

Montréal Process Criteria and Indicators for SFM

A Limited Tool for Measuring the Green Economy



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Objectives:

1. Introduce the Montréal Process (MP) and overall approach to assessing forest sustainability
2. Discuss MP's general utility in measuring green economy development
3. Examine specific indicators within the MPC&I as potential measures of green economy

The Montréal Process is:

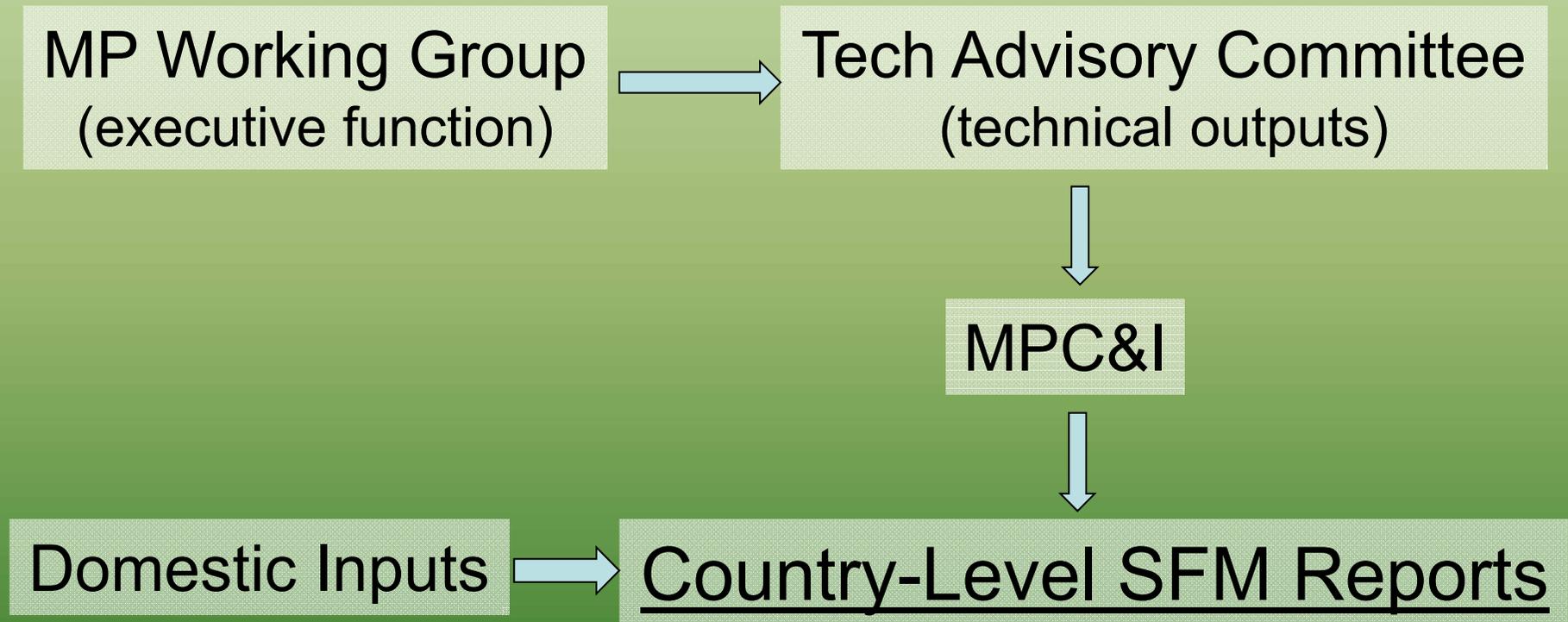
A voluntary association of 12 countries from around the world dedicated to the promotion of sustainable forest management of temperate and boreal forests through the application of robust monitoring using Criteria and Indicators (C&I)



www.montrealprocess.org



How the Montreal Process Works:



Montréal Process

Defining Characteristics:

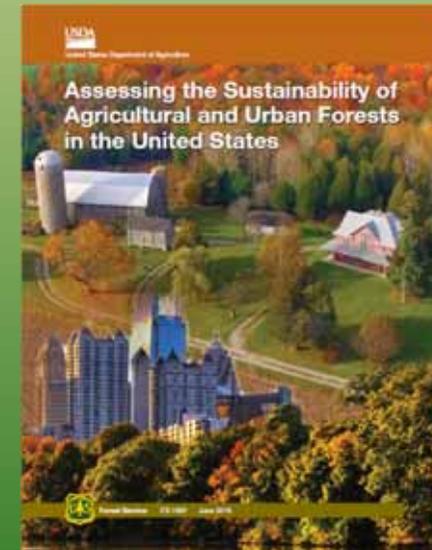
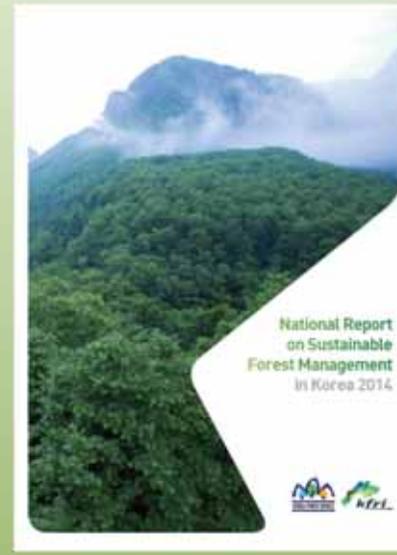
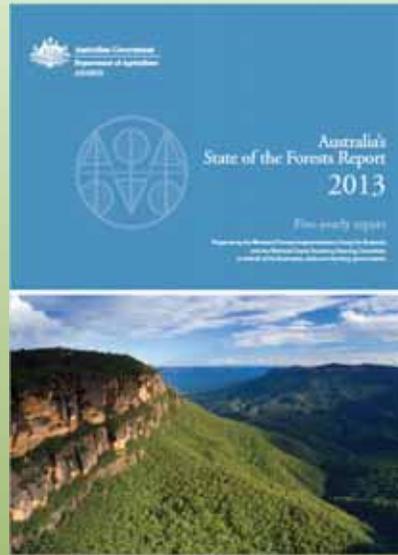
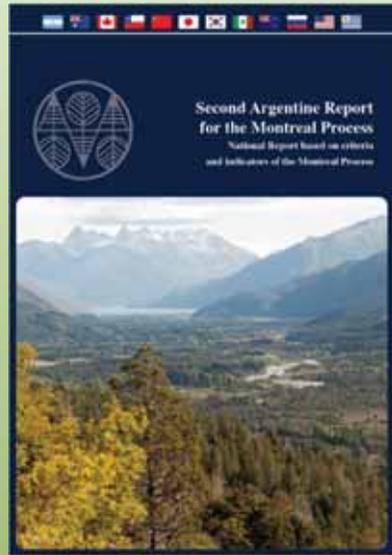
- **Diverse** (in terms of cultural, economic, and forest Conditions)
- **Comprehensive** (MPC&I incorporates a broad and inclusive definition of sustainability)
- **Stable** (active since 1994)
- **Adaptive** (ongoing revision of C&I set)
- **Flexible** (countries have wide latitude in domestic application of MPC&I in sustainability reporting)
- **Fragmented** (countries do not form a single land mass)

