Forest products conversion factors: Importance for international data and statistics






TIMBER MEASUREMENTS SOCIETY, CENTRAL MEETING,,
COEUR D'ALENE RESORT, COEUR D'ALENE, IDAHO
APRIL 8-10, 2015

Outline

- UNECE/FAO Forestry and Timber Section
- Data, monitoring and assessment
- The role of conversion factors in data validation
- Past and current work & future work

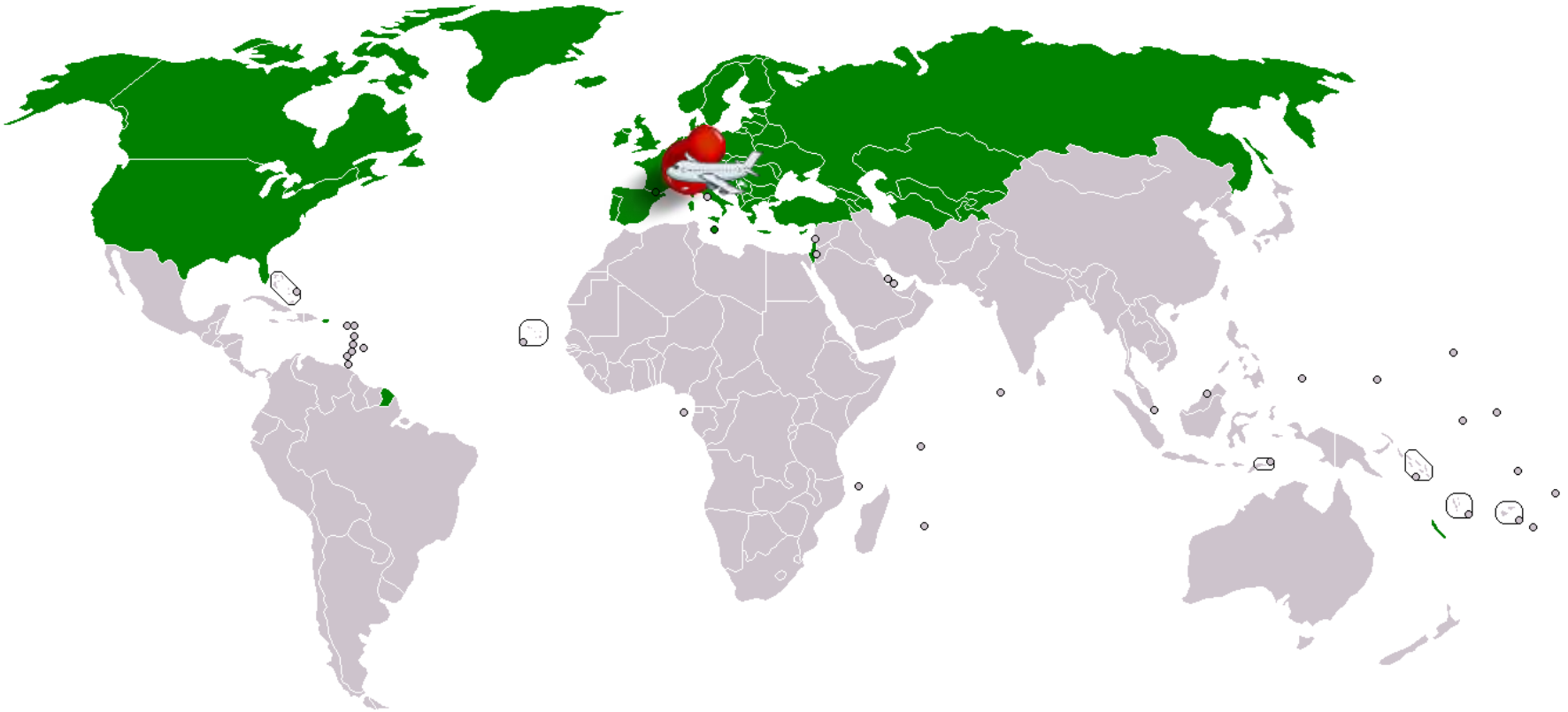
Economic Commission for Europe

… Established in 1947, first regional commission of the United Nations

… is a multilateral platform which facilitates greater economic integration and cooperation among its fifty-six member States

… promotes sustainable development and economic prosperity

The UNECE Region



Joint ECE/FAO Forestry and Timber Section

Joint ECE/FAO Forestry and Timber Section

WA1

- **data, monitoring and assessment**

- Forest Resources
- Forest Products
- Wood Energy

Use of conversion factors

- Joint Forest Sector Questionnaire
- Joint Wood Energy Enquiry
- Forest Sector Outlook (Europe, Russia, North America)

Joint Forest Sector Questionnaire

Data collection on production & trade (HS):

- … Industrial Roundwood and Fuelwood
- … Sawnwood (C, NC)
- … Pulp & dissolving grades
- … Co-products
- … Processed wood-based fuels
- … etc.

- … 56 UNECE countries with national reporting!

