

# Zero Net Deforestation

## *Stakeholder Feedback Summary*

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*Province of British Columbia*

*September 2010*



## Acknowledgements

This report would not be possible without the time and ideas of many stakeholders who attended meetings and submitted written comments. Their contributions to the development of the zero net deforestation policy are greatly appreciated.

The report was prepared by a small working group of staff from the Ministry of Forests and Range and the Ministry of Agriculture and Lands. Other staff in these two ministries and several other ministries provided valued support and input.

## Abbreviations and Acronyms

ABCFP	Association of British Columbia Forest Professionals
ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
BCAC	British Columbia Agriculture Council
BCBC	Business Council of British Columbia
BCCA	British Columbia Cattlemen’s Association
CAPP	Canadian Association of Petroleum Producers
CFPA	Coast Forest Products Association
COFI	Council of Forest Industries
GCCBC	Grasslands Conservation Council of British Columbia
LTABC	Land Trust Alliance of British Columbia
MABC	Mining Association of British Columbia
MAL	Ministry of Agriculture and Lands
MFR	Ministry of Forests and Range
MOE	Ministry of Environment
UNFCCC	United Nations Framework Convention on Climate Change
WCEL	West Coast Environmental Law
ZND	zero net deforestation

## Contact

Tom Niemann, Project Manager – Zero Net Deforestation  
Ministry of Forests and Range  
Telephone: (250) 387-8386  
Email: [Tom.Niemann@gov.bc.ca](mailto:Tom.Niemann@gov.bc.ca)

## Website

[www.for.gov.bc.ca/hfp/znd](http://www.for.gov.bc.ca/hfp/znd)

## Executive Summary

British Columbia is pursuing a goal of zero net deforestation (ZND) by 2015, and is developing policy and plans to achieve this vision by working with First Nations, industry and communities.

This report summarizes stakeholder feedback from six engagement sessions held in June 2010, a website questionnaire, and written submissions. More than 70 people participated in the stakeholder engagement sessions. Almost 50 written submissions were received, including 14 responses to a website questionnaire.

This report will be used to help develop options on how best to achieve ZND, which will in turn inform government's implementation plan. The implementation plan is expected to be ready in 2011. Reporting on net deforestation and progress towards achieving ZND will begin in 2012.

Zero net deforestation will be achieved by avoiding deforestation, minimizing the area of deforestation, and creating areas of new forest (afforestation) to balance deforestation.

Deforestation is the permanent clearing of forest for another land use. It is a source of greenhouse gas emissions, and results in loss of forests that absorb carbon and provide other ecosystem services. Reducing deforestation is therefore an important part of B.C.'s Climate Action Plan.

### **Summary of Feedback**

External engagement with stakeholders generated many creative ideas and insights that will be used to develop the ZND implementation plan.

The importance of capitalizing on B.C.'s forests as a way to reduce greenhouse gas emissions was generally recognized at the stakeholder meetings and in the written responses.

Many groups and individuals cautioned that government needs to be mindful of unintended negative impacts that could affect the economic and social benefits provided by their respective sectors.

Some stakeholders questioned whether or not the ZND policy is sustainable, given a limited land base and growing population. They also noted that some government policies appear to conflict with ZND by encouraging development.

Many stakeholders supported the intent of the *Zero Net Deforestation Act* and how it sets the ZND goal in legislation and requires government to report on progress, actions and plans. They're also supportive of government's voluntary approach to achieving the target.

However, concerns were expressed that mandatory action and penalties might be imposed in the future if the ZND target is not reached.

Another common comment made by stakeholders was that existing incentives for voluntary action are insufficient, with the suggestion that additional funding support should be provided.

### **Comments on Agriculture**

- ZND should not harm agriculture and range activity, and large-scale afforestation in the Agricultural Land Reserve, as well as other agricultural land and grasslands, must be avoided.
- With respect to Crown lands, it was requested that existing tenure holders be consulted in any land use decisions related to ZND.
- Excluding all agriculture and range land from the definition of deforestation was suggested.
- Recognition of the carbon sequestration benefits of grasslands and crops was requested.
- Government should ensure that programs that remove trees to restore natural grassland ecosystems are not affected by the ZND policy.
- Opportunities for agriculture to contribute to ZND through agroforestry, riparian management and buffers were noted.

### **Comments on Urban Development**

- ZND complements climate action already underway in local government areas, including measures to reduce urban sprawl.
- The ZND policy could use and promote legislative tools and planning practices that already exist.

### **Comments on Oil and Gas**

- Industry expressed the view that the ZND policy should not apply to the oil and gas sector, as its deforestation is already carefully regulated.
- Many developments do not constitute deforestation, because they take up less than the minimum area and width.
- Coordinating corridor use and reducing corridor width may help achieve ZND.
- The industry is interested in having an inventory of land suitable for afforestation.

### **Comments on Forestry**

- Industry advocated use of forest productivity rather than area to measure ZND.
- Conservation of healthy forests has greater and more immediate greenhouse gas benefits than either reforestation or afforestation.
- Deforestation caused by road construction could be reduced.
- The silviculture industry supports ZND and wants to help ensure successful afforestation.
- Challenges for afforestation include finding funds and identifying suitable land that has no conflicting land management values.

### **Comments on Mining**

- Industry suggested that reclamation of mine sites that re-establishes forest should count as afforestation, since clearing for a mine is counted as deforestation.
- Mining operators want to minimize their footprint, and always include detailed plans to reclaim land (and restore forest) at the end of the mining cycle.

### **Suggestions for Consultation**

- Several stakeholders requested to be consulted in the development of ZND regulations and policies.

### **Suggestions for Raising Awareness**

- Some stakeholders said that the government needs to demonstrate its commitment to ZND in its own operations and major infrastructure projects approved by government.
- Identifying champions for ZND is important, as is highlighting good practical examples, and creating information packages for select industry associations.
- Suggested promotional tools include the ZND website, information sessions, public advertising, social media networks, and working with interested community groups.

### **Suggestions for Reducing Net Deforestation**

- Many ideas were received about ways to reduce deforestation, including site reclamation, road building, tax status, zoning, planning, project funding, and education.

### **Suggestions for Incentives and Recognition**

- Many suggestions were received for additional incentives that could be developed if existing incentives prove to be inadequate.
- Those suggestions involved government-funded programs, changes to tax systems, carbon offsets, various permits and rules, good business reputation, and corporate social responsibility.

### **Suggestions for Co-Benefits and Ecological Restoration**

- Concerns were raised that afforestation could threaten grasslands, wetlands, and species at risk.
- Government should provide information for protecting non-forest land that is unsuitable for afforestation, and for maximizing ecological co-benefits of afforestation.

### **Suggestions for Measurement, Inventory and Reporting**

- Stakeholders agreed that good measurement practices are essential.
- Some suggested that greenhouse gas implications and forest carbon mass should be tracked in addition to area.
- Most stakeholders agreed on the need for an inventory of areas suitable for afforestation, to avoid land use conflicts and make it easier to undertake afforestation projects.
- Deforestation and afforestation reporting requirements should not be onerous for project proponents.
- Reporting each sector's net deforestation (both deforestation and afforestation) was recommended.

### **Comments on Defining Zero Net Deforestation**

- Some stakeholders would prefer a definition based on site productivity or greenhouse gases, instead of area.
- Some stakeholders suggested counting areas less than 1 hectare, strips narrower than 20 metres, and flexibility on the 5 metre minimum height, to allow for consideration of some urban and agricultural tree planting.
- Limiting afforestation to areas that were non-forest before 1990 was questioned, because it prevents consideration of areas impacted by mountain pine beetle since 1990.
- Some stakeholders disagree with limiting the definition of deforestation to land use change. They consider all clearcutting to be deforestation, even if followed by reforestation.