Not a systems approach!

Montréal Process

Principal Activities:

- Create, review and revise C&I for SFM of boreal and temperate forests (largely complete)
- Share strategies and lessons learned related to SFM monitoring, assessment and promotion
- Facilitate the production and dissemination of country-level reports



(Not a complete representation. Some countries have incorporated MPC&I into other reporting activities)

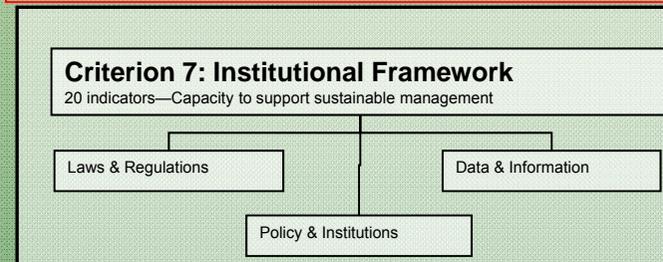
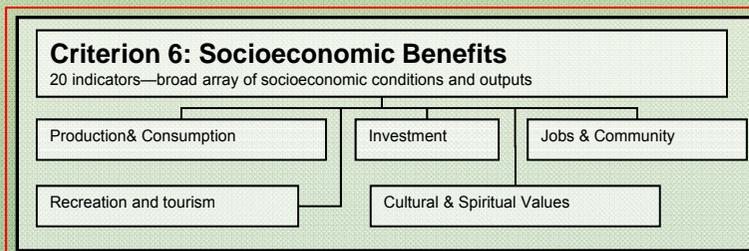
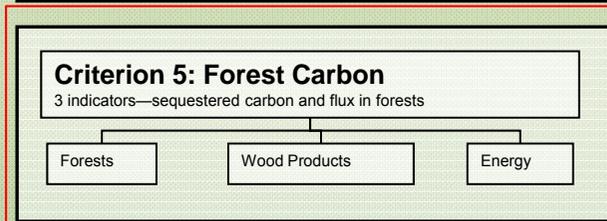
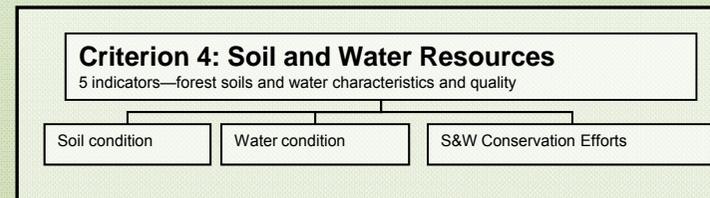
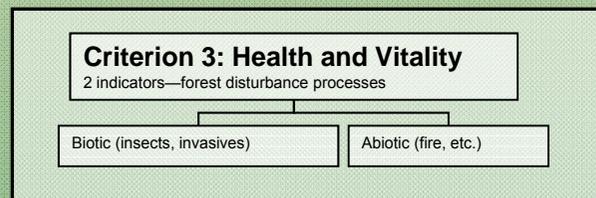
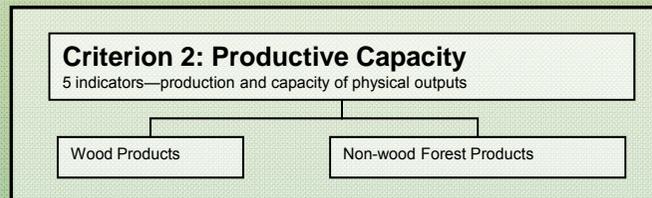
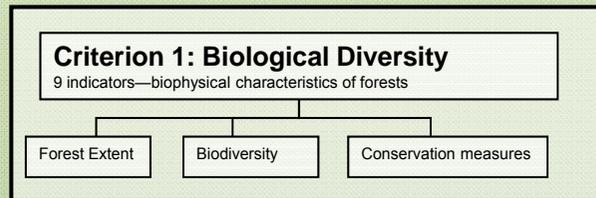
Key points to remember about the MPC&I in relation to Green Economy Monitoring

- Comprehensive sustainability assessment
 - MPC&I designed to describe the whole forest system
- Reports built largely upon existing data
 - Data availability conditions final report, not the other way around
 - Forest inventory is key
- Indicator selection not constrained by data availability
- Generally, countries rely on a flexible, narrative approach with chapters addressing each criteria (U.S. is partial exception)

The Montreal Process Criteria and Indicators for Forest Sustainability (MPC&I)

Structure at a Glance

--7 Criteria
 --54 Indicators
 --Ecological, Social & Economic



MPC&I ↔ Green Economy

4 Specific Examples:

Criterion 5 (Carbon)

1. Indicator 5.b Total forest product carbon pools and fluxes
2. Indicator 5.c Avoided fossil fuel carbon emissions by using forest biomass for energy

Criterion 6 (Socioeconomics).