Joint Forest Sector Questionnaire

Data validation & conversion factors

- Issues with effects on data::
  - Supply vs. use
  - Imperial vs. metric
  - Surface vs. volume
  - Traditional units vs. global reporting standard
    - Nominal vs. actual
    - Green vs. dried
    - Board feet vs. cubic feet – mainly export

- Industrial Roundwood Balance

Industrial Roundwood Balance

Back-end consistency check

Production and trade included

No information on wood energy involved

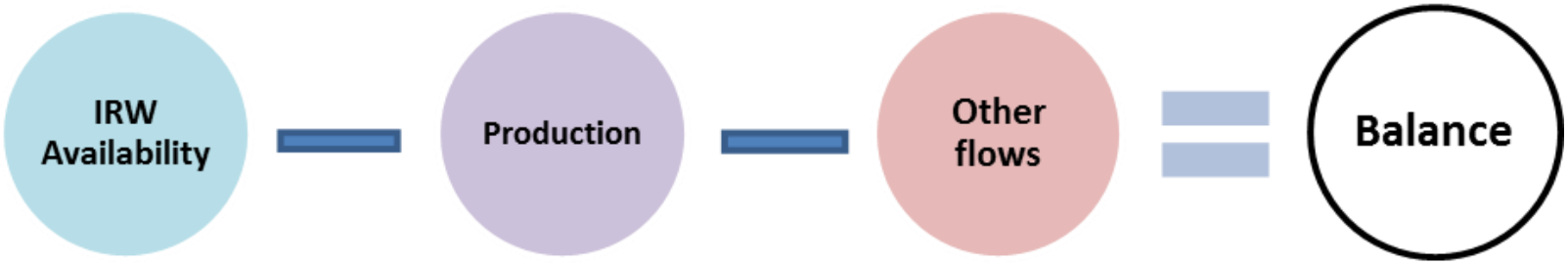
Solid wood equivalent as unit

Calculation for the past eight years

Conversion factors are key !!!!

Methodology

"Industrial Roundwood Balance"



IRW Availability (m^3 SWE)

IRW available [C & NC]
(Production+Import-Export)

Net Fibre trade of chips, particles & residues
(exports-imports)

Production (m^3 SWE)

Sawnwood	Volume of product [m^3 SWE]
Plywood/veneer	
Particleboard	
OSB	
Hardboard	
MDF	
Insulating Board	
Mechanical Pulp	Actual input [m^3 SWE]
Semi-chemical	
Chemical Pulp	

Iterations

Issue	Country	Cause	Solution
Deficit	Italy	Post consumer wood not included	External database
Surplus	Poland	Small sawmills not covered by offical JFSQ reporting	N.A.
Surplus	Denmark	IRW for energy? / Intra European trade?	Mirroring Comtrade, no solution
Surplus	Divers	Wood pellet production	JWEE

Availability

IRW available [C & NC]
(Production+Import-Export)

Net Fibre trade of chips, particles & residues
(exports-imports)

Post-consumer recovered wood
(Production+Import-Export)

Production (m^3 SWE)

Sawnwood	Volume of product [m^3 SWE]
Plywood/veneer	
Particleboard	
OSB	
Hardboard	
MDF	
Insulating Board	
Mechanical Pulp	Actual input [m^3 SWE]
Semi-chemical	
Chemical Pulp	
Processed wood based fuels	Volume of product [m^3 SWE]

Examples

IRW Balance for Austria

Summary

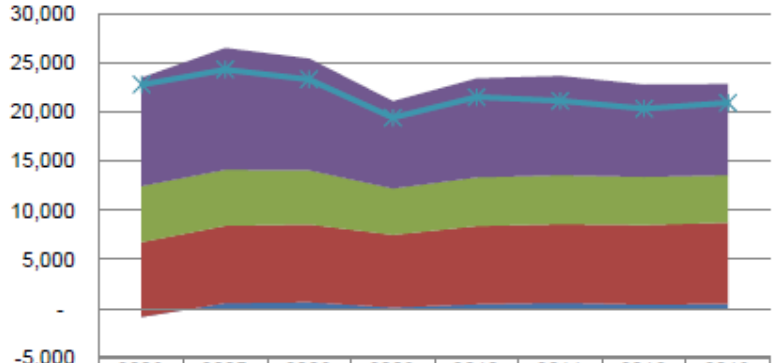
Total wood raw-material available for products:	20,491	m^3
Total solid wood equivalent in products:	22,422	m^3
Balance	**- 1,931**	m^3
Percent of Imbalance	**-9.22%**	

Note:

① wood raw material available for products is the substraction of other wood flows from industrial round wood

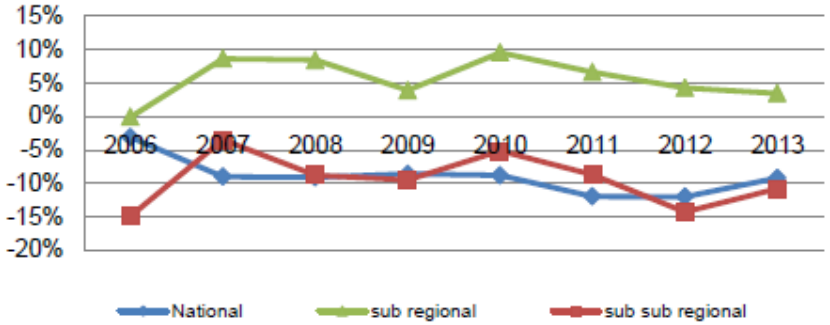
② Other wood flows consist of mainly net fibre trade (exports-imports of chips, particles and residues) and industrial round wood not used in listed production (i.e. wood pellets as a product, coproducts, shingles)

Figure.1 Austria - Industrial Roundwood Availability and Wood Use by Product Sector



	2006	2007	2008	2009	2010	2011	2012	2013
sawn wood	11032	12407	11377	8881	10083	10118	9400	9293
panels	5729	5722	5531	4733	4968	4987	4908	4833
pulp	7622	7892	7938	7404	7980	8037	8128	8296
other flows	-859	543	632	107	425	569	386	464
IRW Availability	22814	24367	23348	19451	21555	21171	20370	20955
Balance	-710	-2197	-2130	-1673	-1901	-2540	-2452	-1931

