

IS TODAY'S SYSTEMS ANALYSIS UP-TO-DATE FOR TODAY'S AND TOMORROW'S DECISION- AND POLICY MAKING?

Sten Nilsson

16th Symposium for Systems Analysis in Forest Resources
(SSAFR), Uppsala, 19-21 August, 2015

CONTENT

- Systems analysis and policies and governance of natural resources and the forest sector
- Assume that systems analysis aims to impact policies and governance
- Challenges
- Case – transformation of the Canadian forest sector
- Conclusions

HYPOTHESIS

The development of systems
analysis is not in line with the times

CHALLENGES -1

- Not climate change
- Not China becoming the world's strongest economy
- Not the global economy
- Not the ICT development and knowledge growth
- Not the food supply
- Not the shrinking natural resources
- Not the demographics' development
- Etc.

CHALLENGES -2

- All of it together simultaneously leading to:
- *CHANGES* with unprecedented speed and magnitude
- *CHANGE* is the challenge
- Systems analysis has to deliver *just-in-time and on-line*

NEW CONDITIONS FOR DECISIONMAKING – 1

- Changed role of the State – yesterday public administration centered around the State – today other institutions, NGOs, etc.
- Changed nature of public policy management – internationalization and globalization, decentralization of the state systems, unitary systems for policy making not accepted any longer

NEW CONDITIONS FOR DECISIONMAKING – 2

- The many voices of the policy process – yesterday e.g. forest policy an affair between state and sector – today manifold stakeholders claim interests and rights including citizens
- Ownership of the problem
- The imperative use of information technology – fast information with no borders, more people informed, new ways of building opinions

NEW CONDITIONS FOR DECISIONMAKING – 3

- The technical development of new production techniques, innovation in materials and products develop with high speed and nearly all outside the core forest sector
- Competition: rapidly increasing competition due to globalization
- Customers: rapidly increasing diversification of consumer demands

NEW CONDITIONS FOR DECISIONMAKING – 4

- Environment: demands increase exponential
- Economy: volatile development
- Socio-cultural sector: dramatic changes in social values
- Information society: designs its own world

NEW CONDITIONS FOR DECISIONMAKING – 5

- The new conditions generate endless calls for reinvention, new solutions and re-organization
- This demands leaders and policymakers to respond to the calls through systematic learning


PARTICIPATORY ANALYSIS AND DECISIONMAKING

- Technocratic systems analysis: application of technical knowledge, expertise, techniques for problem solving. Most system analysis in the forest sector follows this concept – "the cure is often worse than the disease"
- Mixed system analysis: involves both technical analysis and value judgments
- Today nearly all strategic and policy issues in the sector are mixed issues
- Mixed issues demand participatory concepts

PARTICIPATORY SYSTEMS ANALYSIS

Participatory systems analysis demands active involvement by all important stakeholders (partners, customers, citizens, NGOs, unions, etc.)

Participation Continuum

PUBLICITY	EDUCATION	INPUT	INTERACTION	PARTNERSHIP
Building support	Disseminating information	Collecting information	Two-way communication	Securing advice and consent
				

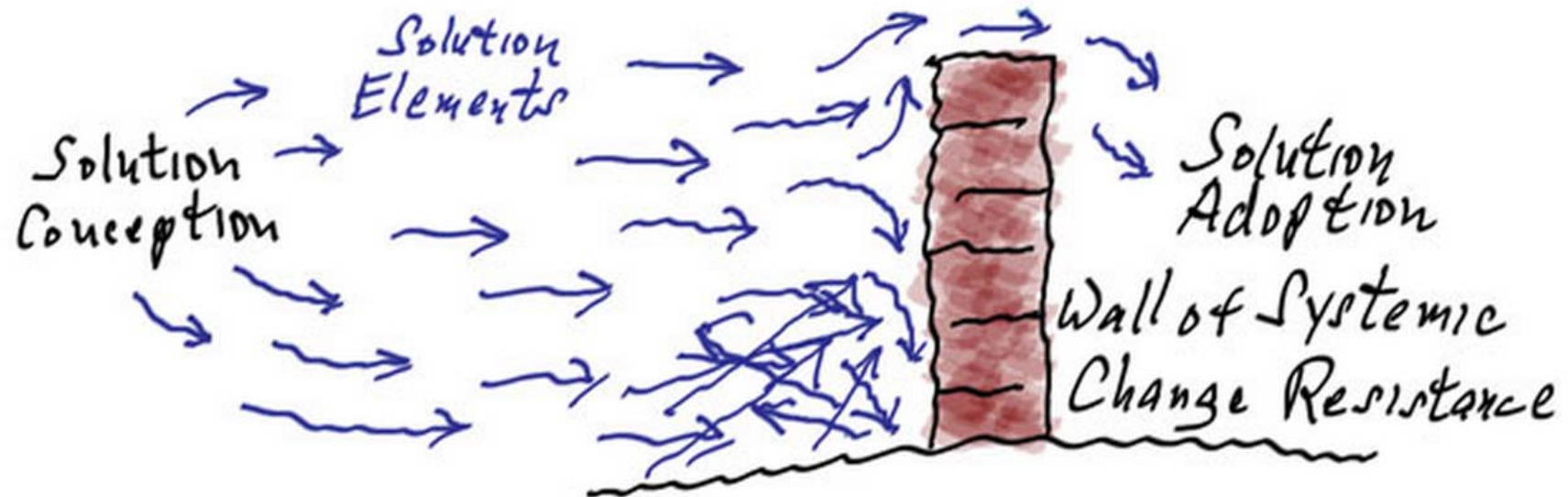
STAKEHOLDER ANALYSIS

- Stakeholder analysis is a must in participatory systems analysis
- Clarify stakeholders' positions on issues to be analyzed, agendas, knowledge, values, interests, alliances, etc.
- 'Learn to understand the language, thinking and culture of the stakeholders'

CHANGE RESISTANCE

- Resist change even when a large amount of force is applied. Today's crux of systems analysis
- Individual change resistance and systemic change resistance. The latter dominates in the sphere of natural resources and governance
- Some 70% of change programs fail to achieve their goals due to social forces, institutional blindness, individuals and failed management

CHANGE RESISTANCE



Source: thwink.org, Finding and Resolving the Root Causes of the Sustainability Problem.

ROOT CAUSE ANALYSIS

- Change resistance must be treated as a separate and distinct problem if the aim is to have systems analysis to have impact
- Change resistance can be handled by *root cause analysis of resistance*
- Change resistance is part of the *social side* (values, habits, mental models) of the system

SYSTEMS, IMPLEMENTATION, CONFLICTS, INTRINSIC VALUES –1

- Conflicts at implementing of systems analysis results are not ultimately about scientific true or false, but about moral right and wrong. E.g. big investors follow conduct codes and ethical criteria
- In fact the conflicts are not about the facts themselves but what makes the facts meaningful, which are ignored, muted or misunderstood by systems analysis participants