3. Indicator 6.1.c Revenue from forest based ecosystem services
4. Indicator 6.3b Wage and Injury Rates

(other indicators related to production activities in Criterion 6 may be applicable to Green Economy product categories, but available data does not yet differentiate these)

Indicator 5.b: Total forest product carbon pools and fluxes (Australia)

Table 5.3: Carbon input to, and output from, the harvested wood products pool in Australia

Year	Carbon (*000 tonnes)					Wood products in service ^a	Wood, wood products and paper disposed of to landfill ^c
	Domestic production	Imports	Exports	Net increase ^a	Losses (decay, use and disposal)		
2001	10,423	804	7,042	4,185	2,985	90,611	1,358
2002	11,575	795	8,070	4,300	3,022	91,890	1,310
2003	11,957	873	8,268	4,562	3,149	93,303	1,386
2004	12,817	955	9,120	4,653	3,213	94,743	1,427
2005	12,702	1,005	9,010	4,696	3,264	96,175	1,430
2006	13,060	960	9,471	4,550	3,186	97,539	1,271
2007	13,692	985	10,163	4,515	3,189	98,866	1,203
2008	13,180	1,056	9,450	4,785	3,347	100,304	1,147
2009	11,763	922	8,286	4,398	3,235	101,468	1,052
2010	12,380	989	8,947	4,423	3,215	102,676	1,005
Total 2001-10	123,549	9,344	87,827	45,067	31,805		12,589

^a Net increase in pool = domestic production + imports - exports.

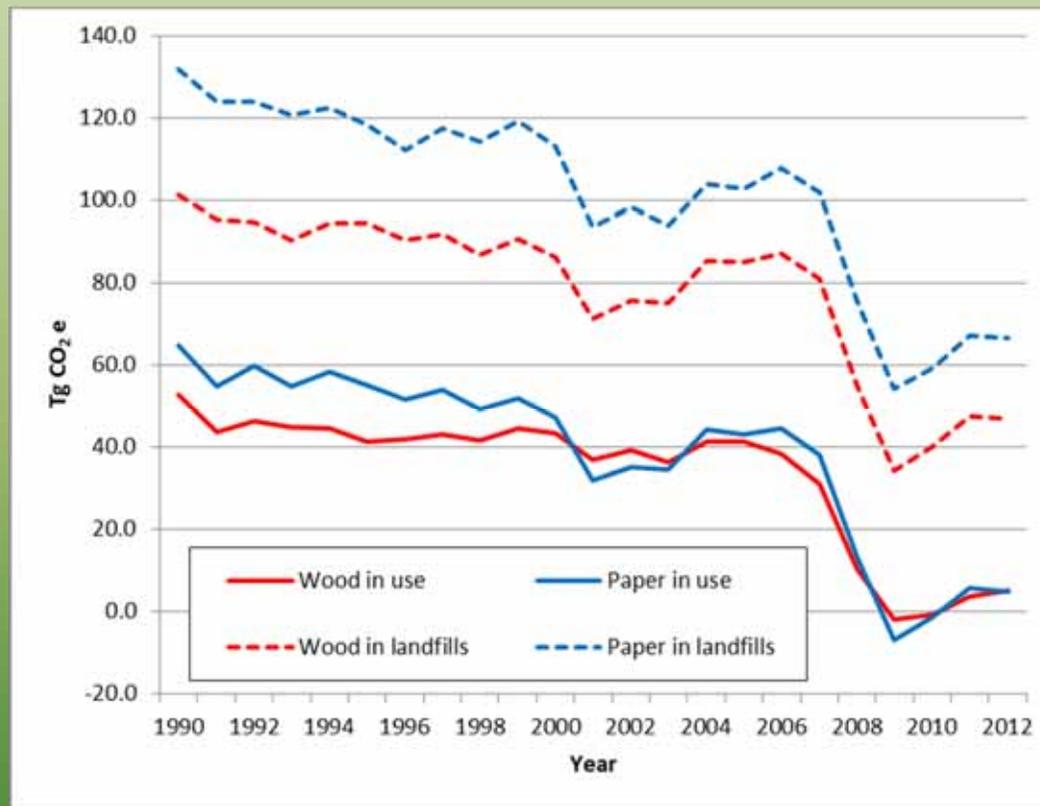
^b Wood products in service = previous wood products in service + net increase - losses (decay, use and disposal).

^c Subset of loss due to decay, use and disposal.

Source: Department of Climate Change and Energy Efficiency.

- AU provides tabular reporting framework
- Sequestration is largely export driven

Indicator 5.b: Total forest product carbon pools and fluxes (USA)