Figure.2 Austria
- Balance as % of IRW availability

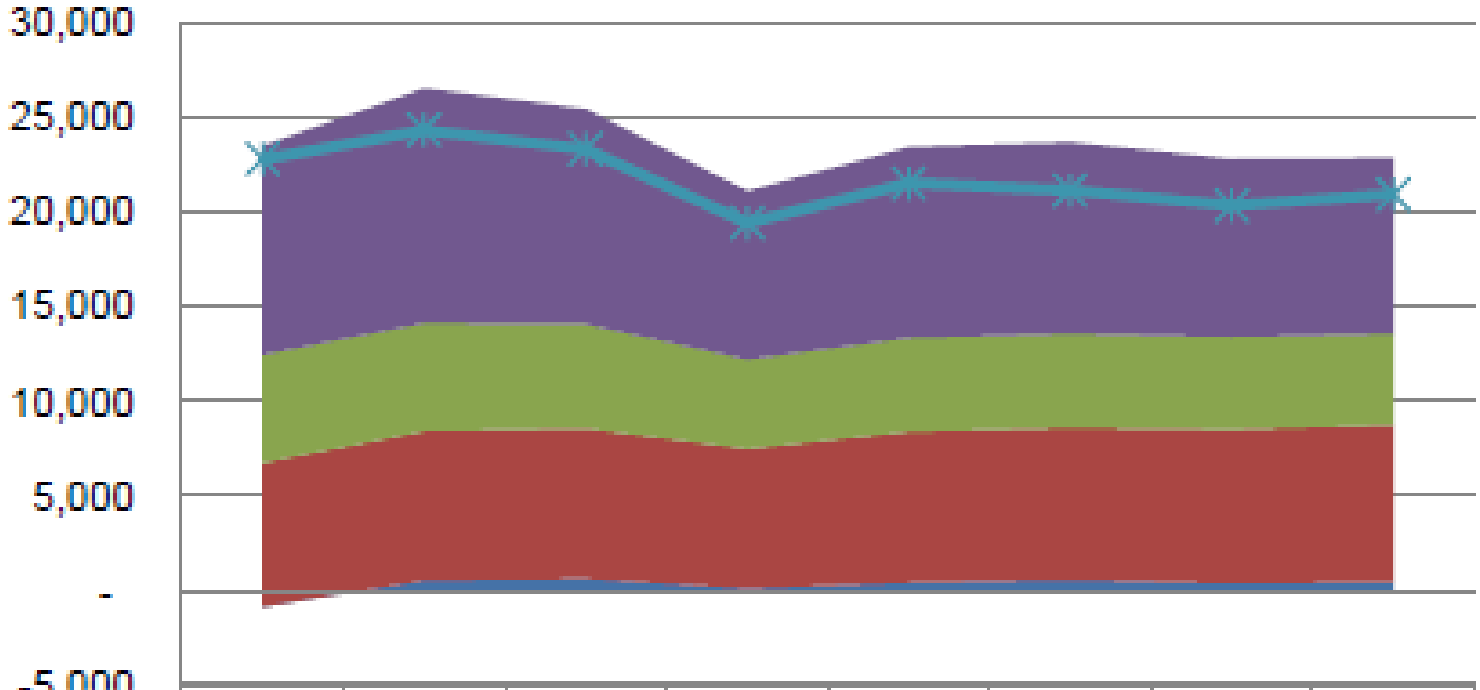


Note: Constant 0% means that the country doesn´t belong to any subregion or sub-sub region.

Graph. Product Conversion Factor

Geographic Region	National	Sub-sub regional	Sub-regional	units (dried)
	Austria	Central-West Europe	Europe	
SWE Sawnwood	1.05	1.03	1.04	m^3/m^3
SWE Plywood/veneer	1.05	1.05	1.05	m^3/m^3
SWE Particleboard	1.50	1.49	1.48	m^3sw/m^3p
SWE OSB	1.63	1.53	1.61	m^3sw/m^3p
SWE Hardboard	1.93	2.37	2.28	m^3sw/m^3p
SWE MDF	1.70	1.71	1.71	m^3sw/m^3p
SWE Insulating Board	0.71	0.99	0.91	m^3sw/m^3p
SWE Mechanical Pulp	2.05	2.44	2.44	m^3rw/mt
SWE Semi-chemical	2.07	2.98	2.39	m^3rw/mt
SWE Chemical Pulp	4.09	4.09	4.03	m^3rw/mt
SWE coniferous pulp	4.09	4.09	4.03	m^3rw/mt
SWE non-coniferous pulp	4.09	4.09	4.03	m^3rw/mt
Dissolving Grades	6.20	6.20	6.20	m^3rw/mt

Figure.1 Austria - Industrial Roundwood Availability and Wood Use by Product Sector