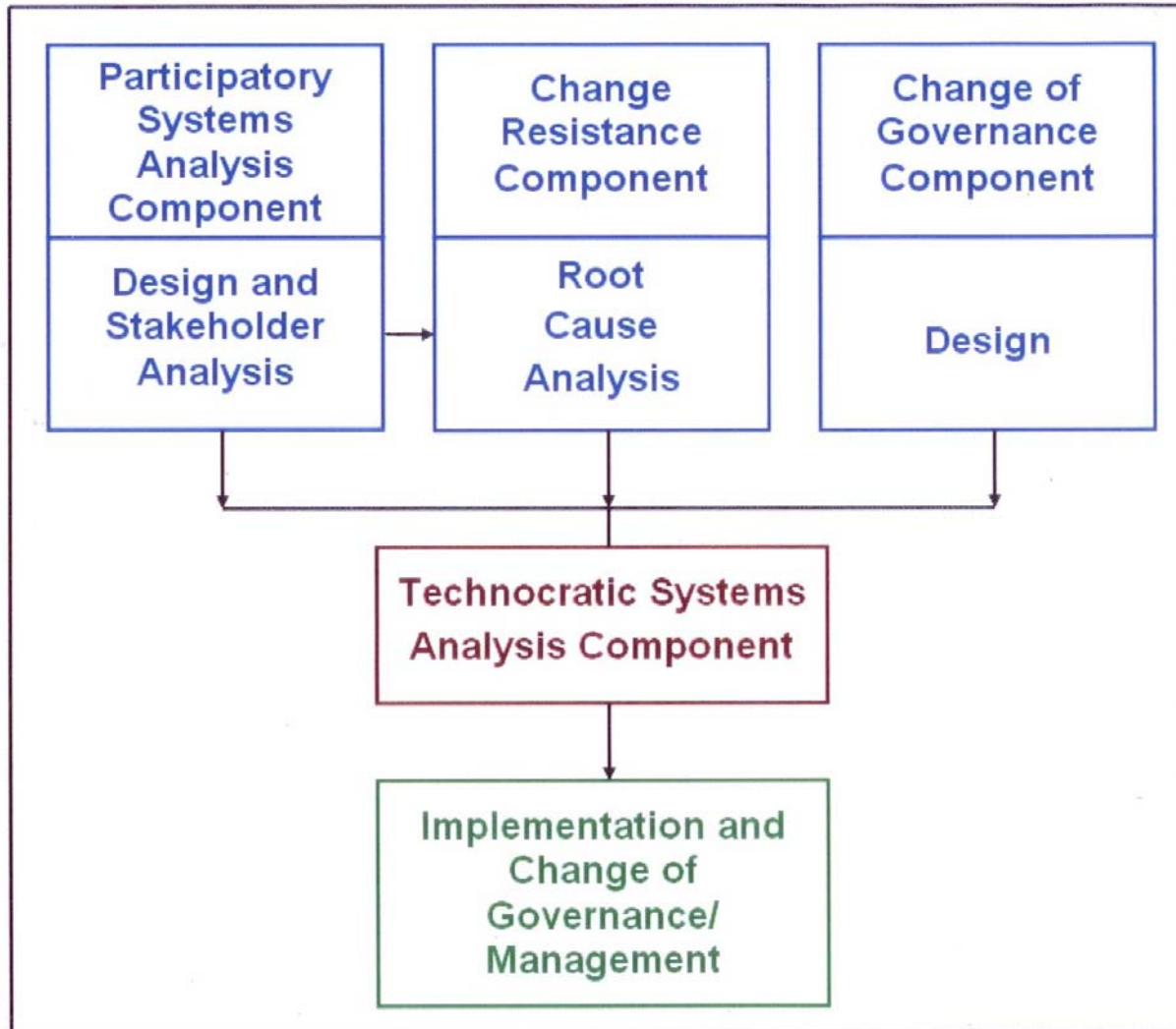
SYSTEMS, IMPLEMENTATION, CONFLICTS, INTRINSIC VALUES – 2

- The conflicts appear to be all about scientific, economic, legal or other technical matter. But in reality the intrinsic values cause the conflicts
- The conflicts will rage until the intrinsic values are brought to surface. Try to identify shared intrinsic values of stakeholders (based on Justin Farrell, Princeton Uni. Press, 2015)

CHANGE GOVERNANCE AND MANAGEMENT

- Change governance and management of today is outdated due to the rapid changes of the systems
- Mastering the art of rapid change is a critical competitive advantage
- Champions across stakeholders and enrolled change movers
- Education of stakeholders of the system crucial
- Digital change tools are necessary – shared dashboards, visualization of activities across stakeholders, online forums where stakeholders communicate

SYSTEMS ANALYSIS



TRANSFORMATION OF THE CANADIAN FOREST SECTOR

- Objective: to trigger the process of transformation to something new
- Forest Products Association of Canada (FPAC)
- FPInnovation
- Federal and provincial governments
- Universities and other research organizations

- Educate and motivate stakeholders through systems approaches and analysis to transformation to suitable development paths

BLACK SWANS or S#*T HAPPENS



Source: www.mapsofworld.com

BLACK SWANS

- USA – picking up with a growth outlook of some 2%/year – but no recovery
- China – structural slowdown
- Russia and Brazil –recession
- South Africa, Thailand, South Korea, Indonesia, Malaysia – systematic structural problems and currency loss of 10-15% during the last 12 months
- The Arab spring turned to Arab winter
- Japan – stagnating economy
- EU – Greece etc will not go away
- Economic stagnation may be the new normal

WORLD ECONOMY CONCLUSIONS – 1

- **The global economy has become so complex that we do not know how it functions or how to govern it. Too much ‘voodoo’**
- **There is a high risk in the expressed optimism itself – it will prevent needed policy reforms**
- **What is kept artificially stable is**



LOST GLOBAL CONSUMPTION

NEWSPRINT		~ 9 mt since 2005
PRINTING & WRITING	North America	~ 12 mt since 2005
	Europe	~ 9 mt since 2005
	TOTAL	~ 30 mt since 2005

TECHNOLOGICAL CHANGE

1950s-1970s

- Softwood long fibers required in nearly every paper and paperboard grade
- A safe haven

TODAY

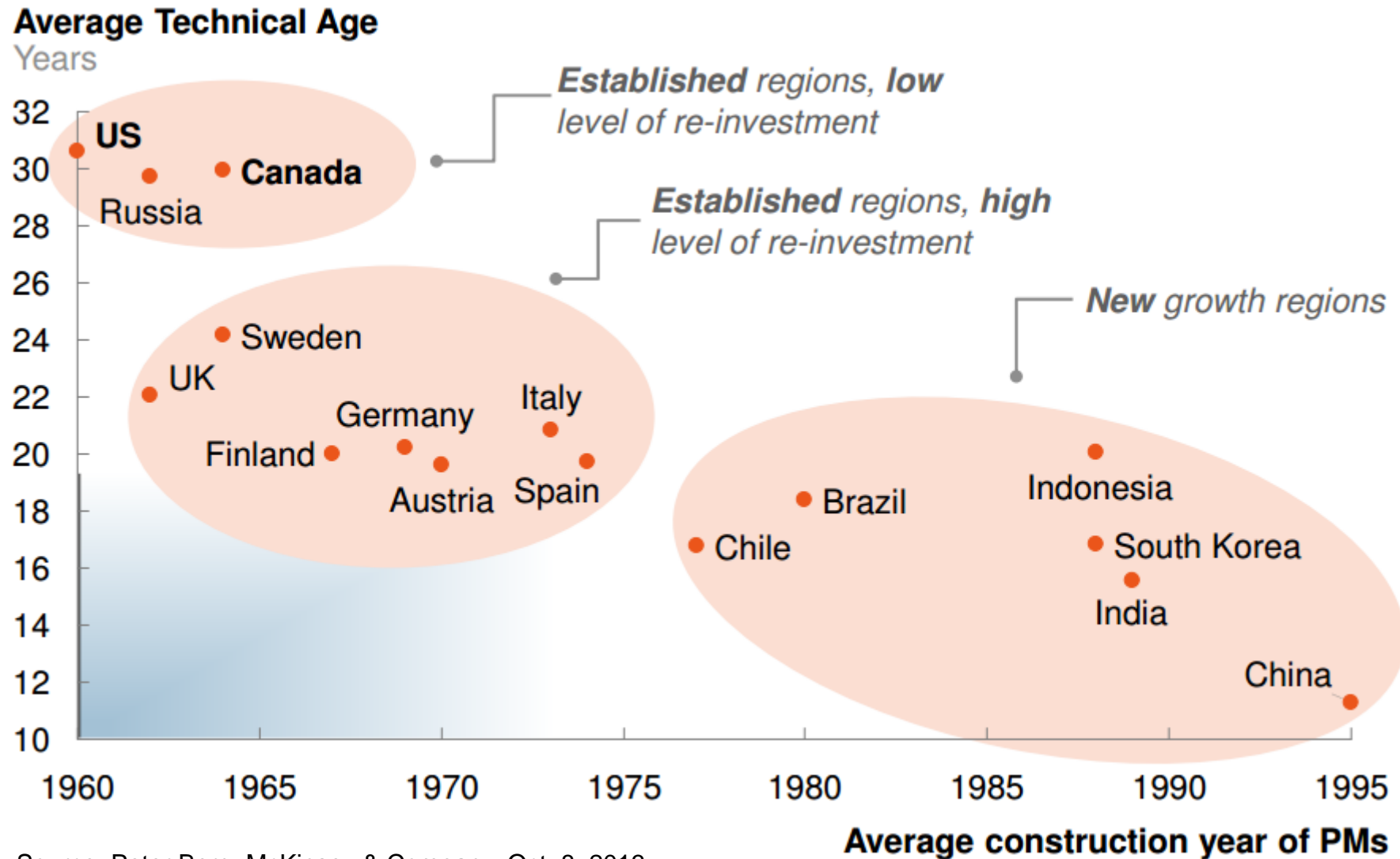
- Many products are produced from recovered papers
- Nearly all paper grades can use HBK
- Many have better characteristics and lower costs than based on SBK