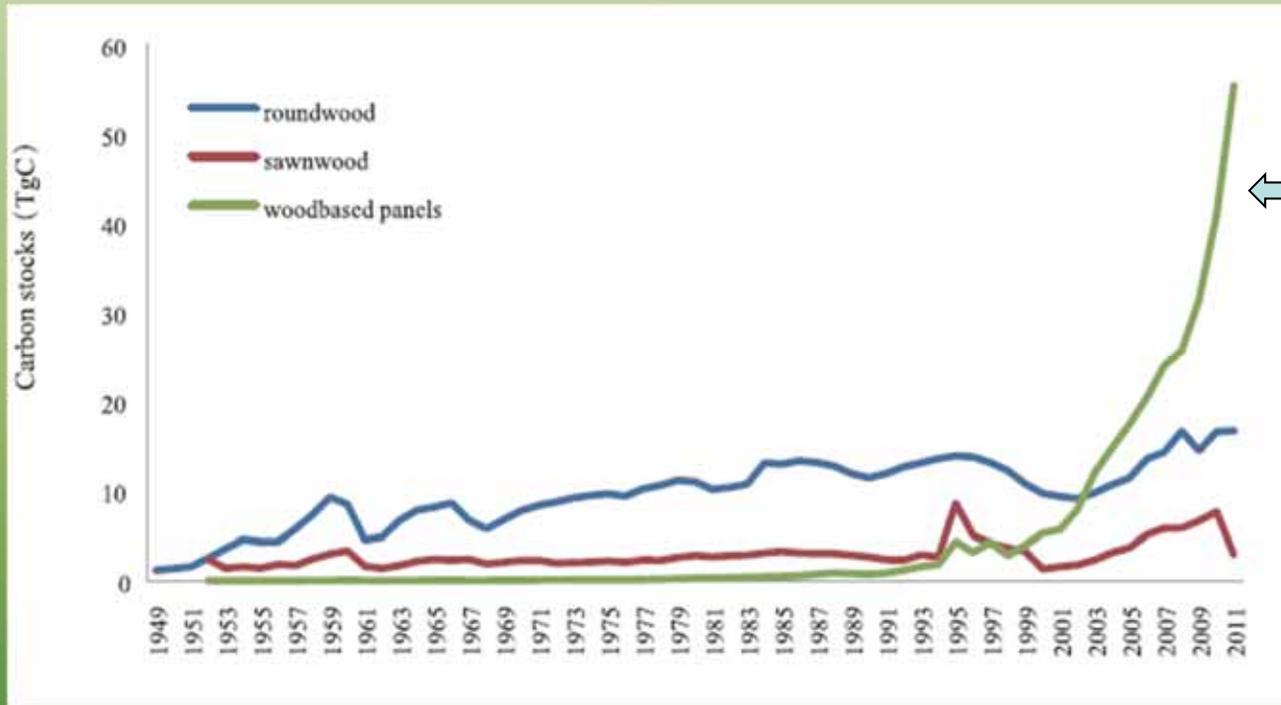


Landfills constitute important sink

Net C sequestration for HWP in use declines owing to 2008 recession and as products accumulate and decay (sink gets full)

Figure 23-2. Annual HWP contribution by location of storage—wood and paper products in use and wood and paper product in landfills, 1990–2012 (Tg CO₂e). Source: U.S. Forest Service

Indicator 5.b: Total forest product carbon pools and fluxes (China)



Explosive growth
in panels

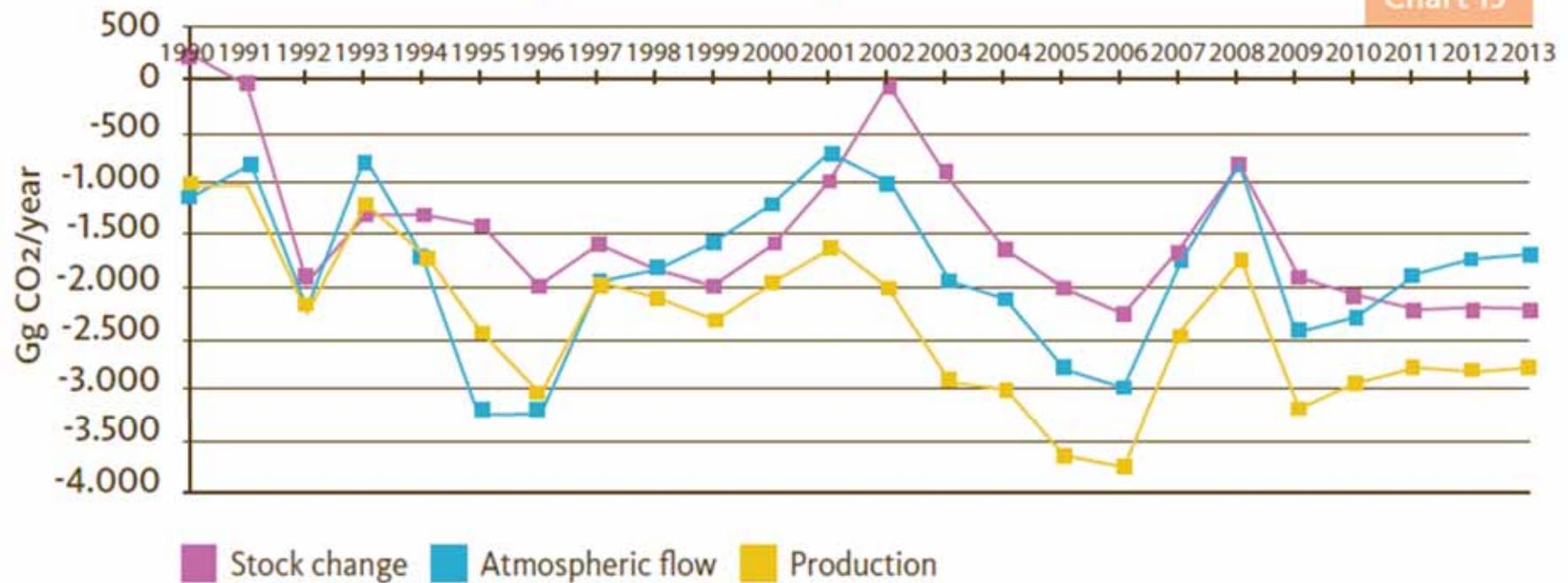
Figure 6-1. Carbon stocks in roundwood, sawnwood and wood-based panels (TgC)

Source: China Country Report 2014

Indicator 5.b: Total forest product carbon pools and fluxes (Argentina)

HWP contribution to the carbon cycle for the stock change, atmospheric flow and production methods