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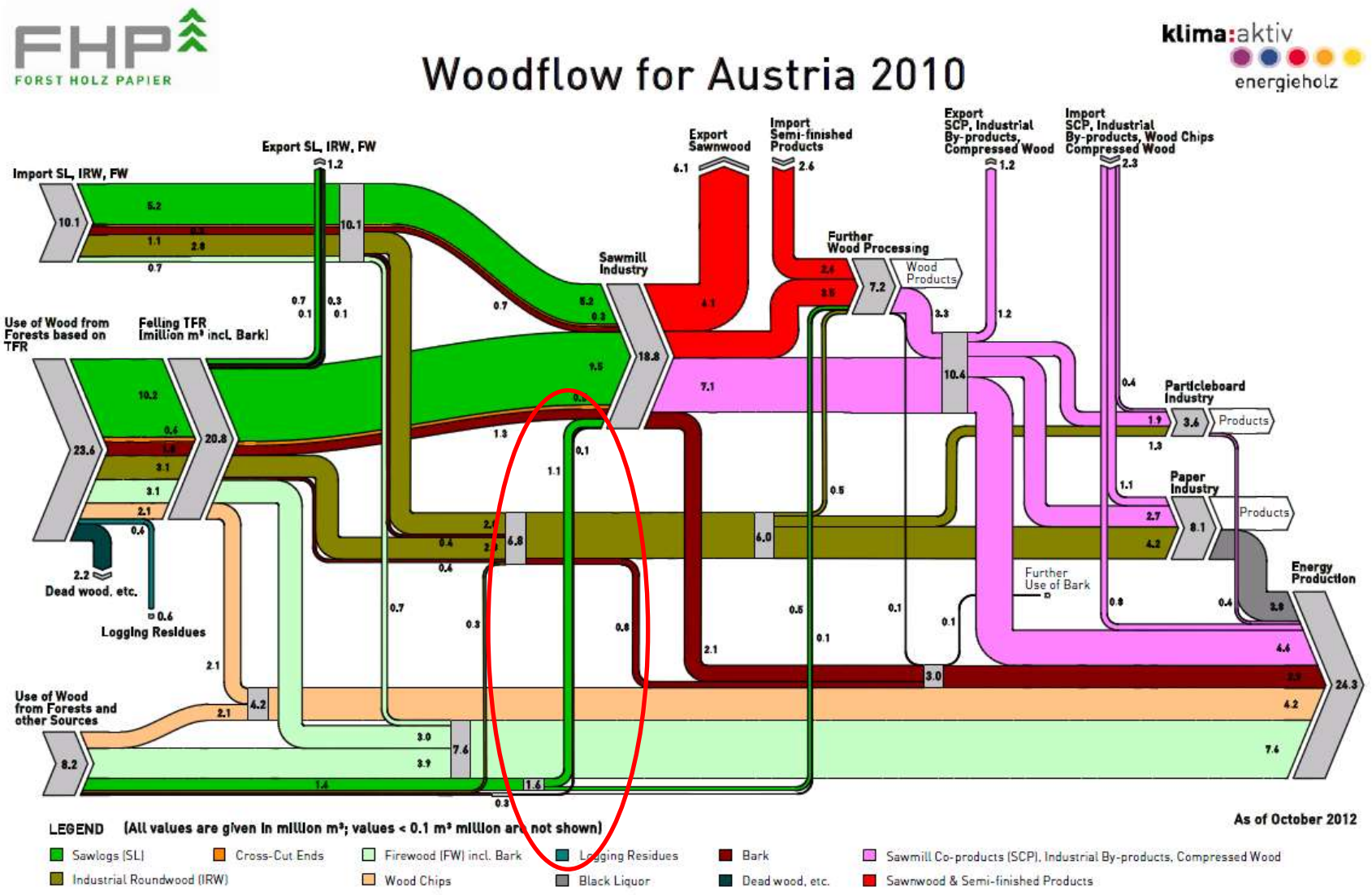
Showcase Austria



This illustration is based on the current state of knowledge and information, and has been compiled to the best of the authors' knowledge and experience. However, the authors accept no liability whatsoever for errors or omissions and reserve the right to incorporate latest findings.