GLOBAL WOOD PULP CONSUMPTION SHIFT – 1995-2012

BLEACHED SOFTWOOD KRAFTS	0.97 mt	+ 2.8 %
BLEACHED HARDWOOD KRAFTS	20.24 mt	+ 50.7 %
MECHANICAL KRAFTS	- 6.13 mt	- 16.9%

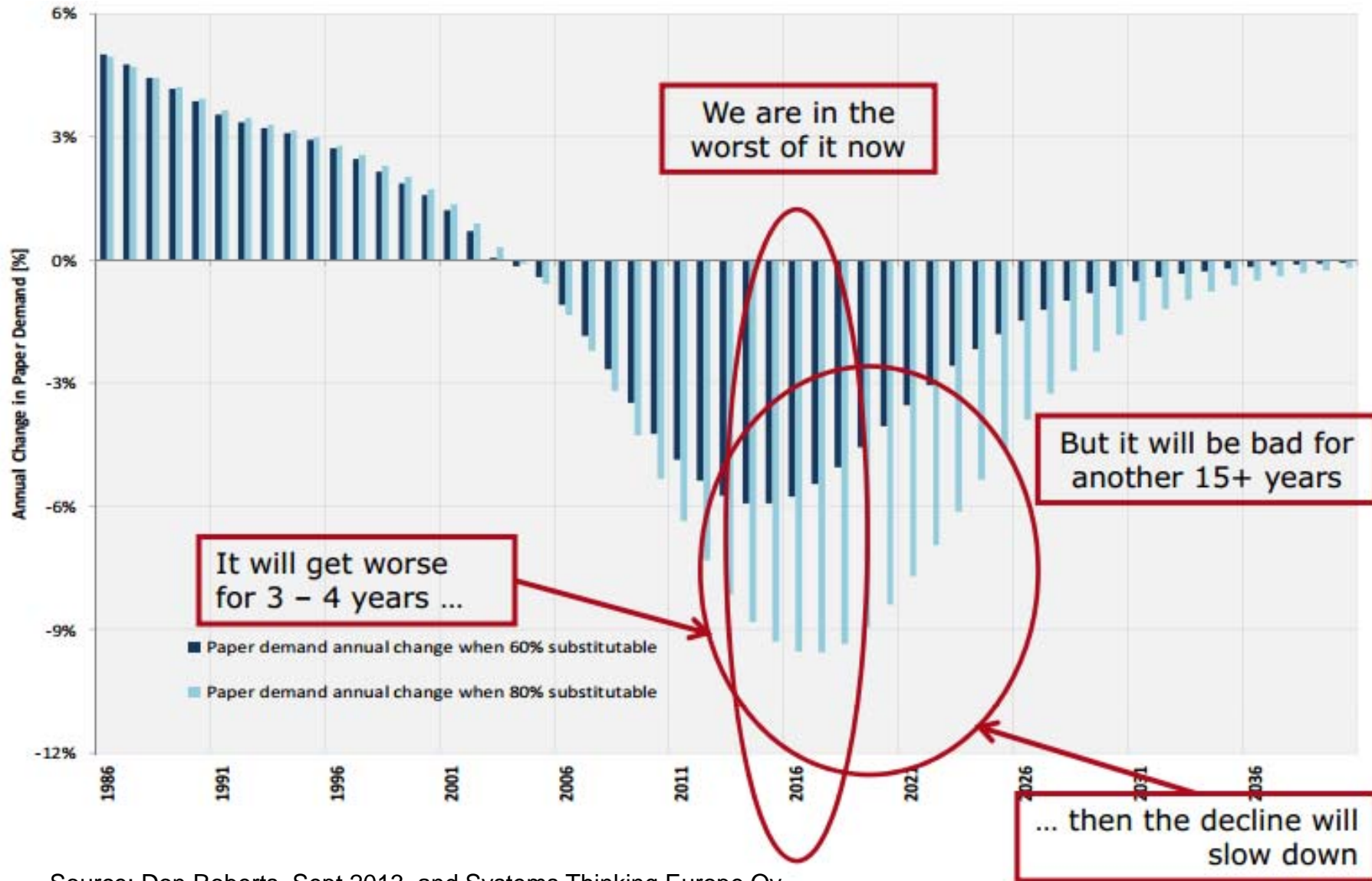
Source: World Pulp Annual Historical Data, RISI, 2013.

TECHNICAL AGE AND REINVESTMENTS OF PAPER MACHINES



Source: Peter Berg, McKinsey & Company, Oct. 8, 2013.

E-MEDIA SUBSTITUTION - NORTH AMERICA, EUROPE



Source: Don Roberts, Sept 2013, and Systems Thinking Europe Oy

EXPECTED CAPACITY EXPANSIONS BY 2020

- 20 mt of BHK in Latin America
- 3 mt of BHK in Asia
- 2 mt of BHK in Australia
- 3 mt of NBSK in Russia

GLOBAL GROWTH RATES FOR COMMODITY PRODUCTS TO 2025 - 1

	News print	Un- coated wood con- tain- ing P&W	Coated wood con- tain- ing P&W	Un- coated wood free P&W	Coate d wood free P&W	Hygi- ene	Liner & fluting	Folding box board	Pack- aging paper
Global growth rates (average %/yr)	-1.4	-1.2	-0.8	+0.5	+0.6	+3.2	+2.8	+2.4	+0.8
Canada's Current Capacities MMt	4.2	2.0	0.6	0.9	0.1	0.8	2.0	0.9	0.6

Source: von Troil, Pöyry, 2012; Pulp and Paper Capacities 2013; Pöyry, 2013; and Lockwood-Post, Directory, 2013.

GLOBAL GROWTH RATES FOR COMMODITY PRODUCTS TO 2025 - 2

	Bleached soft wood Kraft	Bleached hard wood Kraft	Mechanical Kraft	Dissolving + specialty pulps	Soft wood lumber
Global growth rates (average %/yr)	+/- 0-0.5	0.0 (3.0 EUC)	+/- 0-0.5	strong	(1.0) Conventional wisdom
Canada's current capacities	7.2 MMt	1.2 MMt	2.1 MMt	0.9 MMt	48-55 MM³

Source: Spelter et al., 2009; Pöyry, 2013; Pulp and Paper Capacities 2013; Forest Economic Advisers, 2013; the Sawmill Database, 2013; and the Lockwood-Post Directory, 2013.