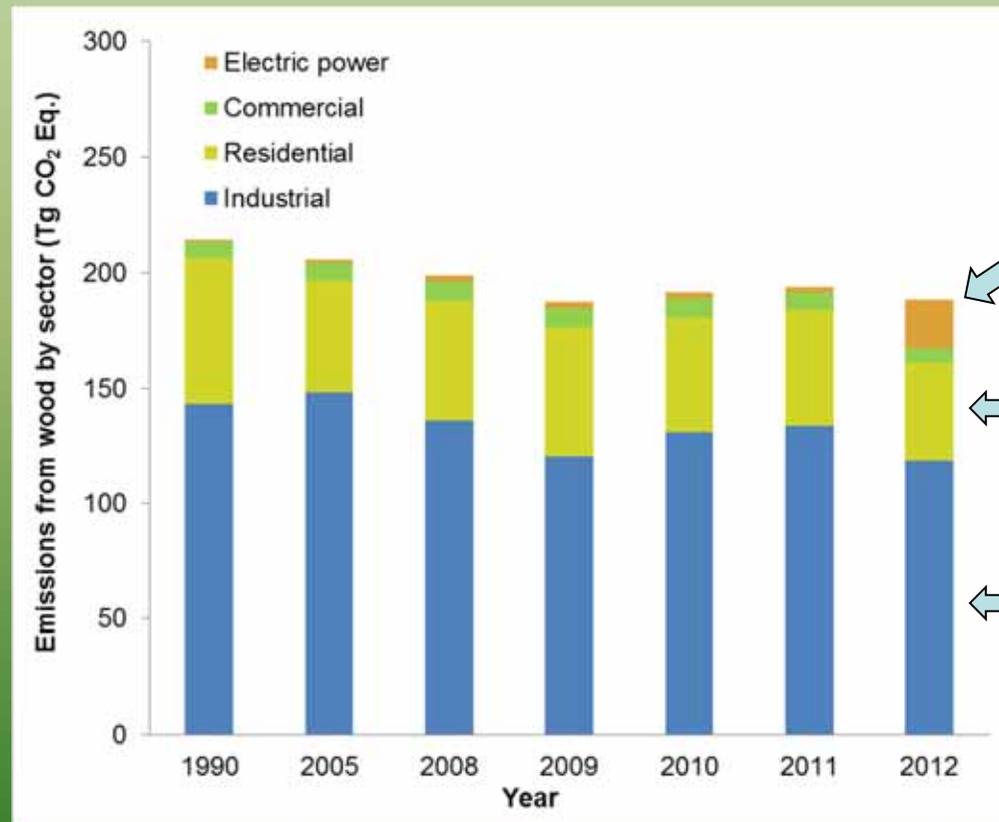
Chart 15



Source: Ministry of Agriculture, Livestock and Fisheries. Undersecretariat of Agriculture. Forestry Production Direction. Environmental Area.

Negative emissions axes denotes positive net sequestration

Indicator 5.c Avoided fossil fuel carbon emissions by using forest biomass for energy (USA)



Estimated U.S. emissions from wood consumption for energy by sector in the United States, 1990-2012 (Source: EPA 2014).

Nascent bioenergy sector?

Traditional energy uses still drive total wood energy production

--Home energy

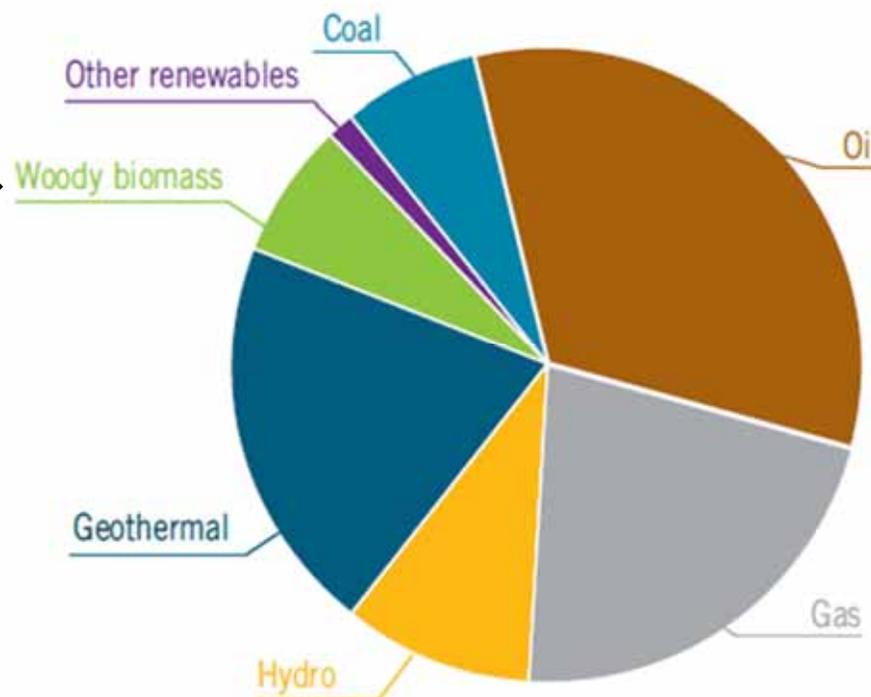
--Wood industries

Wood pellets exports not included

Indicator 5.c Avoided fossil fuel carbon emissions by using forest biomass for energy (New Zealand)