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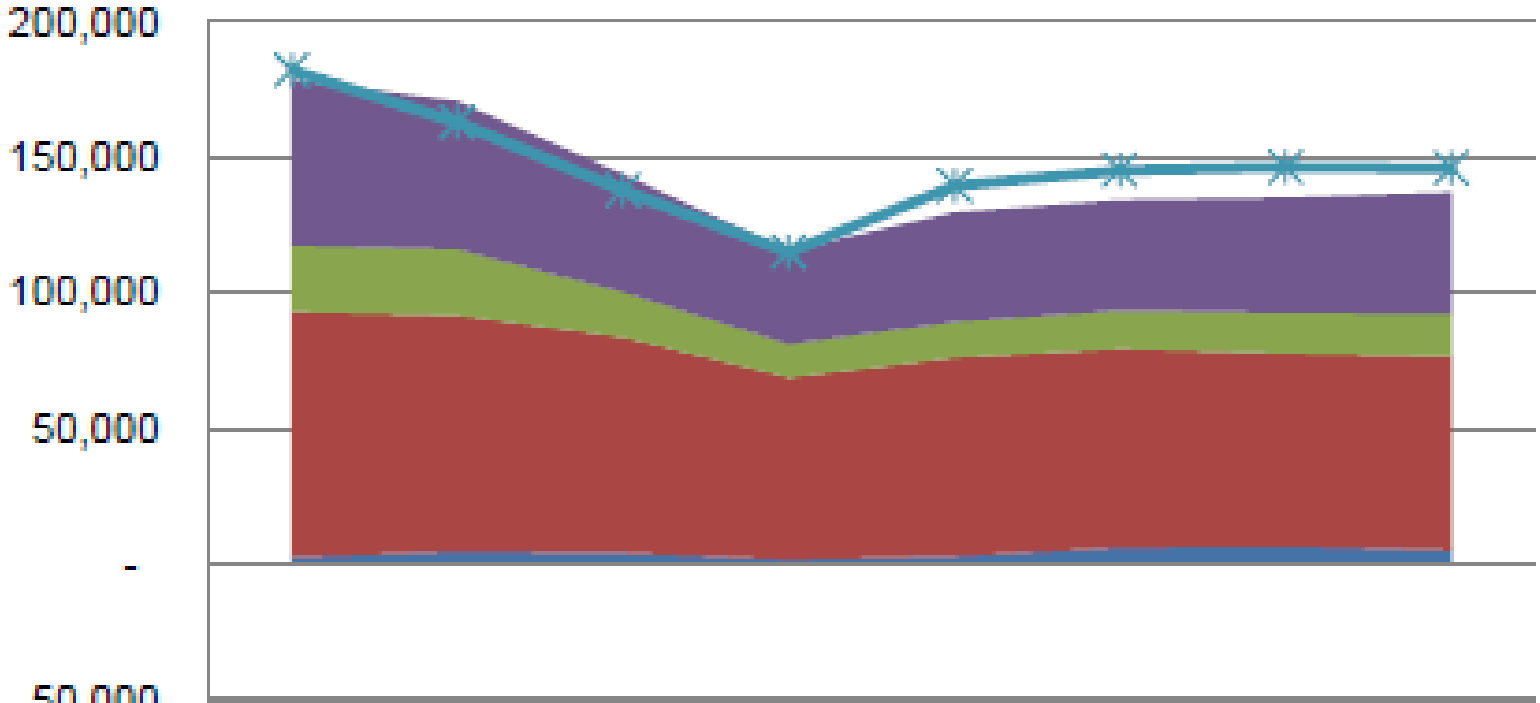
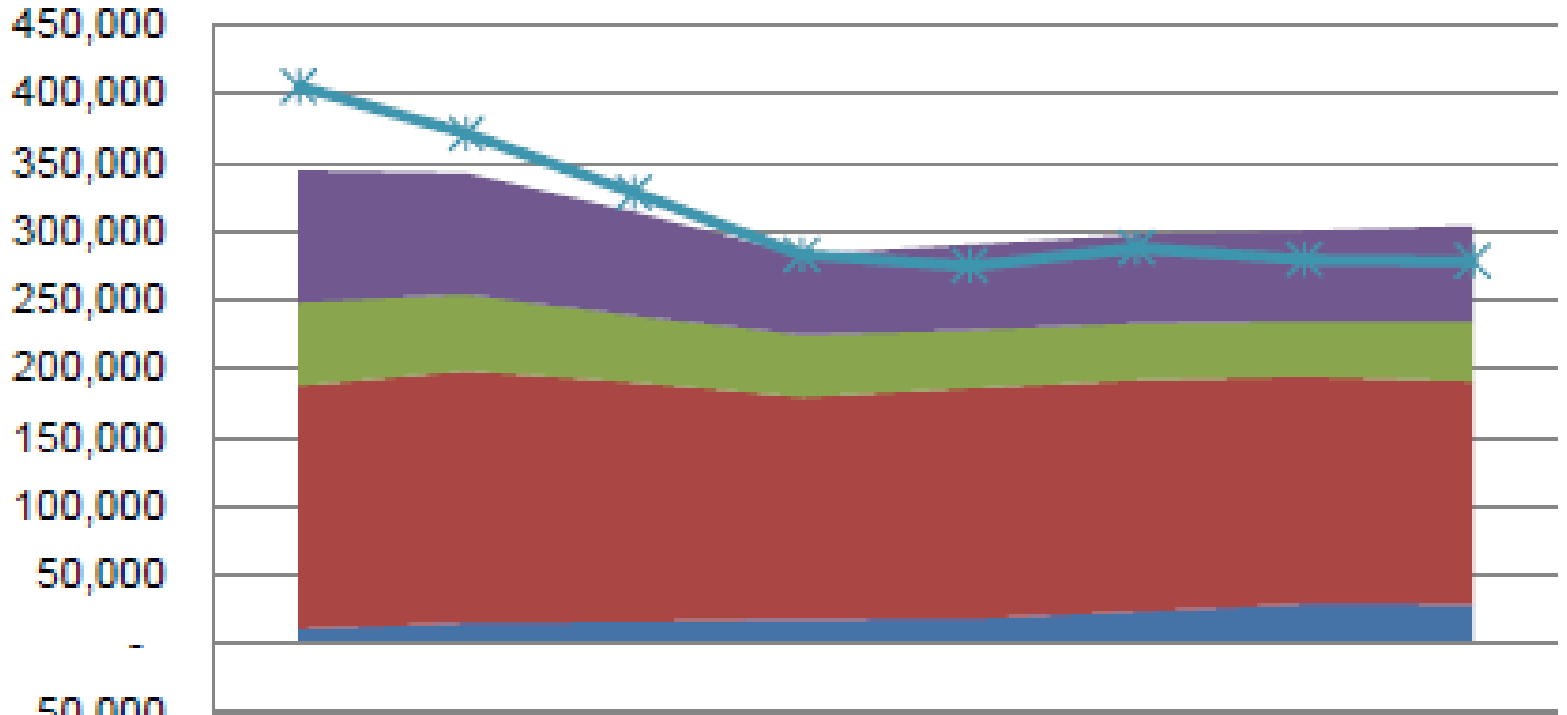
Figure.1 Canada - Industrial Roundwood Availability and Wood Use by Product Sector