SOFTWOOD LUMBER – THE CONVENTIONAL WISDOM OF 1%

- Since 2006 consumption has dropped by 12-13% (2% yearly) (FAO, 2013)
- Producer price index for housing has doubled since early 1990s in the USA
- Construction labor productivity has decreased by 10% since the mid-1960s in the USA
- Alarming decline of affordable housing
- Urban intensification
- Generation Y and ‘Hotel Mamma’

CHANGED WOOD SUPPLY

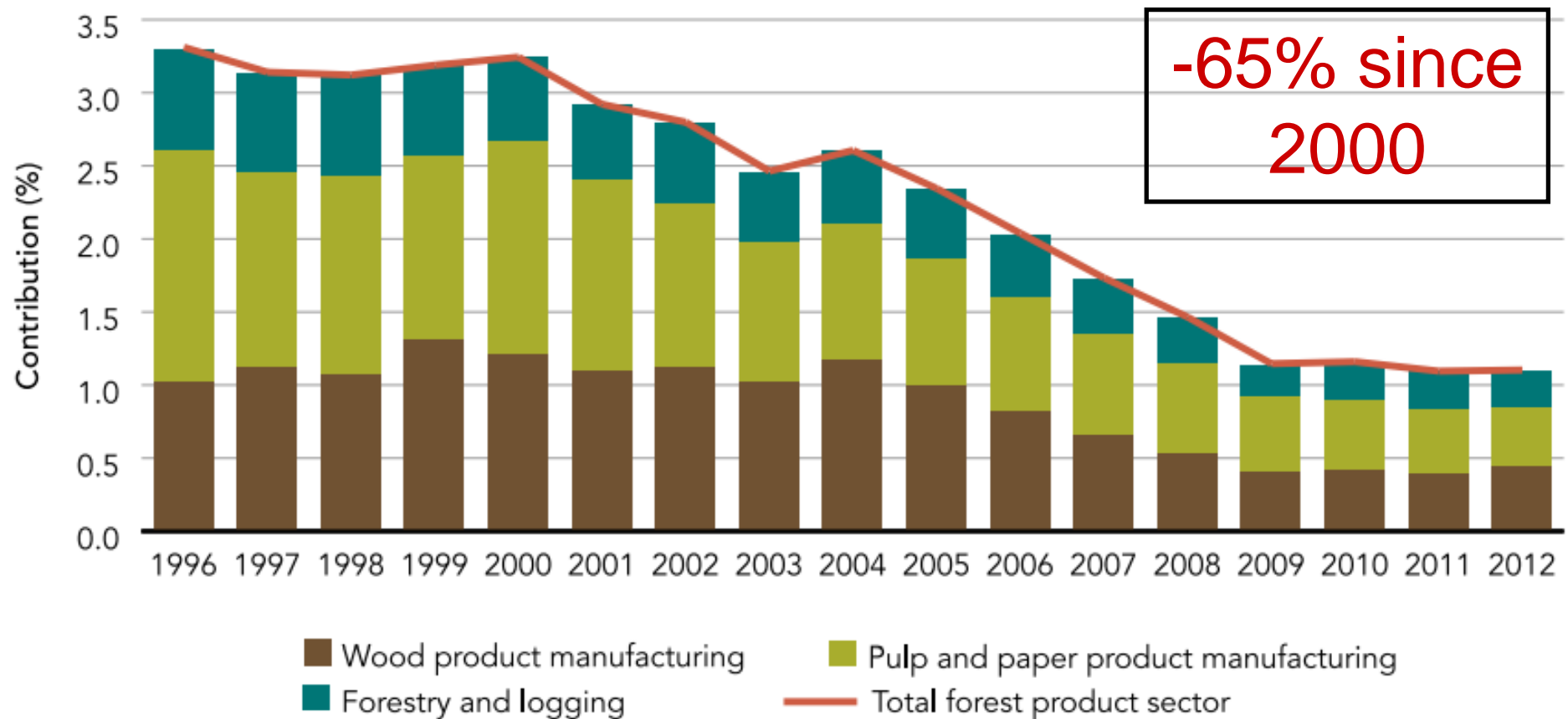
Harvest Canada		million m ³
2000		175
2012		125
	2005	2020
BC Int	58 mm ³	35 mm ³
PQ	31 mm ³	20 mm ³
ONT	21 mm ³	17 mm ³
CANADA	143 mha econ. wood supply area	Annual harvest: 0.87 m³/ha/yr
SWEDEN	23 mha produc- tive forest land	Annual harvest: 3.33 m³/ha/yr

Source: Russel Taylor, Aug. 27, 2013. The State of Canada's Forests, Annual Reports - 2000 to 2013. SEB, Sweden, 2013.

HOW DOES THE CANADIAN FOREST INDUSTRY TRANSFORM?

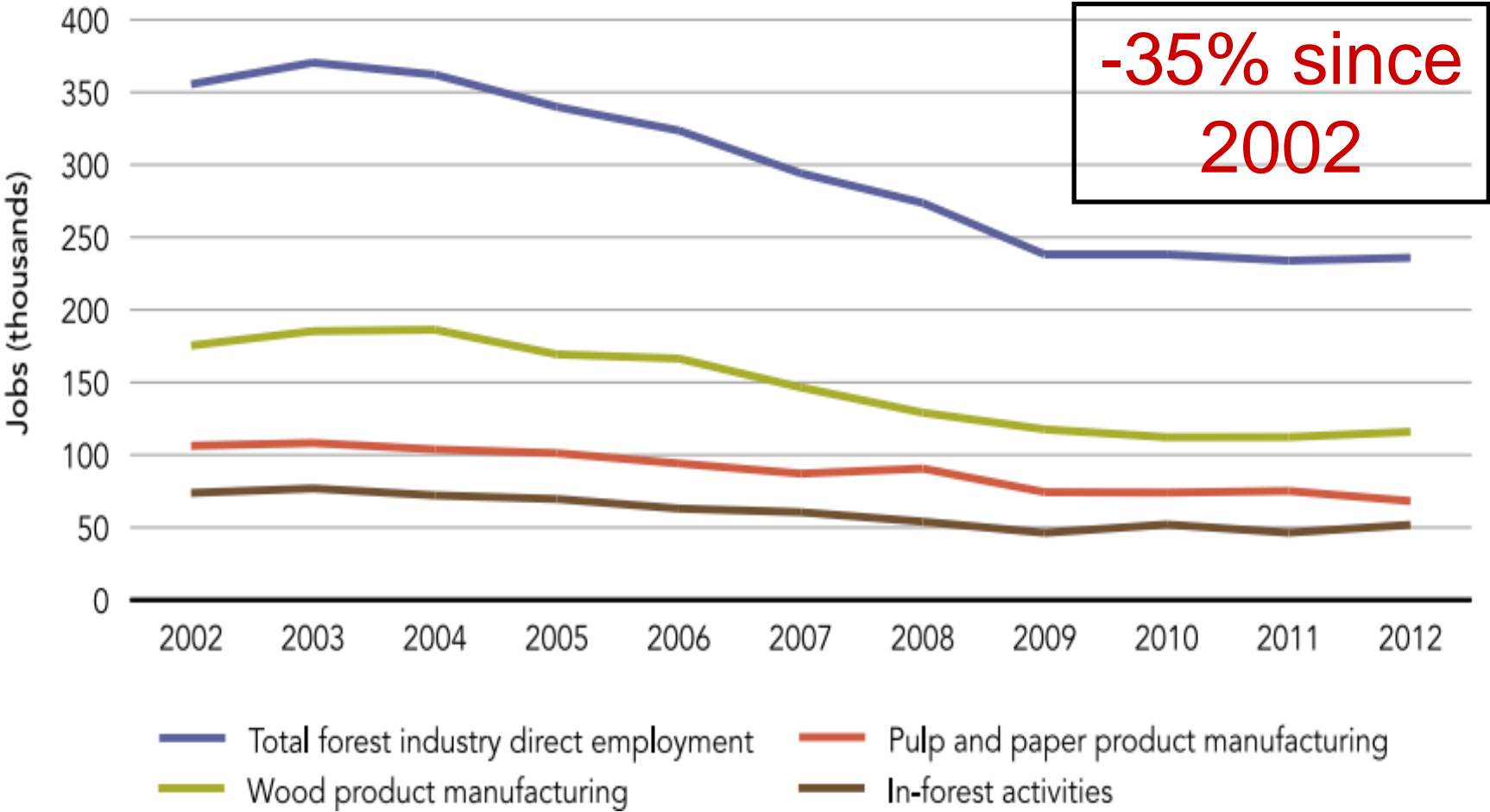
- Incremental changes in production and product development (limitations due to the old fleet of paper mills and paper machines)
- Moving production and business models to new locations abroad
- Penetrating new markets with existing products
- Rebuilding machines within existing product range
- Closing down existing capacities