Approximately 75% of wood energy is from wood products industry applications

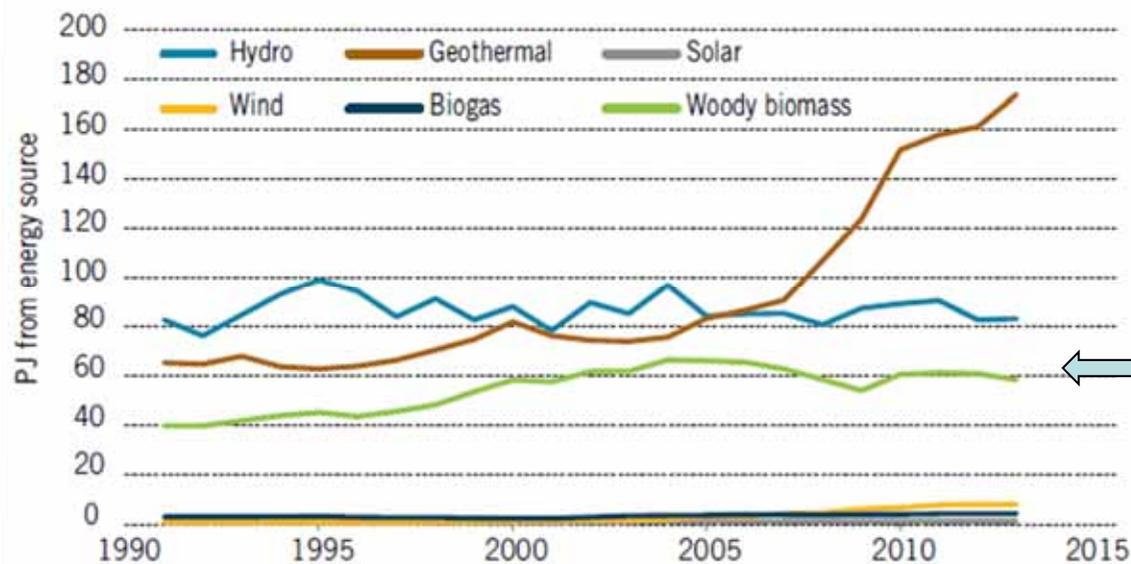
Figure 5.3: Breakdown of the New Zealand's consumer energy supply in 2013



Source: Ministry of Business, Innovation and Employment, 2014 (adapted from Table B2).

Indicator 5.c Avoided fossil fuel carbon emissions by using forest biomass for energy (New Zealand)

Figure 5.2: Energy supply from biomass and other key renewables to the New Zealand's energy supply since 1991

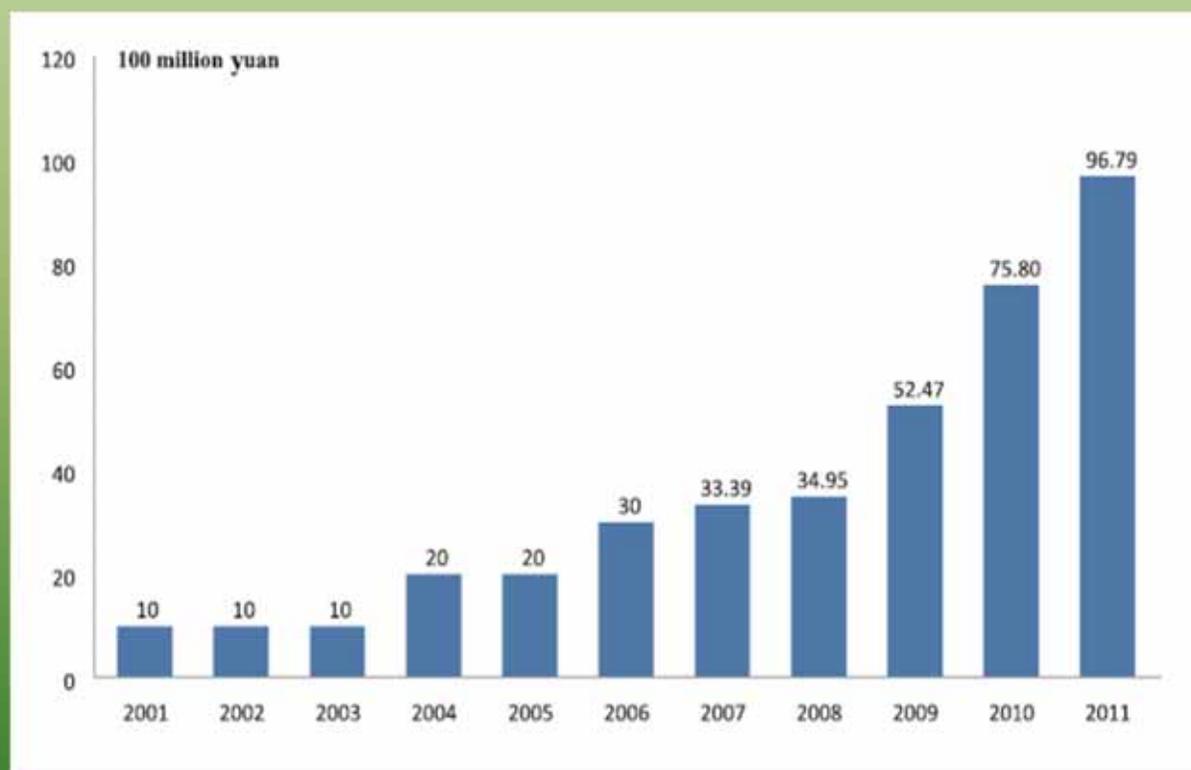


Sources: Ministry of Business, Innovation and Employment, 2014 (Table 2); Ministry of Business, Innovation and Employment, undated: <http://www.med.govt.nz/sectorsindustries/energy/energy-modelling/publications/energy-innew-zealand-2014>

Energy from woody biomass recently stable after increase in 1990s (driven primarily by WP industry activity?)