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## 1. Introduction

This report summarizes feedback received from stakeholders<sup>1</sup> after the [Zero Net Deforestation Act](#) (ZND Act) was introduced in the British Columbia Legislature on March 22, 2010. It provides a basis for development of implementation options and an implementation plan for achieving zero net deforestation in B.C. by 2015.

Verbal feedback was received through a number of meetings and conference calls, including six stakeholder engagement sessions held in early June 2010 (see Table 1). In this report, verbal feedback is identified with shading.

**Table 1: Stakeholder Engagement Sessions**

Location	Date (2010)	Number of attendees (not including ZND working group)
Victoria	June 1	17
Vancouver	June 2	16
Kamloops	June 3	17
Fort St. John	June 8	7
Prince George	June 9	9
Cranbrook	June 10	7
<b>TOTAL</b>		<b>73</b>

Written submissions were received from 13 stakeholder organizations and 36 individuals, including 14 responses to a questionnaire on the ZND website (<http://www.for.gov.bc.ca/hfp/znd/>). **This report is primarily based on the written submissions.** Stakeholders that provided written submissions are identified as follows:

- Organizations are identified by name; and,
- To protect privacy, individuals are identified by a number and region.

Written submissions from organizations and individuals were compiled in a separate document titled *Zero Net Deforestation – Stakeholders’ Written Submissions*, which is available on the ZND website.

This feedback summary report also includes input from government staff, identified with “**(Staff)**” and *italics*. **Staff input includes both clarifying technical explanations and professional opinions, none of which constitute an official government position.** Official government positions will be developed as part of the implementation plan.

**Section 2** summarizes general comments.

**Section 3** summarizes sector-specific suggestions and comments. *Note that topic-specific comments from members of sectors are in Sections 4 and 5.*

**Section 4** summarizes suggestions on how to implement ZND, including discussion of roles for government and opportunities for landowners.

**Section 5** summarizes feedback about how ZND is defined.

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<sup>1</sup> Engagement of First Nations in the development of zero net deforestation policy is being pursued separately.

## 2. General Comments

This section summarizes comments that provide an overview reflection on ZND and the *ZND Act*.

Several stakeholders (including ABCFP, CAPP, LTABC, MABC, WCEL) supported the general intent of the [ZND Act](#) to minimize deforestation or achieve “no net loss of forest area.” The policy may help to promote social recognition of ecosystem services and ecological capital (ABCFP). One stakeholder noted that since all British Columbians put pressure on forest lands, all British Columbians therefore have a responsibility to support ZND (18).

The voluntary approach to achieving the target of ZND was supported, but concern was expressed that mandatory action and penalties could be introduced later if the target is not reached (BCAC, COFI). Conversely, some noted that existing incentives for voluntary action have not achieved the target, and therefore recommended powers to restrict deforestation and require afforestation (WCEL), as well as supportive funding (12, 17, 22, 29). More generally, the ABCFP argued that the ZND policy runs counter to industry and government dependence on profits from development, and until users begin to pay for ecosystem services the policy cannot compete in the market.

Many stakeholders (including ALC, BCAC, BCBC, BCCA, BC Hydro, CFPA, COFI, GCCBC, LTABC, WCEL) expressed concern about one or more aspects related to their sector. Concerns about unintended consequences, both economic and environmental, were also expressed.

The single focus on forests and trees was also a concern, given the many opportunities for addressing climate change (BCAC).

Some stakeholders recommended a focus on reducing deforestation (conserving healthy forests). They noted that aggressive afforestation could do more harm than good (LTABC), and that avoided deforestation provides an immediate greenhouse gas benefit while the benefits from afforestation accrue over decades (WCEL).

Some stakeholders (including BCBC, COFI, 14) questioned how the ZND policy’s focus on area (hectares deforested and hectares afforested) related to the Province’s goals for reducing greenhouse gas emissions, and expressed doubt that the ZND policy is sustainable given a finite land base and growing population. A more comprehensive package of reforms to address climate change, specifically the emissions and loss of forest resilience that result from industrial logging practices, was urged by WCEL.

Integration with other government programs was recommended (29), along with government leading by example (1, 35).

### 3. Sector-Specific Suggestions and Comments

Several different sectors participated in the engagement process: agriculture, urban development, oil and gas, forestry, mining, hydro-electricity generation and environmental organizations. Although most expressed some degree of concern about the policy, they also saw opportunities for beneficial ways to contribute to the goal of ZND.

#### Agriculture

Stakeholder organizations that provided written comments include: Agricultural Land Commission (ALC), British Columbia Agriculture Council (BCAC), British Columbia Cattlemen's Association (BCCA), Grasslands Conservation Council of British Columbia (GCCBC), Land Trust Alliance of British Columbia (LTABC).

Agriculture generated the most discussion in the six stakeholder engagement sessions. Stakeholders clearly stated that agriculture is important to society, that many businesses are struggling financially, and that large-scale afforestation or limits on deforestation may reduce capacity for agriculture production. They asked that the sector be closely involved in the development of the ZND implementation plan.

#### Suggested Approaches

(Verbal feedback) Avoid any impacts on agriculture, whether by design or unintended.

(Verbal feedback) Have a check-list to compare the environmental benefits and carbon storing capability of natural grasslands and agricultural lands relative to afforestation. This would help avoid ecologically inappropriate tree planting.

Provide a clear message that ZND will not be pursued at the expense of the Agricultural Land Reserve (ALR), agriculture and the agricultural economy (ALC).

Exclude ALR lands from the definition of deforestation, by regulation (ALC).

Exclude all agriculture and range land from the definition of deforestation. Reasons for this include: agricultural land also sequesters carbon; the agriculture land base is limited; BC Agriculture Plan objective of locally produced food; another disincentive to convert from forest to agriculture is not in the interest of the agriculture sector, rural communities or the Province; and not wanting to discourage grassland restoration (BCAC).

Exclude grasslands (even if currently converted to intensive agriculture) from lands identified for afforestation (GCCBC).

**(MFR Staff):** *Ensure that ZND does not encourage the afforestation of natural grasslands that produce multiple values including forage, habitat for species at risk, carbon sinks and biodiversity.*

State clearly a commitment that there will be no restrictions on farmers and ranchers to clear and develop land for food, forage and agricultural crops (BCAC).

Do not curtail or burden development of pasture or silva-pasture activities (BCCA).

**(MFR Staff):** Ensure that ZND does not limit ranchers' ability to convert forested land to farm land for the purposes of forage production, does not add to the cost of doing so, and does not result in undue pressure to afforest land currently used for forage purposes.

State clearly a commitment that afforestation on agricultural land will be strictly voluntary (BCAC).

Do not take back farms leased on public lands in order to reforest them. Most farmland in B.C. was once forested and people need to eat (23).

Implement very carefully due to potential for crippling agricultural development (BCCA).

Proceed carefully in northeast B.C., where non-resident landowners rent land to resident farmers/ranchers. If the landowners switch to afforesting their land, this could have severe consequences for the resident agriculture producers that count on these lands as an integral part of their operations (26).

Maintain ecological restoration of grasslands, with no obligation to mitigate with afforestation (BCCA).

Acknowledge the need to carry out deforestation for ecological restoration of grasslands (LTABC).

Do not discourage restoration that reverses forest encroachment resulting from prevention of forest fires (LTABC, 4).

Encourage small riparian areas and shelterbelts with a definition of afforestation that is consistent with agriculture objectives (BCAC).

Acknowledge carbon sequestration by soils, grasslands and perennial crops through a policy that provides appropriate incentives to contribute to government objectives (BCAC).

Consult prior to any afforestation, to be respectful of existing tenure holders (BCCA).

To sequester carbon, encourage grass seeding. Grass and soil provide better carbon sequestration than trees during the first 20 years after tree planting (BCCA).