FOREST PRODUCT SECTOR CONTRIBUTION TO GDP IN CANADA, 1996-2012



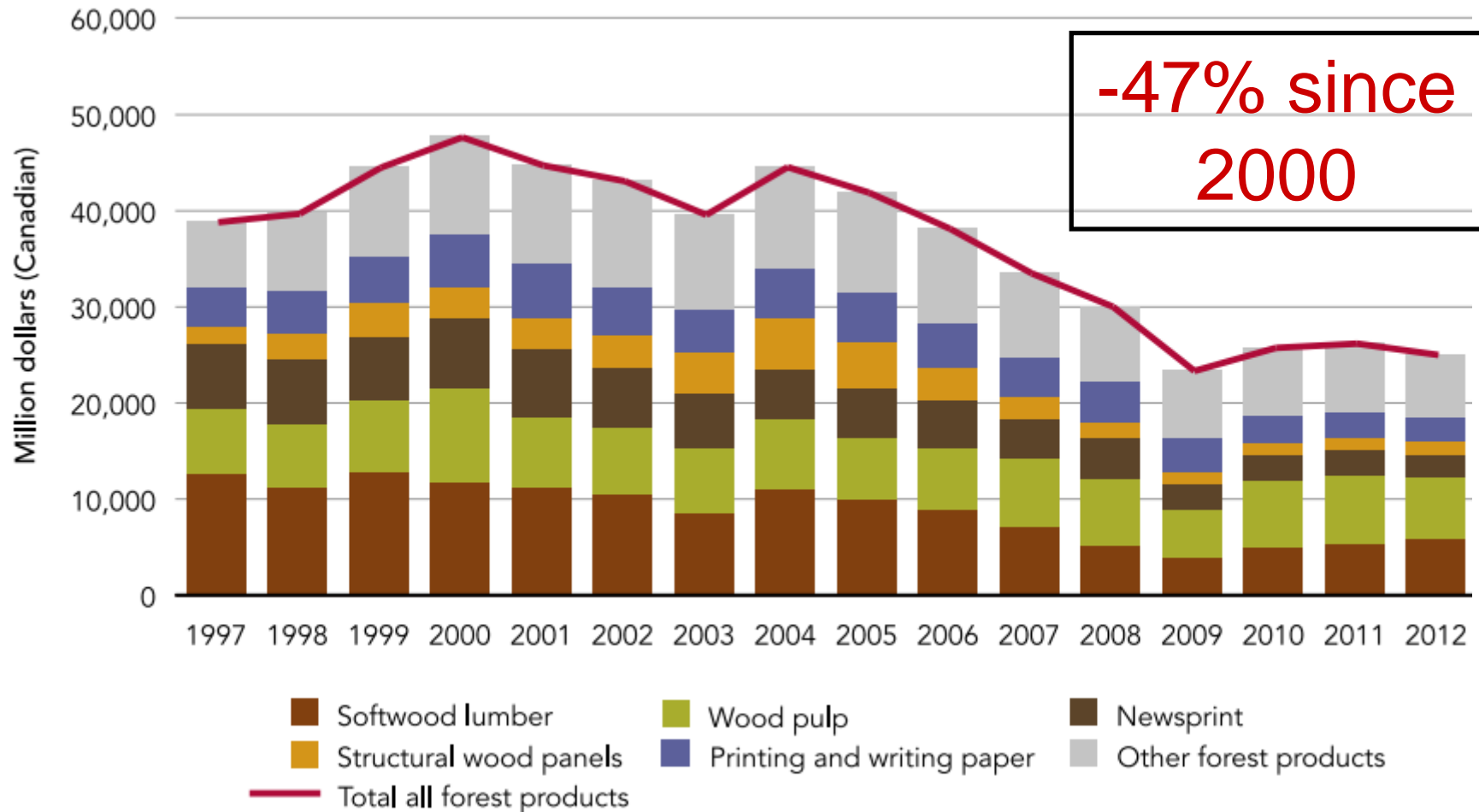
Source: The State of Canada's Forests, Annual Report 2013.

FOREST INDUSTRY DIRECT EMPLOYMENT, 2002-2012



Source: The State of Canada's Forests, Annual Report 2013.

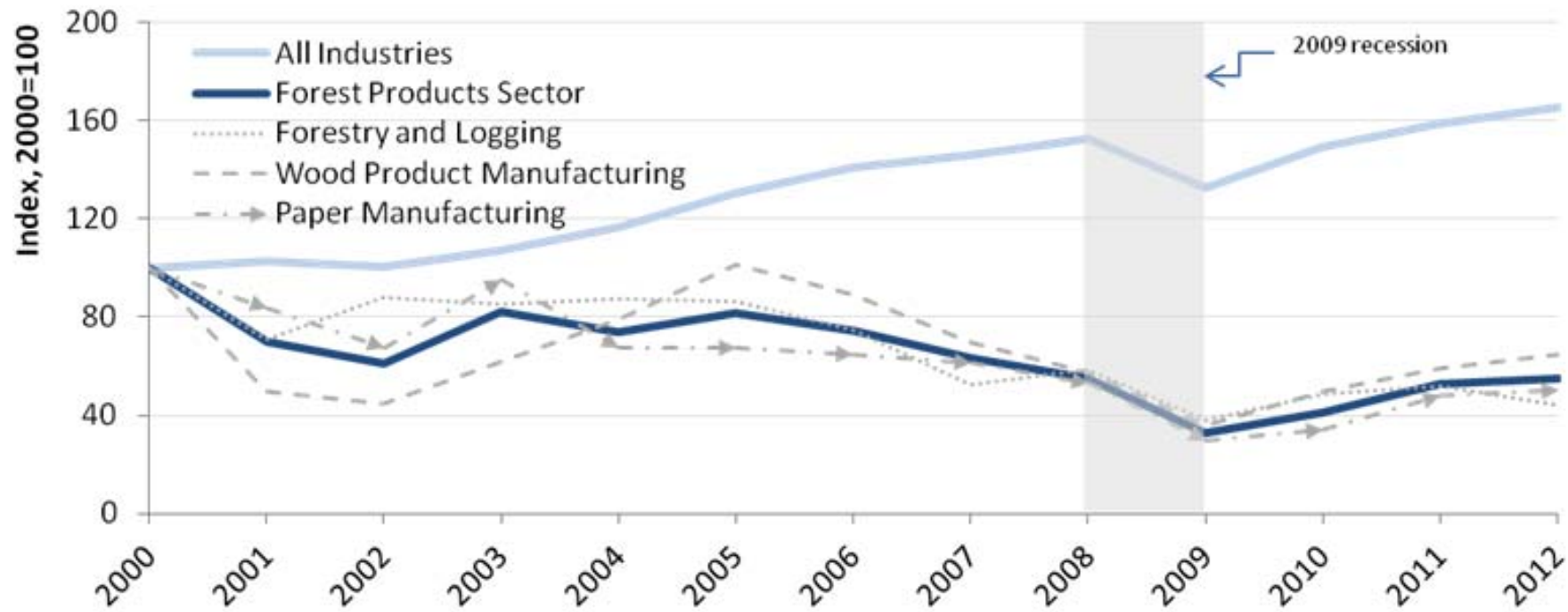
CANADIAN FOREST PRODUCT EXPORTS, 1997-2012



Source: The State of Canada's Forests, Annual Report 2013.