Indicator 6.1.c Revenue from forest based ecosystem services (China)

(100 million yuan = 15 million USD)



Payments to compensate communities for foregone economic opportunities associated with “ecological public benefit Forests” totaling 84 million ha. in 2011 (and rising)

Figure 7-9. The central financial compensation fund of ecological benefits of forests during 2001-2011
Source: China Country Report 2014

Indicator 6.1.c Revenue from forest based ecosystem services (China)

(100 million yuan = 15 million USD)

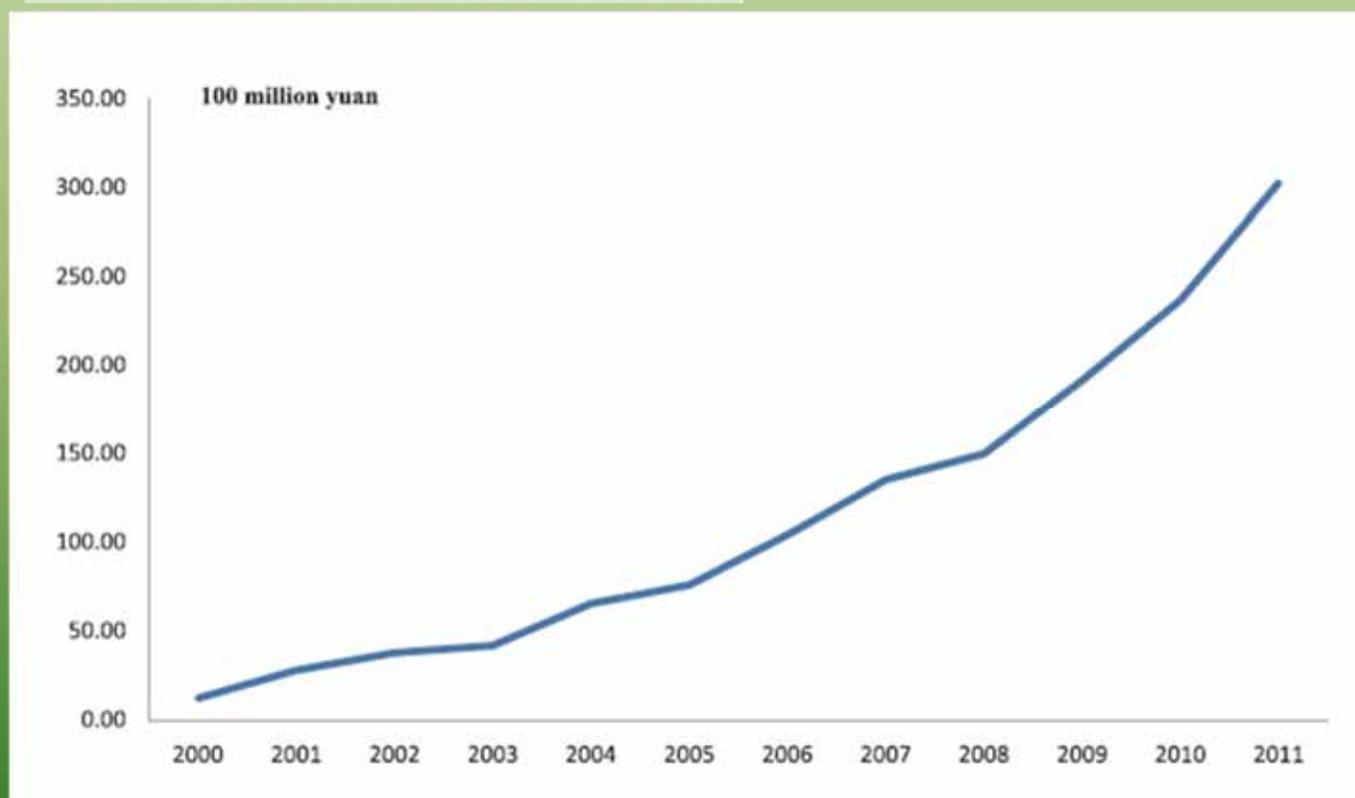
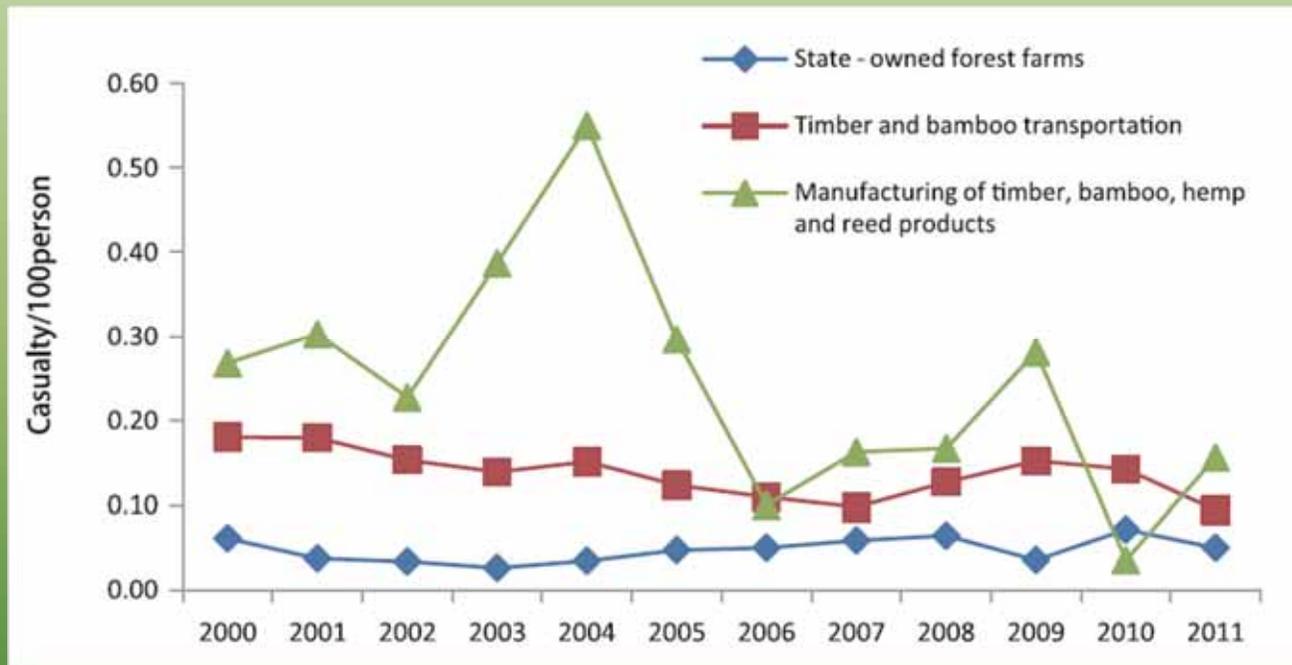