Consider a "reverse agriculture lease" that would encourage afforestation on "failed" agriculture lease land (20).

### **Comments**

(Verbal feedback) Stakeholders (and staff) in all sessions expressed concerns that ZND policy may encourage afforestation of agricultural land and natural grasslands, and that these may be the easiest to afforest. This would conflict with the "highest and best use" and the anticipated need to increase future food production in B.C. as climate changes.

(Verbal feedback) On small farms, split tax classification for forest encourages deforestation. Changes will be made in 2012 for the agricultural land reserve, based on gross income from farming.

(Verbal feedback) It does not make sense to clear good forest land, and then find that there is just rocky soil and all you end up with is a patch of weeds, when it could have been good forest land.

(Verbal feedback) **(ALC Staff):** The ALR is a designated zone where agriculture is the highest and best use.

(Verbal feedback) **(MAL Staff):** The wording of the [Farm Practices Protection \(Right to Farm\) Act](#) and the [Agricultural Land Commission Act](#) is critical – they indicate that the [ALC Act](#) has priority over other legislation. See sections 2 and 3.

(Verbal feedback) **(MAL Staff):** Farmers have done a good job of reducing their deforestation. What incentives are there to avoid deforestation?

(Verbal feedback) **(MAL Staff):** An inventory of areas suitable for afforestation may help to steer afforestation away from agriculture land.

(Verbal feedback) **(MAL Staff):** Northern agriculture may feel vulnerable. Northern agriculture lands are the least productive and therefore the cheapest to buy.

(Verbal feedback) What about fruit and nut trees? **(MFR Staff):** There is room for discussion – but usually we do not call an orchard a forest.

(Verbal feedback) **(MAL Staff):** Most crops don't mix well with trees because they need sunshine to grow food.

(Verbal feedback) **(MAL Staff):** Some agriculture land is more productive for crops than other agriculture land.

ZND and the ALR appear to have conflicting objectives (ALC).

ZND may lead to unintended, undesirable consequences: large-scale afforestation and pressure on agricultural land (due to pressure or incentives to reduce deforestation, increased cost of deforestation, and the long timeframe for carbon offsets) (ALC).

Some farms and ranches have land that provides opportunities for agro-forestry (BCAC).

**(MFR Staff):** ZND may provide opportunities for ranchers to supplement or diversify income through carbon offset projects on private land.

Will ZND compromise our ability to produce food from our ALR land that are currently forested? For example, there are 6,000 - 12,000 hectares of forested ALR lands on Vancouver Island alone, plus more forest with agricultural capability that is outside the ALR (5).

B.C. would have more grasslands if there were less fire suppression. ZND, by maintaining the current area of forest, may not consider overall stewardship of forest and grassland resources. This conflicts with the objectives of ecological restoration programs (16).

Some agriculture lands were natural grasslands (26).

Lack of meaningful incentives to enable agriculture producers to voluntarily take part in ZND is a concern (26).

The focus on afforestation, rather than other carbon sequestration measures, could be very damaging to continuation and further development of agriculture (26).

The Environmental Farm Plan is designed to benefit agricultural production. It will not support ZND. Producers cost-share Environment Farm Plan projects, so any effort to merge with ZND could damage voluntary participation in the Environmental Farm Plan unless ZND provides 100 per cent funding (26).

Northern agricultural land has a lower market price, but is not necessarily lower in agricultural productivity (26).

## Urban Development

Stakeholder organizations that provided written comments include: Grasslands Conservation Council of British Columbia (GCCBC).

### *Suggested Approaches*

(Verbal feedback) Have a look at the climate change toolkit for communities that the Ministry of Community and Rural Development prepared.

(Verbal feedback) Identify examples of positive actions to reduce deforestation and limit urban spread (e.g., Capital Region District buying lands for watershed protection and new parks near Jordan River).

(Verbal feedback) Put examples of success stories on the ZND website.

Use and promote the many legislative tools and planning practices that already exist (GCCBC).

The Green Bylaws Toolkit ([www.greenbylaws.ca](http://www.greenbylaws.ca)) is a useful tool, especially the section on permits and rules (GCCBC).

Use incentives and a good marketing strategy to reduce deforestation in the long term (17).

Reduce urban sprawl (10).

Provide incentives to municipalities and cities to require planting trees in every new land development that requires the clearing of vegetation (36).

### *Comments*

(Verbal feedback) **(MAL Staff):** *Both Cranbrook and Kimberly have had big expansions in urban boundaries, leading to potential development of land in the agricultural land reserve.*

“Municipalities have broad jurisdiction to regulate, prohibit, and impose requirements by bylaw in relation to trees. However, this authority does not apply to land and trees that are governed by a tree farm license, permit, or tenure under forestry legislation ([Forest Act](#) and [Private Managed Forest Land Act](#)), or tree cutting that a utility undertakes on its land for purposes of safety or operating the utility. ... Regional districts have more limited authority to protect trees. A regional district board may designate tree-cutting permit areas only on lands that it considers to be subject to flooding, erosion, land slip, or avalanche. Within these areas, the regional district may, by bylaw, regulate or prohibit the cutting down of trees and may require owners to obtain a permit before cutting a tree.” (Green Bylaws Toolkit, p. 108)

Many areas (schoolyards, parks, etc.) could be planted with trees, but there will be legal ramifications when trees fall. Roots will damage infrastructure, and leaves/needles will need to be collected (31).

The [ZND Act](#) could have impacts on local governments (34).

## Oil and Gas

Stakeholder organizations that provided written comments include: Canadian Association of Petroleum Producers (CAPP).

### *Suggested Approaches*

Do not extend the ZND policy to the oil and gas industry, as deforestation by this sector is already carefully regulated and should be exempt (CAPP).

### *Comments*

(Verbal feedback) The oil and gas industry has limits on size of openings (deforestation). Many oil and gas developments do not constitute deforestation, i.e., are less than the minimum area and minimum width. Most development that would count as deforestation is in Lease Pad sites that are approximately 1.5 hectares.

(Verbal feedback) Coordinating corridor use will help minimize deforestation. Current oil and gas regulations encourage large coordinated corridors, but this larger width will trigger the measurement of deforestation.

(Verbal feedback) The oil and gas industry may be challenged to achieve ZND on their own lands. The best places to afforest may not be on oil and gas land. The oil and gas industry would be interested in an inventory of land suitable for afforestation, to find the least controversial areas to afforest.

## Forestry

Stakeholder organizations that provided written comments include: Association of British Columbia Forest Professionals (ABCFP), Coast Forest Products Association (CFPA), Council of Forest Industries (COFI), West Coast Environmental Law (WCEL). The Private Forest Landowners Association provided verbal comments.

### *Suggested Approaches*

Use forest professionals to provide a variety of products and services needed for implementing ZND, such as sampling methods and inventories of areas, prescriptions and standards for afforestation, tracking results, and professional assurance of achievement and reporting of outcomes (ABCFP).

Manage forest land with a land-based approach that is consistent, comprehensive, cohesive, and integrates all sectors, for all interests that respect the characteristics and potential of the land (ABCFP).

Use productivity rather than area to measure ZND (COFI).

Steer deforestation towards lower productivity sites (CFPA).

Further engage forest sector stakeholders to help minimize the adverse impacts that regulations could create through obligations, intentionally or otherwise, on *Forest Act* tenure holders (CFPA, COFI).

Provide a tax incentive for rehabilitation of forestry roads (1).

Reduce deforestation caused by road construction. This will increase logging cost and reduce road construction and maintenance cost, as well as timber supply in future rotations (3).

Increase stumpage breaks through the appraisal system to reduce and reclaim cutblock roads (13).

Account for deforestation created by permanent roads somewhere in the appraisal system (30).