REAL INVESTMENT IN THE FOREST PRODUCTS SECTOR, 2000-2012

-45% since 2000

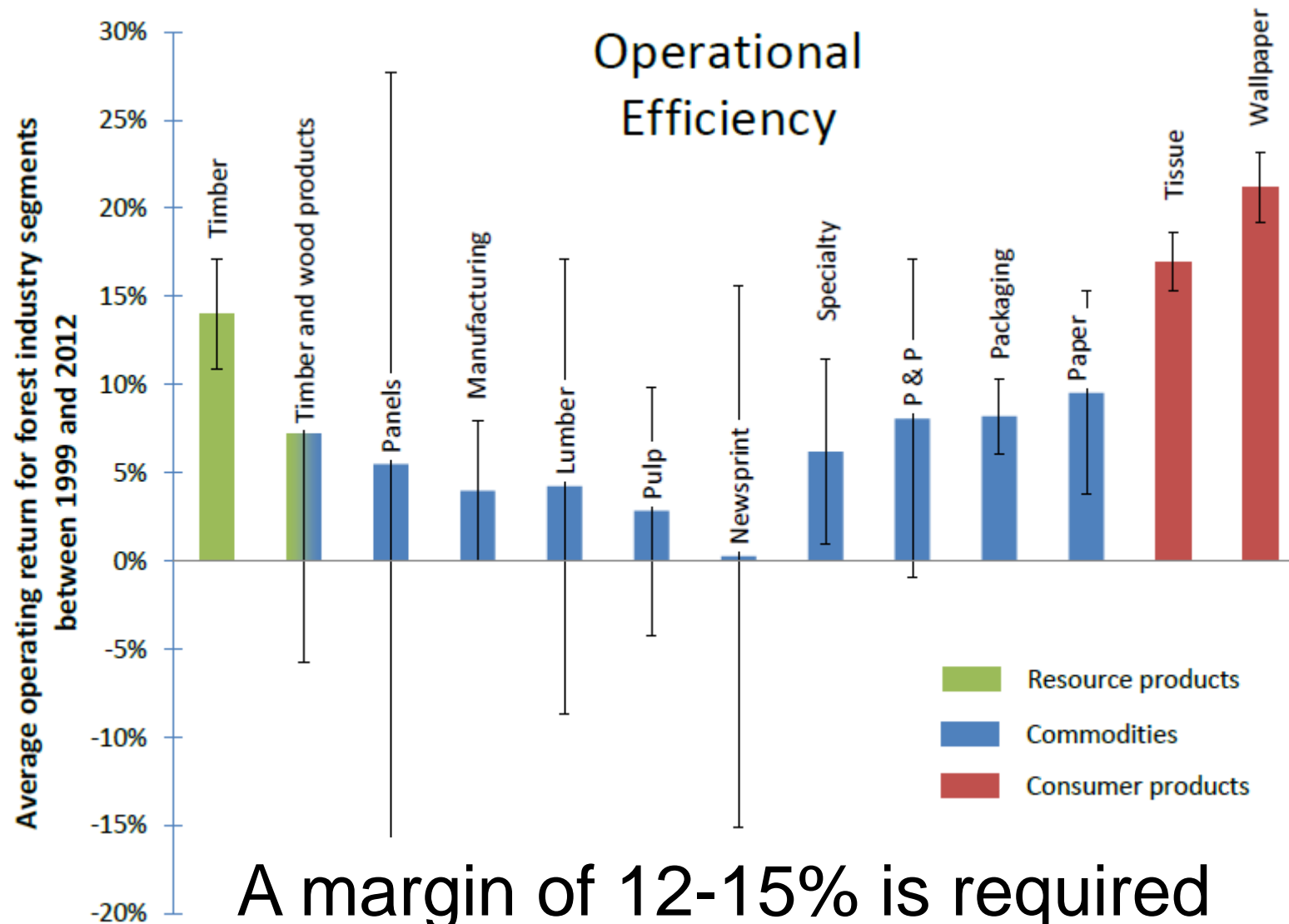


FINANCIAL PERFORMANCE BY CANADA'S FOREST SECTOR 1998-2012

Average return on capital employed in %/yr		
1998-2004	2005-2012	change
6.6	3.2	-52%

Average operating profits in billion CAD/yr		
1998-2004	2005-2012	change
5.1	0.65	-77%

OPERATING MARGIN



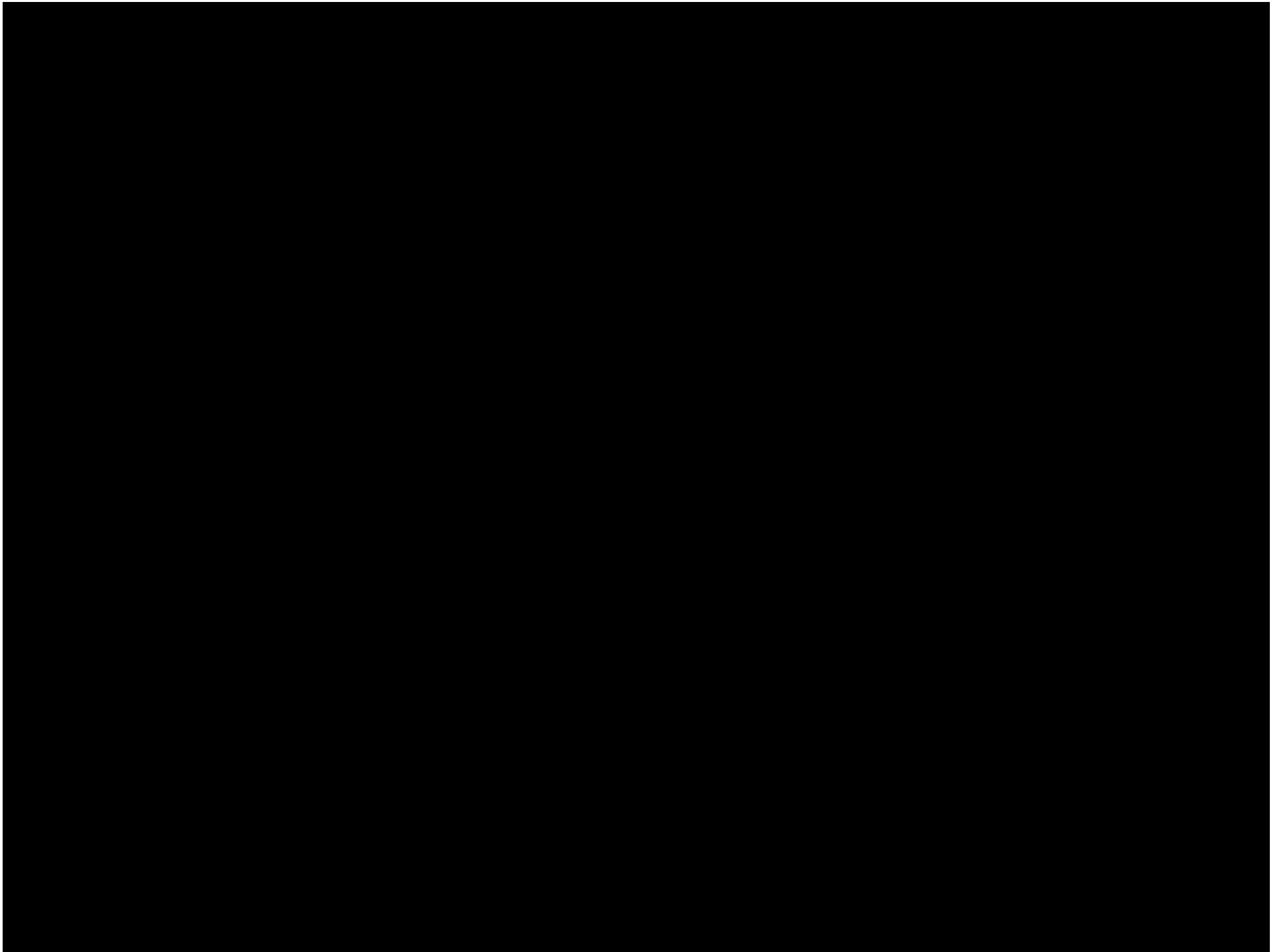
A margin of 12-15% is required to achieve sustainable industries

