoping dialogue participants suggested that future dialoguing could focus on a country where significant land-use competition already exists (e.g. Brazil or Indonesia), thereby offer learning opportunities for reconciling competition among different land uses in practice. They also noted that it would be crucially important to include stakeholders beyond the fibre and forest sector, i.e., from the food, biomass, energy, and biofuel sectors.

The Brazil 4Fs Dialogue (Capao Bonito, Nov 11-15, 2012) will be the first country-specific dialogue affiliated with the 4Fs Initiative.

Acknowledgements

This backgrounder draws on the work of many individuals involved in the TFD Scoping Dialogue held in Washington D.C., US, in June 2011. All participants in that dialogue are hereby heartily thanked. Please see here for more detail.

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[xxi] Advanced Biofuels are defined here as "high-energy liquid transportation fuels derived from: low nutrient input/high per acre yield crops; agricultural or forestry waste; or other sustainable biomass feedstocks including algae."

[xxii] Taylor, Op cit, p. 17