Conserve healthy forests for more immediate greenhouse gas emission reductions than can be achieved with reforestation and afforestation (WCEL, 19).

Use forest professionals to develop forest plans that minimize deforestation, and extend this to all resource sectors (ABC FP, 1).

Require longer tree rotations (36).

Ensure adequate stocking in older cut blocks (36).

Plan cutblocks with lots of edge so they are re-seeded by neighbouring trees (36).

**(MAL Staff):** *The Private Forest Landowners Association suggested:*

- *Modify certification programs to include achieving ZND.*
- *Ensure that messaging to stakeholders does not imply that forest management in B.C. is not accomplishing its mandate to ensure a sustainable forest, both on Crown land and on private managed forest land.*
- *Acknowledge private forest landowners for the contribution they make to good forest stewardship in B.C.*
- *Provide incentives for the contribution private forest landowners make to carbon sequestration in B.C.*

### **Comments**

(Verbal feedback) The silviculture industry supports afforestation and would like to do the work to ensure successful afforestation.

(Verbal feedback) The challenges for afforestation seem to be finding funds and identifying land that is not in conflict with other land management values.

(Verbal feedback) Some of the 156 000 hectares in the woodlot program may be available for afforestation.

(Verbal feedback) **(MAL Staff):** *Hawkweed may be causing deforestation in some mountain pine beetle-killed areas by precluding the establishment of naturally regenerating pine.*

The forestry profession is opposed to removal of forest land from forest land management for other competing interests without careful consideration of:

- The balance of values between the landowner and society;
- The specific and intended use of the land or level of ecosystem alteration;
- The location of the lands and corresponding public interest. (ABC FP)

New requirements such as a reduction in road density will lead to direct costs to tenure holders, with little or no contribution from government (ABC FP).

Many industries collectively contribute to deforestation in areas under tenure to the forest industry. While most industries benefit from this, the forest industry incurs costs in the form of reduced timber-growing capacity of the land base and reduced timber harvest opportunities (13).

Deforestation within the timber harvest land base eventually reduces allowable annual cuts, so it is in the forest industry's best interests to reduce deforestation (13).

## Other Sectors

Stakeholder organizations that provided written comments include: Mining Association of British Columbia (MABC).

### *Suggested Approaches*

(Verbal feedback) We expect government to do its part to also achieve ZND for its own operations. For example, Site C needs to be addressed.

(Verbal feedback) Golf course developments could do much less deforestation if they were designed with ZND in mind.

Reclamation of mine sites that re-establishes forest should count as afforestation, since clearing for a mine is counted as deforestation (MABC).

Incentives are needed to avoid deforestation. Minimizing deforestation may increase the cost of mines, which are designed to be as efficient as possible. A protocol for avoided deforestation could lead to carbon offsets that help defray additional costs related to re-configuring a mine to reduce deforestation (MABC).

Prevent parallel transmission and transportation corridors, and incent multiple uses of one corridor (1).

Ensure that new roads and utility corridors are truly needed and strategically located to minimize deforestation (10).

Include afforestation as one of the costs of building roads and corridors that result in deforestation (10).

Other industries (mining, power, gaslines, etc.) should balance the level of deforestation, with the cost being borne by the consumer (30).

### *Comments*

(Verbal feedback) Mine or exploration sites could be reclaimed within 20 years. The 20-year requirement before it "counts" as afforestation is therefore a concern.

(Verbal feedback) What percentage of deforestation is by government and how much is by the private sector? **(MFR Staff):** 40 per cent of deforestation is on private land, and much of the 60 per cent on Crown land is done by industries, so it looks like 3/4 or more is private sector activity, but we do not have solid data on this.

(Verbal feedback) *Some government policies encourage deforestation by the private sector.*

Mining always includes detailed plans to reclaim land (restore forest) at the end of the mining cycle (MABC).

Recreation tenures can lead to deforestation (e.g., for a horse corral and buildings for guests) that conflicts with other objectives such as the community forest. The area of deforestation appears to be unconstrained and the plan is not available for viewing (15).

Government should not promote reduced deforestation to landowners and then deforest for BC Hydro's Site C project and claw back agricultural land to plant trees (26).

Government cut down trees for the South Fraser Perimeter Road (in Delta and Surrey), with no word about replacing them (28).

## General – Most Sectors

Stakeholder organizations that provided written comments include: BC Hydro, Mining Association of British Columbia (MABC).

### *Suggested Approaches*

(Verbal feedback) *Incentives are needed to encourage people to change behaviour on private land, which provides the biggest opportunity to reduce deforestation.*

(Verbal feedback) *Consider safety issues, engineering standards and wildfire issues (in interface areas) when thinking about ways to reduce deforestation, such as making roads narrower.*

Develop responses to potential conflicts between ZND and other provincial policies for protection of species at risk, ecosystems, and water (BC Hydro).

Do not penalize efforts to reduce safety and wildfire risks. Making roads and interface areas narrower may increase safety and wildfire risks, and may be contrary to engineering standards (MABC).

Provide examples of how to reduce deforestation, to show companies in different sectors what it looks like and to demonstrate benefits and advantages (12).

This is an opportunity to build models and show the nuts and bolts of making it work. Irrespective of the success in 2015, you will have built capacity (12).

Show commitment, strong research, and a good model for implementation (12).

### *Comments*

(Verbal feedback) *How much will it cost to afforest? (MFR Staff): Probably around \$2,000/hectare – on some lands more, some lands less.*

(Verbal feedback) *Most people minimize deforestation already. Every operator wants to minimize their footprint.*

(Verbal feedback) Is there a breakdown of deforestation by region? **(MFR Staff):** *Much of it is in northeast B.C. for the Agriculture and Oil & Gas sectors.*

(Verbal feedback) There are lots of unnecessary roads out there.

Every operator wants to minimize their footprint (MABC).

## 4. Suggestions for Implementation

Stakeholders provided many useful and creative suggestions for implementing the ZND policy, including ideas about raising awareness, reducing net deforestation, providing incentives and recognition, using carbon offsets, ensuring co-benefits and ecological restoration, designing permits and rules, measuring deforestation, developing inventories, and reporting on progress.

### Consultation

The following stakeholders specifically requested ongoing opportunities for involvement in:

- Development of ZND regulations and policies: ABCFP, ALC, BCAC, BCBC, BCCA, CFPA, COFI
- Inventory of areas suitable for afforestation : ALC, BCCA, GCCBC
- Implementation / operationalization of ZND: BCCA, BC Hydro

Concern was expressed that no consultation occurred before the *ZND Act* was passed (23). **(MFR Staff):** *The 2008 Speech from the Throne made a commitment to work with First Nations, industry and communities to achieve the goal of ZND. The [ZND Act](#) only sets the goal, without any details about implementation. The engagement sessions in June and subsequent stakeholder feedback and discussion will inform the implementation plan and regulations that are needed to bring the act into force.*

### Raising Awareness

#### *Suggested Approaches*

(Verbal feedback) The government needs to show its commitment to this initiative and identify the champions for ZND.

(Verbal feedback) There are no negative consequences to raising awareness. But, there are risks to government credibility and authenticity if government enters into this conversation without regulatory teeth, does not change policies that encourage deforestation by the private sector, and does not change its own operations that result in deforestation.

(Verbal feedback) Get some really good practical examples and highlight them.

(Verbal feedback) Get an idea where your best opportunities are to reduce deforestation and increase afforestation.

(Verbal feedback) Contact the leaders of research projects under the Future Forest Ecosystems Scientific Council (FFESC) that are linking climate adaptation with forest management. Demonstration projects are going on. Also, get neighbouring projects talking to each other. Raise this with the FFESC secretariat.