Figure 7-10. Revenue of forest tourism during 2000-2011
Source: China Country Report 2014

Indicator 6.3b Wage and Injury Rates Casualty Rates (China)

Note: Casualty ≠ Injury

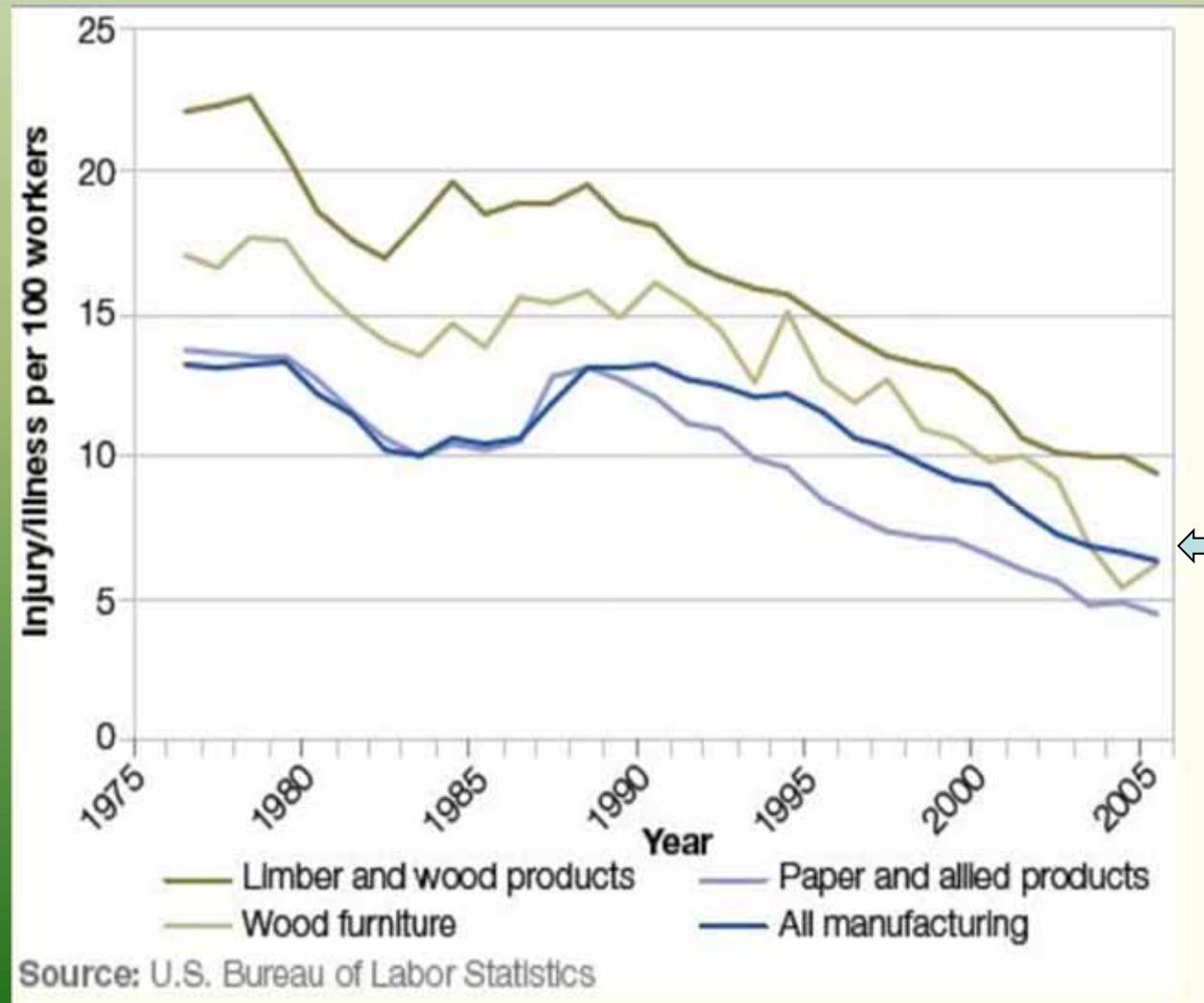


Downward trend

Figure 7-29. Casualty rate in 100 people in the main categories of forestry from 2000-2011
Source: China Country Report 2014

Indicator 6.3b Wage and Injury Rates

Injury and Illness Rates (USA)



Strong downward trend

Indicator 6.3b Wage and Injury Rates

Wage Rates (New Zealand)

Table 6.18: Average total hourly earnings for the forestry and timber processing industries

Forestry industry (A03)		
March year	Average total hourly earnings (nominal figures)	Average total hourly earnings (adjusted to March 2010 figures)
2010	18.80	18.80
2011	20.68	19.80
2012	19.48	18.36
2013	21.36	19.94
2014	23.63	21.75
Wood product manufacturing (C14)		
March year	Average total hourly earnings (nominal figures)	Average total hourly earnings (adjusted to March 2010 figures)
2010	21.17	21.17
2011	21.11	20.21
2012	22.02	20.75
2013	23.99	22.42
2014	23.96	22.05

Notes: 1. "Average total hourly earnings" is equal to "total earnings" (ordinary time plus overtime) divided by "total hours" (ordinary time plus overtime).

2. Figures adjusted using the Consumers Price Index (all groups).

Source: Statistics New Zealand (Quarterly Employment Survey), 2014.

Conclusions

MPC&I can incorporate Green Economy measures

- Flexible nature and voluntary reporting on an indicator-by-indicator basis
- Sustainability is the primary foundation for Green Economy
- Note, however, that available data will determine ability to address GE indicators (or sub-indicators)

However, wholesale revision of MPC&I to incorporate GE elements probably not a good idea

- Revision of the MPC&I would be difficult owing to collaborative, consensus nature of MPC&I determination
- Should not weaken MPC&I focus on comprehensive forest sustainability assessment