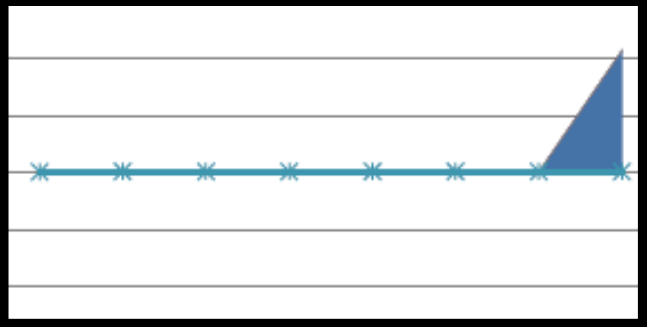
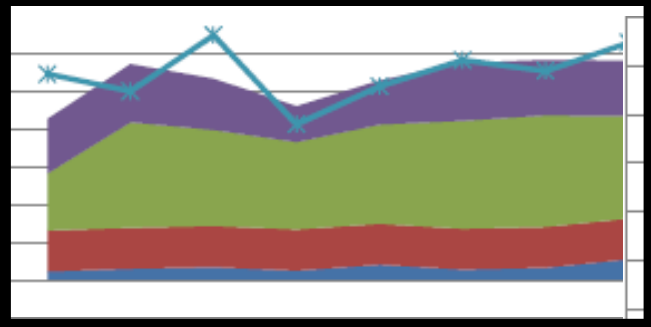
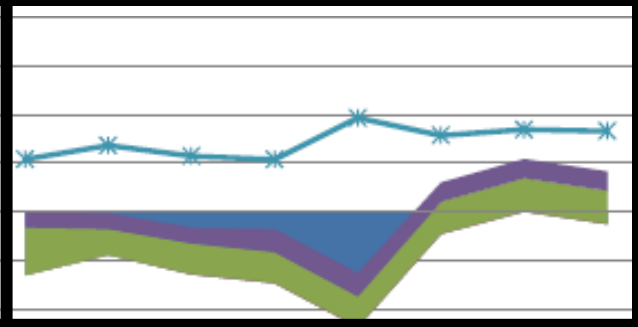
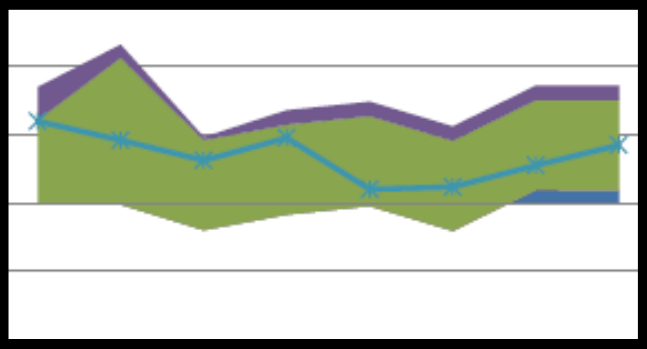
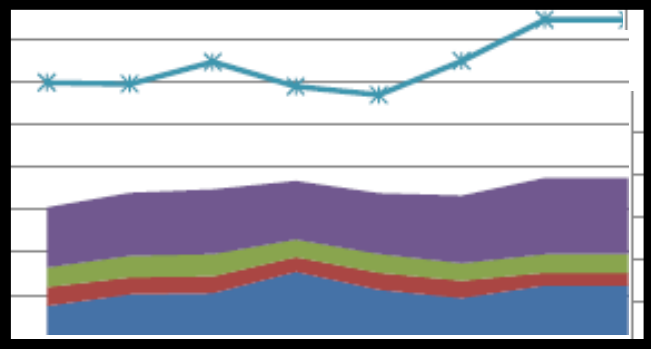
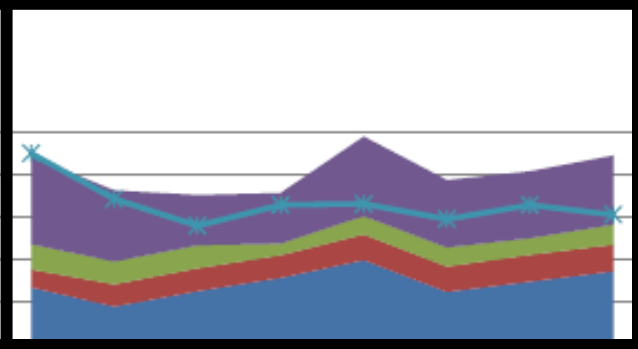