(Verbal feedback) If government promotes ZND by recognizing some people as “good guys,” it should be careful not to tag people that do not change their behaviour as “bad guys.”

(Verbal feedback) To get the word out, have a campaign with local governments.

(Verbal feedback) Create information packages specifically for selected industry associations, for example mining and forestry.

(Verbal feedback) **(ALC Staff):** For public awareness, a big campaign like [BC Hydro's PowerSmart](#) is a good idea.

Develop information on specific activities related to urban development, such as industrial activities and utility corridors. Describe examples, including how existing incentives work (BC Hydro).

Maintain up-to-date information on the ZND website (BCHydro).

Conduct information sessions (BCHydro).

Provide dollar/hectare cost estimates for avoidance and minimization of deforestation, and for mitigation (afforestation) (BC Hydro).

Take care, when promoting ZND by recognizing people or companies for reducing deforestation, “to not characterize others as not doing their part because they do not change their behaviour, as they may be constrained by cost and safety considerations” (MABC).

Use email networks for communicating quickly, especially to members of organizations such as BC Nature (4,500 members) (2).

First, get it in the news (print, radio, TV, internet) so that society is aware of it and understands it. Second, provide information on how to reduce and mitigate deforestation (internet, public information sessions, brochures, mailouts, etc. (10).

Use displays, booths, and information kiosks at community and agriculture fairs (6).

Use public advertising (radio, TV, newspapers) (13).

Run a Facebook or Twitter site, and ensure it shows measurable feedback (12).

Different media target different interest groups. Identify the biggest deforesters and afforesters and ask what would make them move on the idea. Develop a blog to bring out common interests and share ideas (12).

Work with interested groups (schools, environmental groups) to develop a grassroots connection (35).

Promote community and community group (boy scouts, schools, etc.) challenges. For example, which community or group can afforest or plant the most trees? It does not all have to be “legally” counted afforestation (6).

Remind hikers, bikers, dog walkers and others about community responsibility to reduce deforestation and what they can do to make a difference (2).

Demonstrate government’s commitment to ZND in all that it does, including major infrastructure projects approved by government, such as the Site C dam and the Northwest Transmission Line (1).

Develop some “leader” projects (perhaps Site C, for example) that demonstrate ZND, and give them a high profile to raise awareness (35).

Afforest small, visible roadside areas of unused open fields derived from residential developments or abandoned/unused hobby farms. Getting owners interested may be complicated, but the sites provide visibility (6).

Sell ZND as investing in part of B.C.'s public infrastructure that benefits all British Columbians and provides jobs during an economic downturn, much like roads and hospitals (18).

For building permits, road permits and clearing for agriculture, ask or require developers to report the area of deforestation. This would make them think about deforestation and perhaps prompt them to minimize it. The areas reported may also be useful for provincial-level reporting. Such data may be unreliable, however, so they could not be used as the main source for national/provincial reporting (6).

Use market forces (7).

Use education (8).

### *Comments*

(Verbal feedback) Since this is voluntary, why have a statute? Why not just do it by policy? It sends a conflicting message about being voluntary when statutes usually provide a regulatory hammer. **(MFR Staff):** *The [ZND Act](#) primarily sets a target, similar to the [Greenhouse Gas Reduction Targets Act](#). Putting it in law will force the current and future governments to pay attention to it. It shows that government is serious about this. If the target is not achieved, government may change the incentives or make it a requirement.*

Educating the public about the role of deforestation in climate change is valuable (WCEL).

Marketing ZND is a huge undertaking requiring big funding (17).

Understanding the benefits is needed to get any significant participation (1).

We have to get beyond the frontier attitude about use of land and the few restrictions on use of private land. Increased awareness, penalties and tax incentives could possibly change these attitudes. Information and simple incentives at the grassroots level will spread the word (10).

## **Reducing Net Deforestation**

### *Suggested Approaches*

(Verbal feedback) Talk to large companies with permits and the road safety committee in each forest district.

Do further planning to implement ZND, as it is not entirely clear how ZND will be achieved (BC Hydro).

Try pilot projects based on different scenarios in the implementation plan, to assess impacts and "buy in" (BCCA).

Use existing utility corridors for new utilities (powerlines, pipelines) by requiring or incenting multiple uses (1) and better joint use of future lines (6).

Reforest old abandoned well pads, gravel pits and mines – either government or the industry could do this project (6).

Improve on multi-sector use of roads, for example, forestry and oil and gas (6).

Consider setting ZND as a “land use objective” under the [Forest and Range Practices Act](#) and extend this across all resource sectors, using the [Land Act](#). Note that this would change ZND from voluntary to required (1).

Encourage narrower road right of ways. Even 2-4 metres is helpful (1, 6).

Encourage use/re-use of existing roads (1, 6).

Finalize the [Resource Road Act](#), to force coordinated planning and use of access roads by all sectors (forestry, mining, oil and gas, electricity) (13).

Measure ingress of trees on right-of-ways – deforestation from roads may be less than estimated (1).

In forestry in the Interior of B.C., reduce the area of productive land used for permanent roads from 7 per cent to 3.5 per cent. This results in an increase in logging cost, saves capital and maintenance costs, and avoids lost timber production (3).

Remove the incentives in the stumpage appraisal manual that give a financial reward for building more road. Building more road (an allowable expense) reduces logging cost by reducing skid distance (3).

Provide stumpage incentives for the forest sector (13).

Require by regulation that any well pad and any pipeline (greater than 10 metres) once abandoned must be restored to forest, and that the type of forest must be similar to what was previously there (6).

Require that all government highways and forestry roads (over 10 metres wide) that result in deforestation must be mitigated with afforestation projects (6).

Require that all provincial government buildings or facilities that result in deforestation must be mitigated with afforestation projects (6).

In regions with little remaining forest (Lower Mainland, Okanagan), establish a Forest Land Reserve similar to the ALR, with the intent of maintaining forest types, views, aesthetics, wildlife, biodiversity, etc.

Consider limiting deforestation by establishing forest management units (as in Saskatchewan) or zoning (as in Alberta). These have been effective and could be suitable for the Vanderhoof and Peace River regions. Once established, they must be strictly maintained (6).

Consider taxing forest land the same as agricultural land (6).

Lower the property taxes for forest land (8).

Adjust tax laws so that they encourage or at least do not penalize managing land for forest instead of other uses (10).

Encourage developers to keep greenfields forested as long as possible, perhaps through tax rates (6).

Ensure that tax laws, incentives and zoning rules ensure that land is used for its best use (10).

Allow reforestation/afforestation costs to be claimed against taxes (10).

Avoid clearing forest for agriculture on wet sites that only get used intermittently (in dry years) for agricultural production (6).

Offer certification of agricultural products or beneficial tax system for farmers that leave forest land intact (6).

Avoid/prevent “log and leave” treatment of agricultural leases on Crown land (6).

Fund tree planting in mountain pine beetle and fire impacted areas (7).

Provide an extension service or publicly funded consultation by a professional to small private forest holdings (8).

Pass zoning laws that encourage densification instead of suburban sprawl (10).

Inform people of the many values of forested land and ensure consideration of these in the permitting processes that lead to deforestation. Also require checking whether the intended new use could be better located somewhere else (10).

Money would really be the best motivator (12).

List available resources about ZND and how to access them (12).

Build awareness so that companies see value in being perceived as contributing to ZND (12).

Reduce the number of Independent Power Projects, and the related thousands of kilometres of powerline right of ways through forested land (14).

Plan the development of big box stores and their parking lots to reduce the deforestation involved. This could amount to 50 per cent - 100 per cent reductions in deforestation for some lots, and would make a nicer and healthier experience for customers (10).

## Incentives and Recognition

### *Suggested Approaches*

(Verbal feedback) Provide a protocol for avoided deforestation – this would be a good incentive.