QUESTIONBLE ORIENTATION





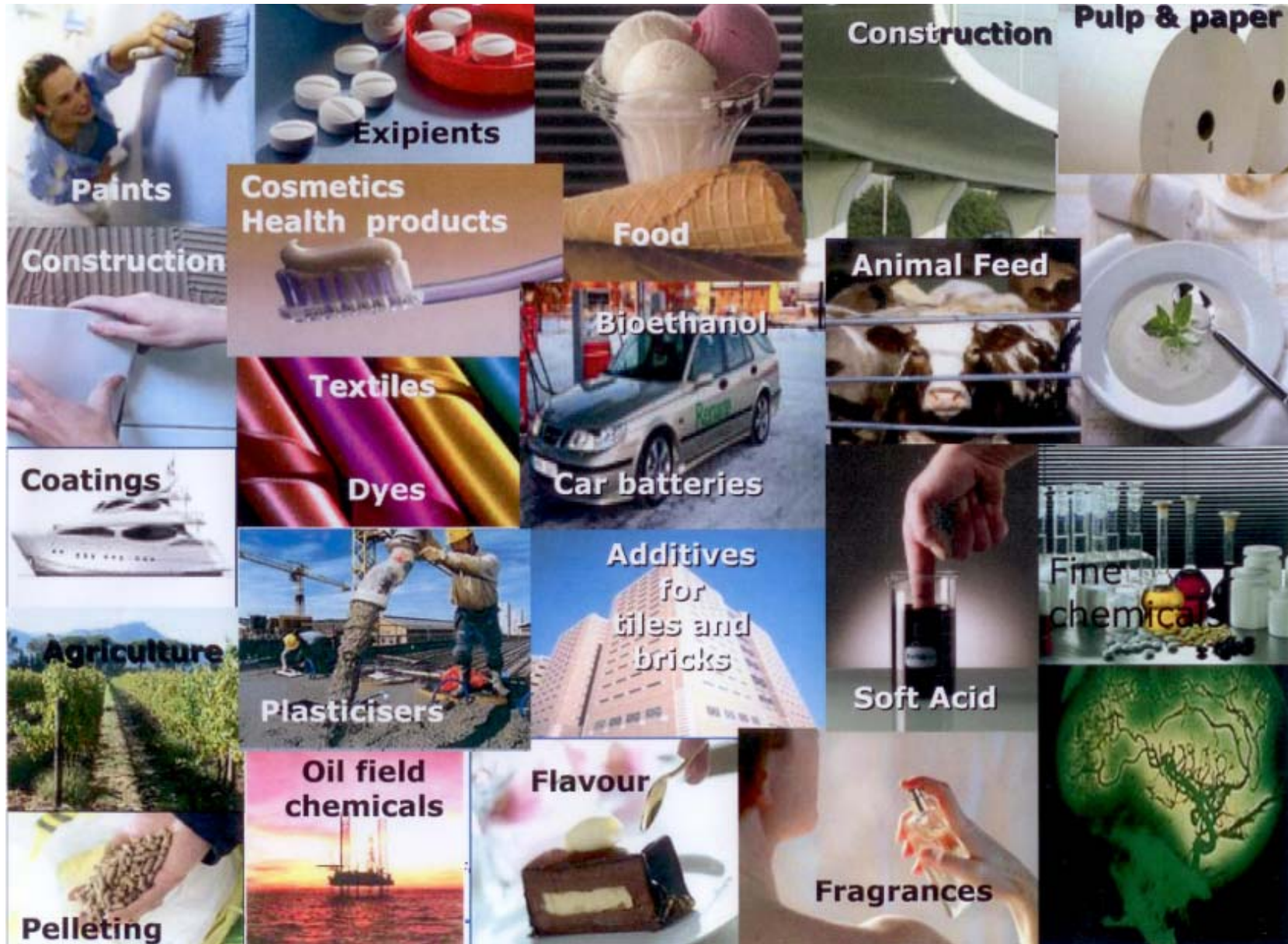
This is Captain Hancock, you will divert your course...
Over