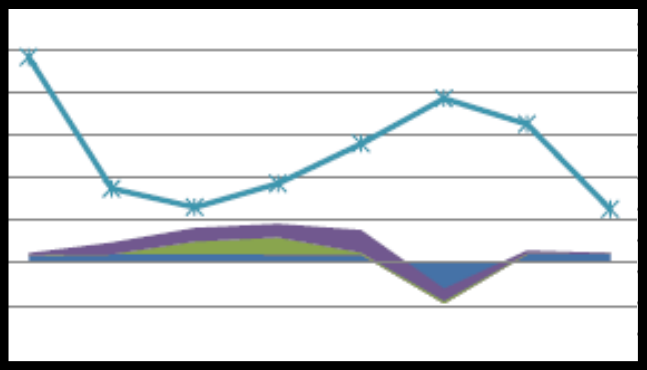
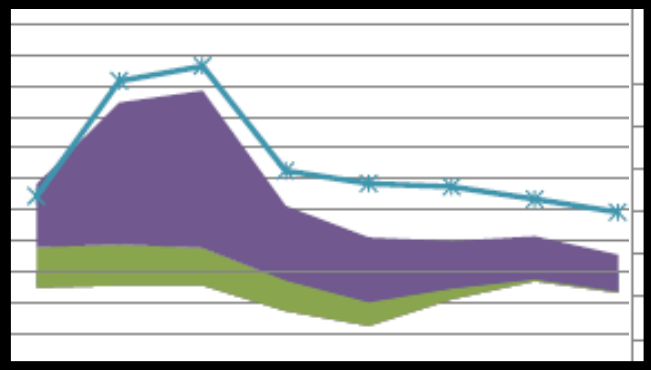
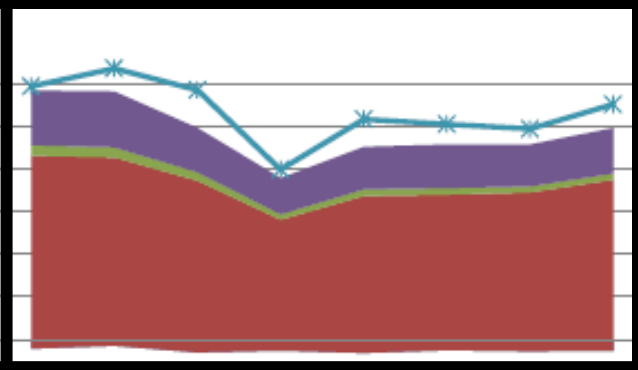
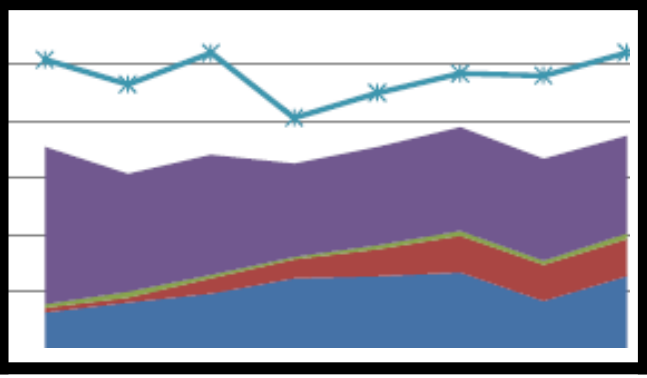
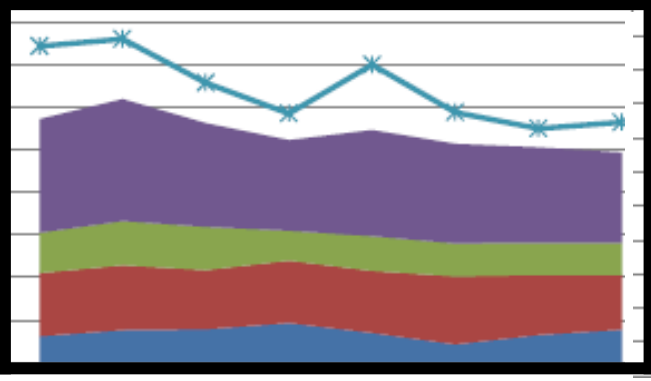
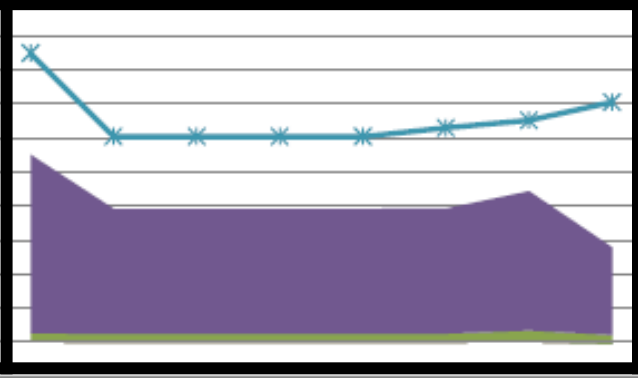