(Verbal feedback) Provide incentives for afforesting non-arable land.

(Verbal feedback) Provide an incentive for reporting afforestation and avoided/minimized deforestation.

(Verbal feedback) Provide incentives for avoided deforestation, because the alternative of afforestation will be much cheaper. For example, a different kind of transmission line that avoids deforestation costs much more than planting.

(Verbal feedback) Assess managed forest land the same as agriculture land for tax purposes.

(Verbal feedback) **(MAL Staff):** Consider a community approach to financing. For example, a project in the Kootenays has \$2 million in funding, based on a property tax levy of \$20 that was voted in to fund planting and restoration of riparian areas, to protect local drinking water supplies. This recognizes the services the landowners are providing, and pays them. Cowichan is looking at a similar model. This would work for reducing net deforestation, and have a recognition component (good publicity).

Evaluate effectiveness of existing incentives in achieving desired outcomes. Identify existing barriers, gaps and opportunities for additional efforts (BC Hydro).

Consider incentives to compel companies to provide information that can help government report on ZND (BC Hydro).

“Government would however need to provide significant incentive to private land holders to afforest these lands including an acceptable property taxation classification. British Columbia’s agriculture producers already provide many ecological goods and services to society for which they receive no compensation. Providing an additional ‘free’ ecological good to society is not a realistic expectation or request of agricultural producers. The incentives identified in the discussion paper are likely inadequate to encourage ‘buy in’ by agriculture producers.” (BCCA)

“Oil and gas companies pay silviculture fees for the purpose of reforestation, are subject to reclamation requirements and encourage natural regeneration of seismic activities. These practices need to be recognized under ZND. There should be an exemption of oil and gas activities through the definition of afforestation that recognizes the silviculture fee included in area-based stumpage paid on every project on New Cut Crown Land. This approach fulfills the intent of ZND in two ways: stumpage fees act as a cost driver for the oil and gas industry to minimize footprint; and the collection of fees facilitates the redirection of appropriate funds to others with the appropriate technical capacity to undertake afforestation.” (CAPP)

Use incentives to steer deforestation to low productivity sites and afforestation to high productivity sites (CFPA).

Do not allow incentives for afforestation to lead to ranchers planting trees on their grassland ranges to raise money instead of keeping grassland in good, native condition. Rather, explore incentives to encourage soil carbon storage and grassland carbon sequestration (GCCBC).

Provide free native species of trees to landowners within a community that is deforesting for development (GCCBC).

Consider incentives for conservation of forest, perhaps linked to recognition of ecological services (WCEL).

Monitor how the Forest Stewardship Council integrates carbon issues into its standards, rather than developing an entirely new system for certification to provide recognition of afforestation and avoided deforestation in B.C. (WCEL).

Reduce property taxes for maintaining forested property (13).

Provide a direct subsidy for afforesting marginal farmland. Carbon credits may help but will not pay enough to encourage many landowners to initiate such projects (4).

Provide trees and seedlings at reduced costs in rural areas (13).

Provide income tax breaks for planting trees (13).

Subsidize reforestation on private land (8).

Strengthen the currently weak incentive to maintain private managed forest land as forest. Taxes on these are about 5-10 times higher in B.C. than in other jurisdictions (8).

Make the managed designation less onerous to achieve and maintain (10).

Create an account and require people that withdraw points for deforestation to pay people who can deposit points for afforestation and avoided deforestation (8).

Consider “time-limited” incentives to create a sense of urgency, followed by next-generation incentives (35).

Consider a higher rate for tax deductions related to donations for afforestation, and make it retroactive (35).

Identify tangible (monetary) and intangible (good reputation) benefits for businesses and use these to develop social responsibility (12).

### *Comments*

(Verbal feedback) You need more incentives than exist today.

(Verbal feedback) If a company takes measures to reduce deforestation, for example, re-engineers a road and it costs more to do so than the usual practice, is there some compensation for the extra costs?

(Verbal feedback) **(ALC Staff):** *Government has incentives for development that encourage or even require deforestation, but not much to keep the trees in place.*

The BC Hydro Environmental Impact Goal is to have no net incremental environmental impact by 2024, compared with 2004. (BC Hydro)

Incentives in the ZND Discussion Paper appear to be focused on private land and are limited in application to Crown land (CFPA).

Few of the incentives listed help to keep forest from being deforested. Tax benefits for privately managed forest land do not promote keeping forest for ecological, cultural or other reasons. (WCEL)

Existing incentives, with the possible exception of carbon offsets, may not be strong enough to achieve the ZND goal (WCEL).

ZND looks unenforceable (entirely voluntary) and lacks funding to do any work (22).

Are the incentives good enough (18)?

Extend the limits on site degradation found in forest legislation to all resource sectors (1).

High stumpage rates and high taxes encourage reduced deforestation (7).

The context of recessionary times makes it difficult to access funds or incentives (12).

## Carbon Offsets

### *Suggested Approaches*

(Verbal feedback) Consider issuing guidance to ensure ZND legislation does not reduce additionality of carbon offset projects by raising the bar of what is status quo (minimum legal requirement). Requiring ZND by 2015 might be considered to do this, and would therefore make it harder for corporations/individuals to demonstrate that a carbon offset project is going above and beyond the status quo (based on 2008 laws for example).

Ensure a credible approach to offsetting that is ecologically sensitive and sustainable, so that the credibility of offsetting generally is not damaged (LTABC). *(See also comments in the [Inventory](#) section about ecological suitability of sites for afforestation.)*

Carbon offsets have the potential to provide incentives for avoided deforestation and afforestation. The former was not in the ZND Discussion Paper (WCEL).

Use incentives for smart urban growth, changes in transportation structure and planning, and employer support of public transit (WCEL).

Issue guidance that ZND is not business as usual, as it is not a law that requires afforestation, and therefore does not limit or eliminate the opportunity for a carbon project (21).

### *Comments*

(Verbal feedback) Whether ZND will affect carbon offsets and to what degree is unclear to some stakeholders.

Preventing conversion of natural ecosystems (such as mature forests) to other uses is the most effective way to benefit from their carbon storage values (LTABC).

Offsets based on afforestation and reforestation may not pass rigorous accounting analysis (LTABC).

If a private landowner sells a carbon offset for afforestation activity, then the carbon emission benefits of that afforestation have been transferred to another party and cannot be counted to offset carbon emissions from deforestation (9). **(MFR Staff):** *Correct – carbon offsets can only be sold or used once. The sale of a carbon offset can help to make an afforestation project financially feasible. The resulting area of afforestation helps reduce the net deforestation in the province, and this is separate from the carbon market transaction.*

While some funds can come from carbon offsets, government funding from general revenue may be needed (18).

There was a lack of integration with other concepts, such as carbon sequestering (29).

## Co-benefits and Ecological Restoration

### *Suggested Approaches*

(Verbal feedback) Government should produce a broad checklist to assess suitability for afforestation and other uses (especially agriculture, environmental, visuals, fallow). Include criteria on ecology, riparian areas and water quality when identifying areas for afforestation.

(Verbal feedback) Consider a provision for land not to be in use, so it can recover: “leaving land to rest.” Fallow lands are important. Humans don’t always have to use the land. There are other uses for the land besides carbon.

Promoting afforestation could have serious ecological consequences, such as loss of grassland, wetland, and species-at-risk. Therefore, provide information on how to protect non-forest land that is unsuitable for afforestation; involve Ministry of Environment; state what lands are excluded from afforestation; and maximize ecological potential of afforestation projects (BC Hydro).

Grassland restoration (i.e., reversing forest encroachment) must not be discouraged by the ZND policy, as grasslands are critically endangered and cover less than one per cent of B.C. (GCCBC, LTABC).