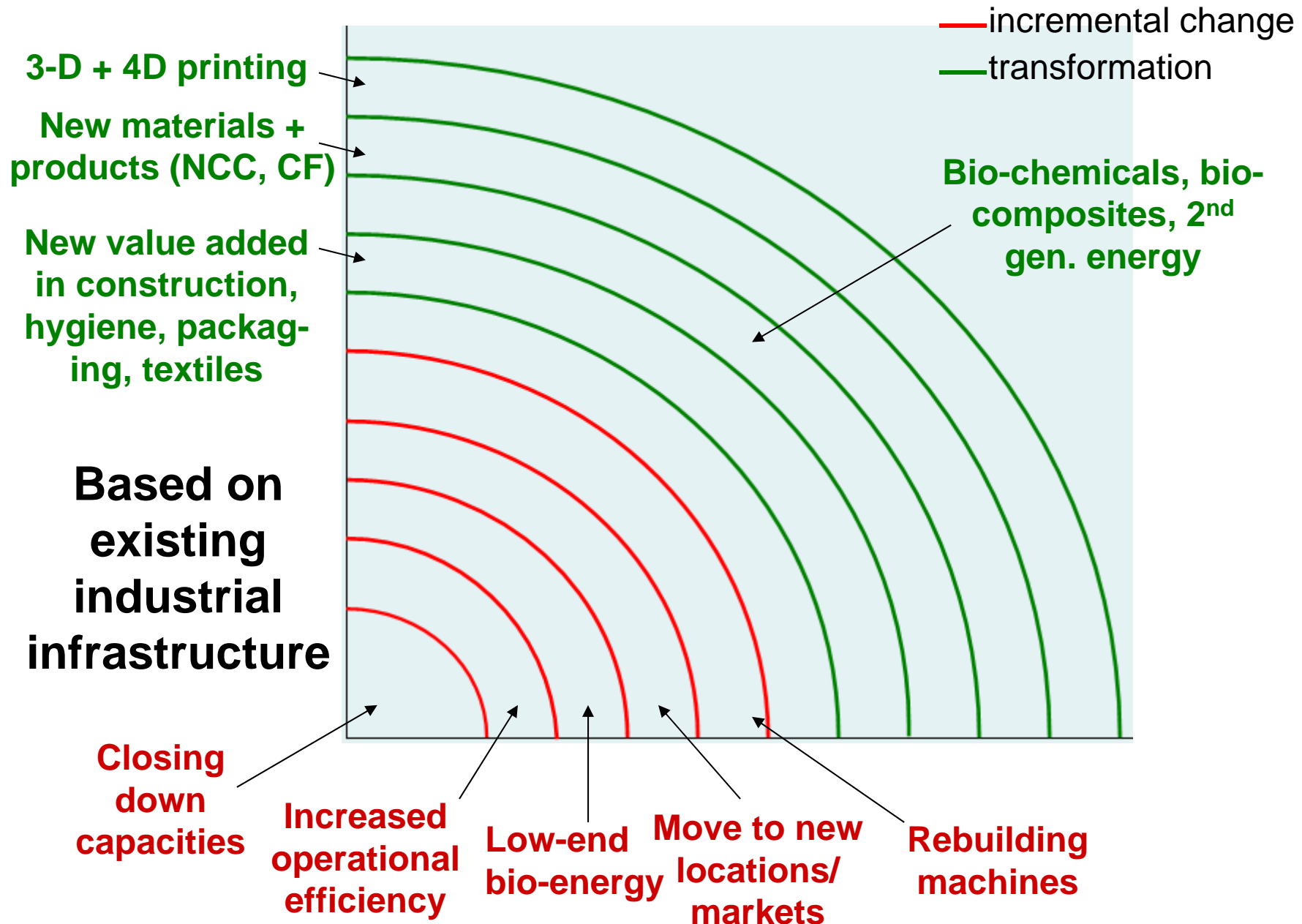


New Directions

OPPORTUNITIES



CREATION OF VALUE



Wall OF SYSTEMIC CHANGE RESISTANCE

- Some components managed to crawl over the change resistance wall
- NCC and CF for production of existing products are less costly
- Some 50 saw mills were bought in the US – not really transformative
- Some bio-energy and bio-chemical efforts
- Why didn't more crawl over the change resistance wall?
- We underestimated stakeholder positions and resistance to change

CHANGE RESISTANCE – 1

- No visionary leadership in industry, governments and science with respect to transformation of the forest sector
- Board of directors of the industry too narrow-minded, cloned, dividend- and short-term oriented
- The industry has successfully shredded the R&D competences and the innovation system is dysfunctional

CHANGE RESISTANCE – 2

- The current forest tenure-ship constitutes a major bottleneck for transformation
- ‘Culture’ mentality within the forest industry is bulk production and short term
- Governments do what industry wants to see, instead of what the industry really needs to do
- Strategies are too provincial-oriented

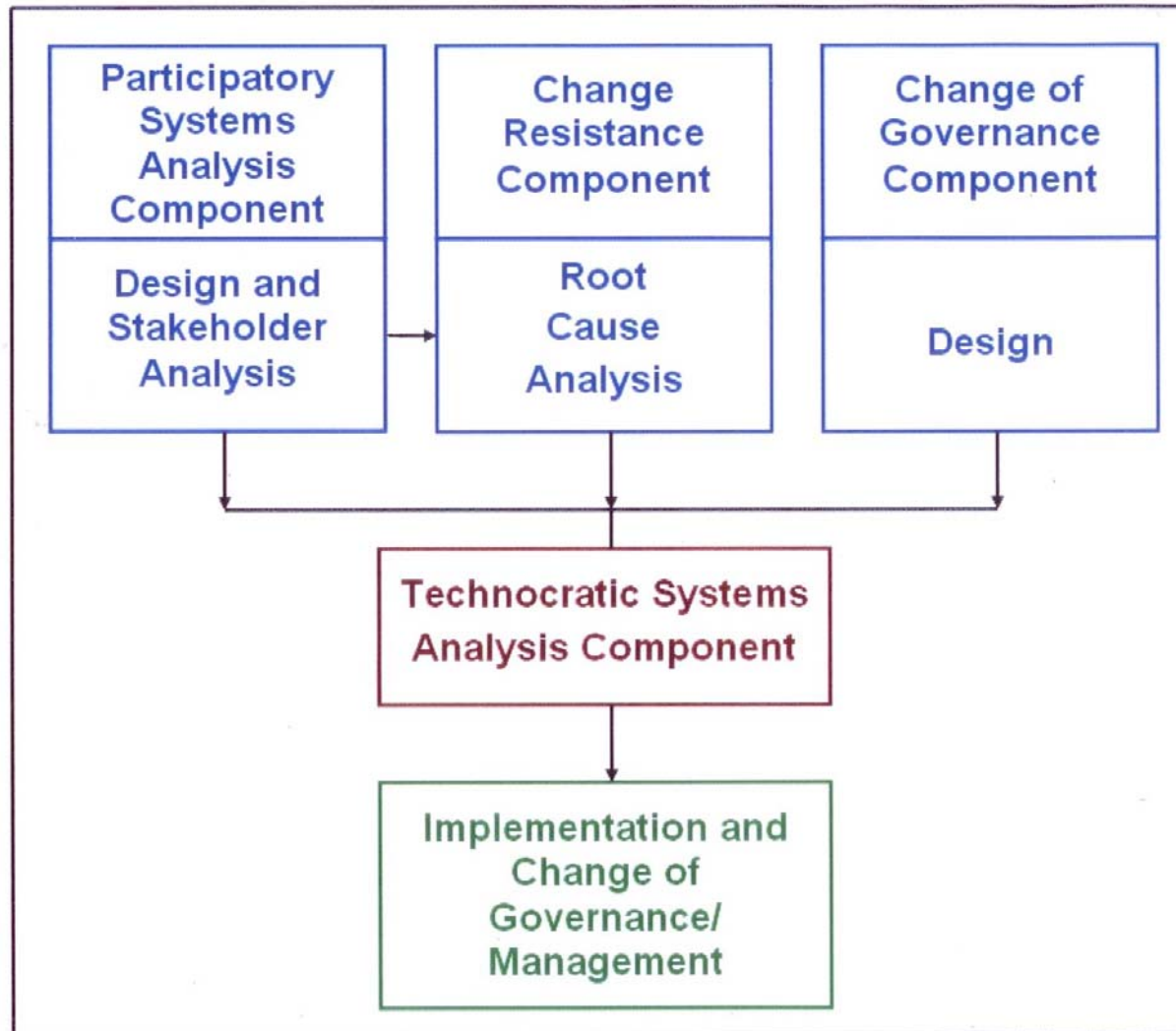
CHANGE RESISTANCE – 3

- Institutional blindness
- Inability to resolve issues when solutions require engaging with other stakeholders seeing the world differently
- From silos/pipe policies to integrated policies (forestry, energy, chemicals, construction, etc.)
- Lack of concerted actions by governments (regional, national, international clusters)

CHANGE RESISTANCE – 4

- Afraid of being contrarian in the club – "better for reputation to fail conventionally than to succeed unconventionally"
- Lack of champions in the companies – heard about 20 different ways during the process expressing "interesting" but meaning NO
- Innovation shy

TRANSFORMATION OF SYSTEMS ANALYSIS



INNOVATION - TRANSFORMATION



**THERE ARE MANY BRIGHT YOUNG
PEOPLE OUT THERE**

**WE CAN'T WAIT FOR THEM TO
GROW UP!!!**

Thank you for your attention!



Sten B. Nilsson

CEO, Forest Sector Insights AB

TT Banan 12, S-77 693 Hedemora, Sweden

Phone and Fax: +46 225 381 02

Cell: +46 70 381 02 14; Skype: stenbnilsson

Email: stenbnilsson@gmail.com