	2006	2007	2008	2009	2010	2011	2012	2013
sawn wood	61058	54376	43210	34132	40214	40435	42187	44573
panels	24406	24378	16726	12473	13308	14291	15092	15866
pulp	90429	87048	79494	66886	73041	73322	71193	71499
other flows	2871	4838	4328	2058	3189	6202	6645	5232
IRW Availability	182157	162930	137865	115219	139528	145304	146529	145974
Balance	3394	-7711	-5892	-330	9777	11054	11412	8804

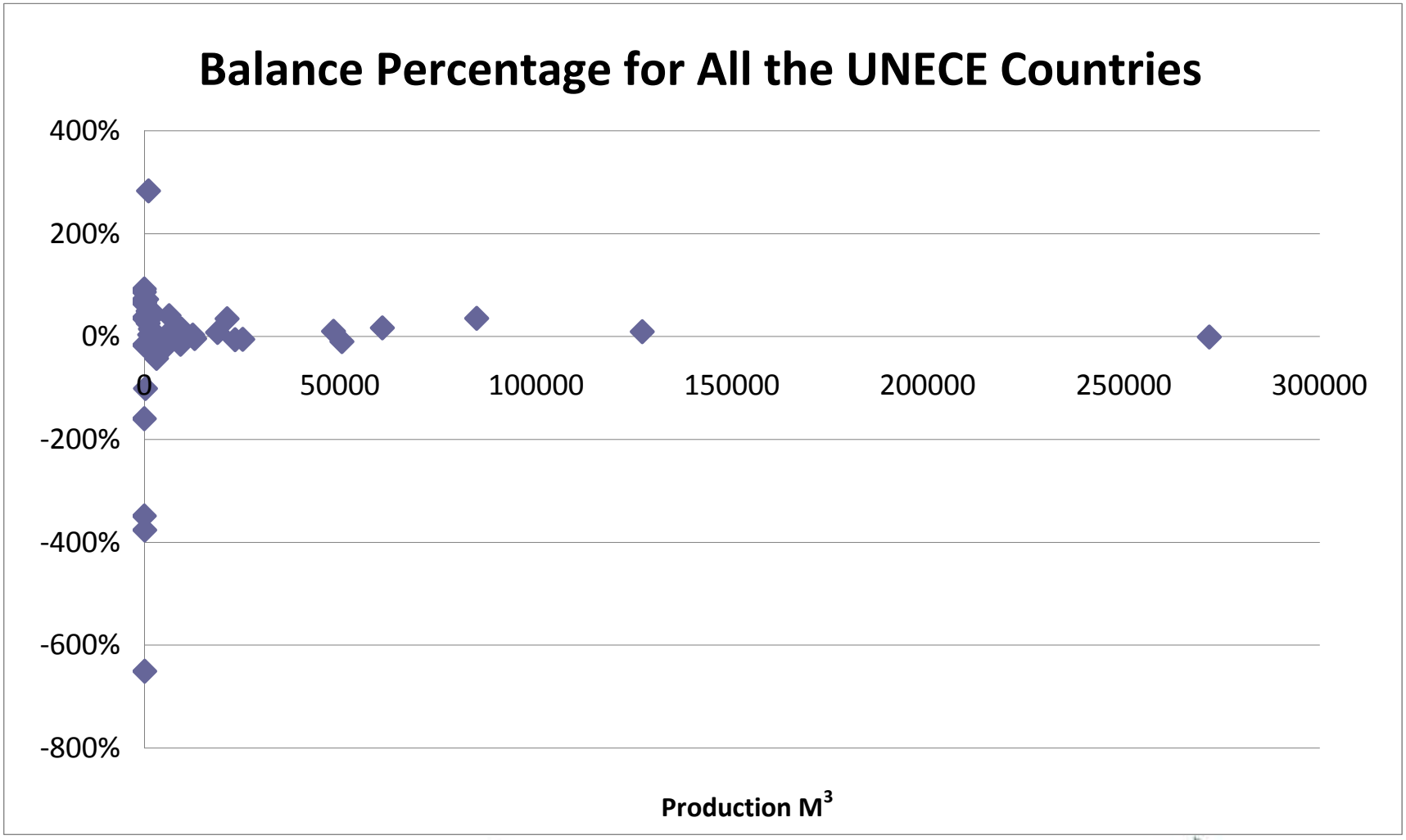
Figure.1 United States of America - Industrial Roundwood Availability and Wood Use by Product Sector



	2006	2007	2008	2009	2010	2011	2012	2013
sawn wood	95690	87938	75055	57752	61847	64215	65304	69644
panels	60705	55856	48457	45434	42344	41392	40412	43511
pulp	177189	183097	174221	161726	167853	168450	165437	162324
other flows	10806	15387	16178	17817	18088	23529	29065	28774
IRW Availability	405418	371063	328125	283169	274725	288088	279471	278128
Balance	61026	28786	14214	440	-15407	-9499	-20748	-26125

Outcome


Balance Percentage for All the UNECE Countries
400%
200%
0%
-200%
-400%
-600%
-800%
0
50000
100000
150000
200000
250000
300000
Production M3

Past, current and future work

Post World War II:

FAO: *"Converting factors"* (1947):

- A tentative series of factors
- Focus on international trade
- Not to be changed from time to time
- Stere and weight
- Mbf vs. cubic feet
  - Draft document: 1000 bft = 190 cubic feet [5.38 m^3]
  - Changed to: 1000 bft = 160 cubic feet [4.53 m^3]

  - Current average: 1000 bft = 212 cubic feet ???

EFSOS I

Product	Sub-region		
	Western Europe	Eastern Europe	CIS
Coniferous sawnwood	1.42 - 2.10	1.50 - 2.00	1.60 - 2.00
Non-coniferous sawnwood	1.46 - 3.52	1.40 - 2.10	1.45 - 2.00
Particleboard	1.20 - 1.80	1.40 - 1.80	1.40 - 1.60
Fibreboard	1.50 - 1.94	1.80 - 3.30	2.80 - 3.00
Plywood	1.50 - 3.10	1.80 - 2.90	2.50 - 2.70
Veneer sheets	1.20 - 3.10	1.70 - 2.90	2.00 - 2.90
Mechanical pulp	2.16 - 2.60	1.20 - 2.90	1.20 - 2.50
Chemical pulp	4.48 - 4.70	4.50 - 6.40	4.48 - 5.21
Semi-chemical pulp	2.20 - 2.90	2.30 - 3.20	2.86 - 2.90
Newsprint	3.20	3.20	3.50
Printing and writing paper	4.00	4.00	4.20
Other paper and paperboard	3.39 - 3.40	3.40 - 4.70	3.80
Recovered paper	3.80	3.80	3.80

Note: the above conversion factors show the amount of industrial roundwood (cubic metres underbark) required to produce one unit of output (one metric tonne of pulp or paper or one cubic metre of sawnwood or panels).

DP 49 – conversion factors

- The most recent project/publication was initiated at the 2008 Working Party Meeting (ECE/TIM/DP/49
- A task force was formed and a questionnaire was developed
- Factors from 16 countries and one trade association
- Differed from past efforts: explanatory text, more products and sub-products, including wood energy
- Completed in January 2010
- The 2010 WP requested more conversion factors and participation from more countries

DP 49 second edition

- Initiated by 2014 ToS meetings (wood energy, forest products and forest products statistics)
- Global scope with FAO and ITTO as major partners (FAO has agreed to publish)
- Other supporting partners are encouraged
- UNECE's aim is to update existing factors, participation from more countries, **more factors on energy wood**
- FAO and ITTO are currently defining what they want from the project
- UNECE to get feedback from our Teams of Specialists
- Timetable: data collection late 2015 to early 2016, production of manuscript and printing later in 2016.

Thank you for your attention



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