All afforestation projects should strive to improve wildlife habitat (for example, creating wildlife corridors in communities where there is fragmentation) (GCCBC, LTABC).

Convey “the priority of candidate afforestation areas for composite land-based values. This approach allows... companies that wish to support afforestation as part of a corporate stewardship strategy, to understand where to apply this effort spatially so that it achieves a multitude of environmental benefits (i.e., habitat restoration, biodiversity management, etc.)” (CAPP)

Consider wildlife when afforesting (16).

Some agricultural lands were natural grasslands (26).

Provide safeguards to ensure that ZND does not allow cutting down primary forests, to be replaced by plantations. (24)

## Permits and Rules

### *Suggested Approaches*

(Verbal feedback) Provide guidance documents, best practices and other mechanisms to help corporations afforest without having to get into the nitty gritty details of how, for example, by linking them to appropriate forest consultants, Pacific Carbon Trust, Tree Canada, etc.

(Verbal feedback) How much attention is paid to our own species of trees? **(MFR Staff):** *On Crown land, species and seedlot selection are guided by the Chief Forester’s standards.*

(Verbal feedback) Think about the best carbon decision for land – agriculture or trees? Sometimes planting crops will be the best carbon decision on a piece of land.

Develop quality control for avoidance of deforestation and for afforestation, to help proponents make the best decision (BCHydro).

Clarify greenhouse gas benefits of afforestation and provide accounting procedures consistent with international best practices (BCHydro).

Provide a list of companies that support afforestation (for example, seed collectors, nurseries, tree planters) (BC Hydro).

Provide oversight and coordination of land owners, developers and tree planters involved in afforestation (BC Hydro).

Provide simple, robust mechanisms for non-forestry companies to afforest suitable Crown lands, verify those actions and receive credit and carbon offsets (BC Hydro).

Have a clear plan for where to allow afforestation. Afforestation must be ecologically appropriate, with tree species that are part of the naturally occurring ecosystem, and must not have a negative impact on current ecological processes (for example, draining of wetlands or removal of other vegetation to plant new trees. (GCCBC)

Require protection of trees through bylaws or covenants equivalent to the number deforested, as this will ensure ongoing sequestration of carbon at higher rates than newly planted trees (GCCBC)

Use the Green Bylaws Toolkit ([www.greenbylaws.ca](http://www.greenbylaws.ca)) to help conserve ecosystem services through, for example, “brownfield” development, housing infill rather than new subdivisions, “Smart Growth” principles, tree protection bylaws that leave mature trees standing and protected, and development costs specifically tied to removal of trees (GCCBC).

Develop legal and policy measures that prioritize reducing deforestation (WCEL).

Investigate what was done in Mexico, Costa Rica (incentives), Chile, New Zealand, Australia (promoting afforestation and reducing deforestation), and China (jail terms). Some were successful, others were not (17).

Consider restricting access into areas planned for afforestation or reforestation (30).

To achieve the ZND target, put the onus on big business (for example, forest companies, BC Hydro), and get the three levels of government and corporations needing carbon credits to afforest small parcels of private land (18).

Respect private property rights (18).

Use slow-growing species such as wild cherry and dogwood for hydro right of ways (17).

Set maximum areas of allowable deforestation by all industries on Crown land for each management unit (13).

Many questions will need to be answered: Who will do the silviculture? What lands will they restock? What government ministry will be responsible? Who will be in charge of monitoring results? What will be the sampling process for these sites and who will perform conduct them? Who will be the authority to declare them free to grow? (18)

Regulations are needed to control deforestation and require forest restoration (32).

### *Comments*

The application of ZND to private land is supported (18).

Registered forest professionals have knowledge and expertise to support afforestation (18).

## **Measurement**

### *Suggested Approaches*

(Verbal feedback) Ecosystem restoration for grasslands should not be considered deforestation.

(Verbal feedback) Clarify whether afforestation that is not human induced (such as forest ingress into range land) counts as afforestation.

(Verbal feedback) The area afforested needs to be reduced to reflect any roads built to access the site.

(Verbal feedback) Consider a narrower minimum width and smaller area in the definition. Abandoned roads could be a good opportunity for afforestation efforts. But for these to be counted, the minimum width/area for afforestation projects to be measured/accounted will need to be narrower. The working definition captures primary roads, but it may be worthwhile to modify the definition to capture tertiary roads and 10 metre buffers in agriculture.

(Verbal feedback) Consider a different time limit for qualifying afforestation. Use of a fixed date (1990) may limit future afforestation opportunities (for example, mine reclamation sites). A rolling 20-year waiting period may be better.

(Verbal feedback) Clarify which agency is keeping the balance sheet.

(Verbal feedback) Consider measuring productivity or greenhouse gas impacts. Balancing areas of deforestation and afforestation will not lead to much GHG benefit. Deforesting by cutting down big trees and afforesting other sites by replanting small ones will not balance the GHG emissions accounting.

(Verbal feedback) When measuring afforestation outcomes, it could be good to add or line them up with other environmental benefits as a “stacking of benefits” or consideration of “multiple values.” Some sectors have existing legislation on post-project rehabilitation.

(Verbal feedback) All forests and deforestation should not be considered equal – consider age, tree species, site productivity.

Develop sophisticated measurements to ensure real gains rather than just “accounting benefits” (ABCFP).

Use GIS for a database of projects (emerging, new, in progress). This is a substantial undertaking (17).

Monitor, regulate and validate afforestation (BC Hydro).

Consider a simplified GHG accounting process for ZND activities (21).

Note that specific definitions of deforestation/afforestation (shape, width, size) are important and can have unintended consequences. For example, clusters of many small units may not count, while one contiguous unit of the same or smaller area may count (6).

Measure deforestation for three land types: 1) non-Crown land; 2) Crown land non-timber harvest land base; and 3) Crown land timber harvest land base. The third should get highest priority, possibly the highest charge for deforestation (13).

Measure three things: area, net volume and carbon mass of forests. A precautionary buildup of all three would help counteract climatic trends that are expected to increase forest losses to insects, diseases and wildfire (33).

### *Comments*

The [ZND Act](#) is voluntary. This means there will be no enforcement and progress will be difficult to track (23).

## **Inventory**

### *Suggested Approaches*

(Verbal feedback) Set up a registry to keep track of deforestation and afforestation activities.

(Verbal feedback) Government should undertake suitability analysis and produce an inventory of lands suitable for afforestation, instead of having everyone do it independently. Seek local knowledge and knowledge from other agencies/entities when building that inventory of potential afforestation sites.

(Verbal feedback) Abandoned roads may be a good opportunity for afforestation efforts.

(Verbal feedback) Ensure that afforestation projects are done effectively and appropriately from an ecological standpoint. Attention needs to be paid to our own native tree species.

(Verbal feedback) Keep in mind that non-commercial brush is often hard to re-forest and that Not Sufficiently Restocked (NSR) lands may actually be forested, but not to minimum stocking standards.

(Verbal feedback) Consider cost and emissions related to building road access and site preparation.

(Verbal feedback) **(MFR Staff):** *In the Prince George Forest District, many of the non-commercial brush and Not Sufficiently Restocked areas have already been looked at. They are non-commercial brush because they are difficult to reforest, and NSR areas are actually forested, they just don't make minimum stocking.*

Provide an inventory, on a geographic information system, of areas where afforestation is the most ecologically sound option (BC Hydro).

Identify and approve beforehand lands available for afforestation, to ensure that it is done only where it is ecologically appropriate (GCCBC, LTABC).

Make available Crown land suitable for afforestation. Companies wishing to offset any deforestation resulting from mine development or expansion could then conduct afforestation projects without needing to procure suitable land, thereby reducing the cost of such projects (MABC).

“Almost all ranches have some opportunity to afforest some land. Land that is not key to agriculture operations plus land along roads and driveways, along cross fencing and beneficial shelter belt areas could be afforested” (BCCA).

Lands identified for afforestation must not be grasslands (GCCBC, LTABC). Listing grazing land as a potential area for afforestation will create a direct conflict with the ranching community (COFI).

Ensure that afforestation is done in an ecologically suitable manner. Use tree species that are part of the naturally occurring ecosystem (LTABC).

Use an ecosystem-based approach that considers and enhances wildlife and riparian habitats when afforesting or reforesting (LTABC, 16).

Consider the difficulty, cost and likelihood of previous unsuccessful attempts to afforest areas of backlog Not Sufficiently Restocked (NSR), non-commercial brush and non-productive brush (COFI).

Give priority to afforestation of NSR land, brownfields and other lands that do not have high agricultural value (WCEL).

Some areas should not be afforested (16).

Re-assess stocking of all productive forest land to determine NSR areas that could be afforested (19).

Quantify areas that could be used to offset deforestation (30).

Rank afforestation opportunity areas as high, medium, low (21).

### *Comments*

Reforestation of previously forested land makes ecological sense, but “afforestation of lands that have not historically been suited to forest cover will be ecologically damaging” (LTABC).

Afforestation opportunities:

- Crown land requires new incentives;
- Private forest land does not have much land;
- Private industrial land has the greatest opportunity;
- Residential land has zero opportunity (17).

A 1997 study of 30 timber supply areas demonstrated that loss of productive forest land due to roads and landings could be reduced from 12 per cent in some timber supply areas to 5 per cent. This represents a large area for potential afforestation (29).

A study indicates that substantial areas of agriculture leases of the 1980s, especially in the north, can be reclaimed (afforested) (29).

Mountain pine beetle is resulting in substantial areas of NSR. The 1990 limit in the definition for afforestation avoids recognition of this issue (29).

Wetlands, bogs and natural grasslands also store carbon (sometimes more than forests), and this should be considered (23).

## Reporting

### *Suggested Approaches*

(Verbal feedback) Reporting of deforestation by sector should also show net deforestation by sector.

(Verbal feedback) Advertise and promote afforestation to encourage participation.

(Verbal feedback) Give recognition (such as low-cost advertisements) to private landowners that afforest.

Report areas of deforestation and afforestation as a ratio by region, community, parks and other land use types (ABC FP).

Report on community strategies to achieve ZND (ABC FP).

Provide user-friendly reporting forms for industry to report avoidance/minimization of deforestation and afforestation (BC Hydro).

Explain how the Province will audit/validate the information (BC Hydro).

Show net deforestation by sector, to document and give credit for the mining sector's reclamation efforts (MABC).

Do not make reporting overly bureaucratic and costly to administer (7).

Require mandatory reporting of land use change (18).

Require government officials responsible for highways and forestry roads to record the amount and location of deforestation from any roads greater than 10 metres wide (6).

Use licence conditions to require reporting of deforestation due to well pad areas and expansions, new and pipeline right of ways and widening (6).

Require accurate and timely reporting of deforestation of Crown land, across all industries (13).

Use tax incentives to encourage measuring and reporting (1).

Provide tangible benefits for reporting, so that it is not perceived as unfair and does not create a backlash against ZND (12).

Have clear reporting criteria (12).

Record the use of a current right-of-way (rather than creating a new one) as avoided deforestation (6).

Make deforestation an attribute in B.C.'s forest cover inventory and inventory update process (6).

Satellite-based assessment tools can compare deforestation and reforestation changes through time (10).

Compliance checks could rely on local knowledge, satellite images, and Google maps (12).

## *Comments*

It seems odd that the [ZND Act](#) sets a target deadline of 2015 and yet requires reporting every two years on the even calendar years (COFI). **(MOE Staff):** *The reporting requirements are aligned with reporting requirements under the [Greenhouse Gas Reduction Targets Act](#). More frequent reporting (e.g., for the target year 2015) is not precluded.*

Avoided deforestation is difficult to track and report (6).

The Private Forest Land Council already has a good reporting process (8).

## 5. Defining Zero Net Deforestation

Implementation of the ZND policy will require the establishment of definitions for key terms such as “deforestation,” “afforestation,” and “forest area.”

### **Deforestation:**

Some stakeholders disagreed with the government’s definition of deforestation (human-induced removal of trees that changes forest to a non-forest land use, measured by area). All clearcutting is deforestation to some stakeholders (32). *(MFR Staff): The [B.C. definitions](#) of deforestation and afforestation are based on [national](#) and [international](#) sources. Central to the definitions is a change in land use, from forest to non-forest, or the reverse. Most of the clearcutting in B.C. is followed by reforestation, with no change in land use.*

### **Metrics for measuring deforestation:**

Some stakeholders objected to the focus on area. One pointed out that deforestation happens in terms of area, volume and mass, and the last two are not being measured (33). *(MFR Staff): The [ZND Act](#) specifies area as the unit of measure for deforestation and afforestation. The area deforested and afforested is reported in the [provincial](#) and [national](#) greenhouse gas inventory reports.*

Several stakeholders (including BCBC, CFPA, COFI, 8) recommended using **site productivity** to guide choices and enable mitigating deforestation through means other than afforestation. They indicated this would attract greater private investment and help meet timber supply objectives. Further, it would differentiate between marginal and productive land, as well as land that is fully and marginally stocked with trees. *(MFR Staff): Using site productivity as the metric would be more complex to administer, and was therefore not chosen for the [ZND Act](#). Loss of land base (deforestation) results in a permanent loss of productivity. Mitigating this would require an ongoing stream of investment to increase productivity (for example, fertilization).*

Some stakeholders questioned how the focus on area was going to be effective in helping achieve government’s targets for reducing **greenhouse gas emissions** (BCBC, 23). Others said the biggest opportunities for emission reductions are in ensuring forest health and treating under-managed stands, including NSR areas resulting from mountain pine beetle and wildfire (ABC FP, 22, 19). Using a simplified greenhouse gas accounting procedure to help guide choices was suggested (21). *(MFR Staff): Using greenhouse gas emissions as the metric would be more complex to administer, and was therefore not chosen for the [ZND Act](#).*

### **Forest:**

A stakeholder suggested:

- Count areas less than 1 hectare to allow for recognition of afforestation in residential lands; and
- Use 10 metre minimum width for linear deforestation/afforestation, rather than 20 metre (17).

Others expressed concerns:

- The minimum 5 metre tree height would permit counting orchards, tree farms and eucalyptus plantations as forest (23).
- The minimum size would allow much of the deforestation by oil and gas and other industries to not be considered (23).

- Species composition, stand age, biodiversity and other environmental co-benefits are ignored by the [ZND Act](#) and should be considered (23, 27).

*(MFR Staff): The working definition's 1 hectare minimum size and 20 metre width are used nationally for international reporting under the UNFCCC. It may be possible to use a mix of definitions for different purposes, to encourage changes in behaviour where it makes sense.*

#### **Not Sufficiently Restocked (NSR) Forest Land:**

Several stakeholders (including COFI, 18, 19, 29) questioned why treating NSR forest land resulting from recent wildfires and mountain pine beetle infestation is not targeted, as it provides bigger opportunities for storing carbon than afforesting less than 6,000 hectares annually under a ZND policy. **(MFR Staff):** *These areas are addressed by other programs and policies. The ZND policy addresses changes in land use; reforesting NSR areas does not involve a change in land use. The ZND policy addresses forests, generally, including all tree species; the term NSR focuses specifically on the number and distribution of only commercial tree species. The ZND policy is based on the international definitions which specify that afforestation must occur on land that was non-forested (less than 25 per cent tree cover) since before 1990; most of the NSR areas resulting from mountain pine beetle and wildfire disturbance originated after 1989.*