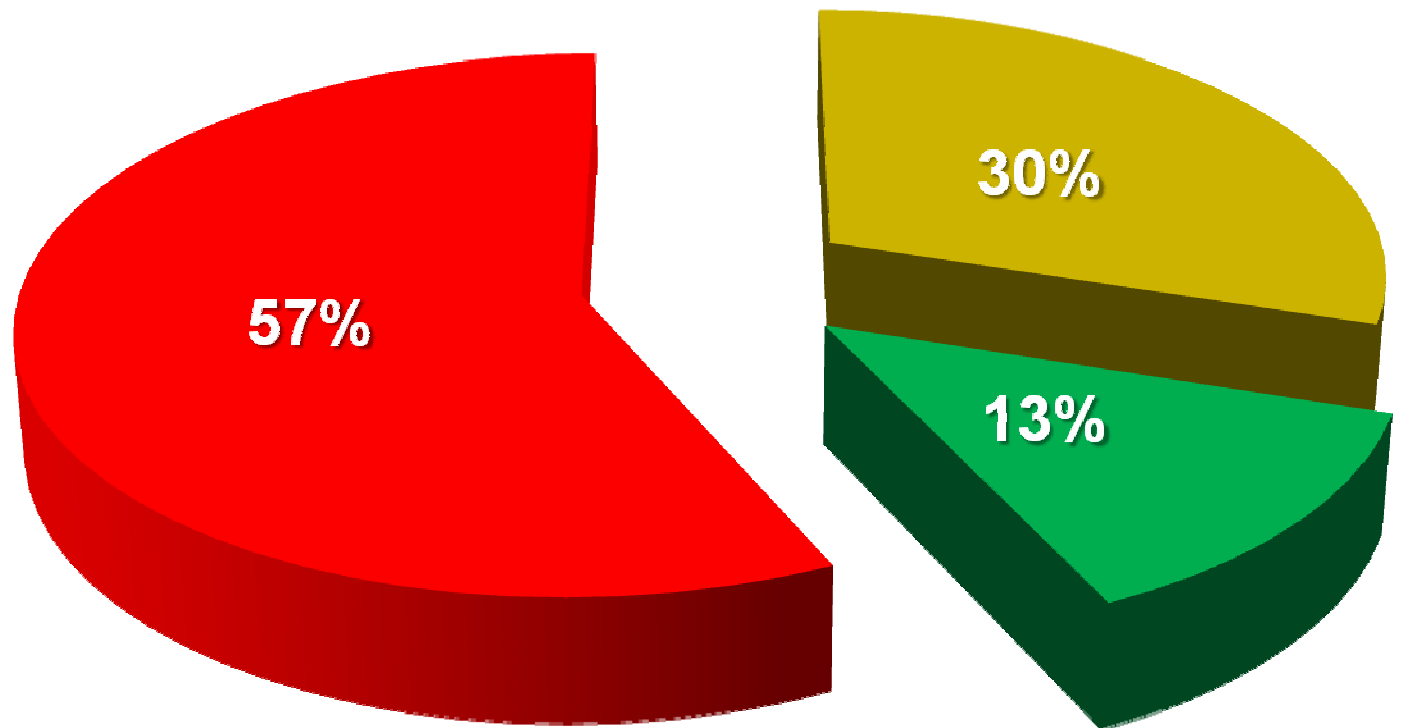


KYOTO OPPORTUNITIES IN DEVELOPMENT STRATEGIES OF RUSSIAN FORESTRY SECTOR

ANDREY BENIN



RAW MATERIAL BALANCE OF RUSSIA'S FORESTRY SECTOR – 2006

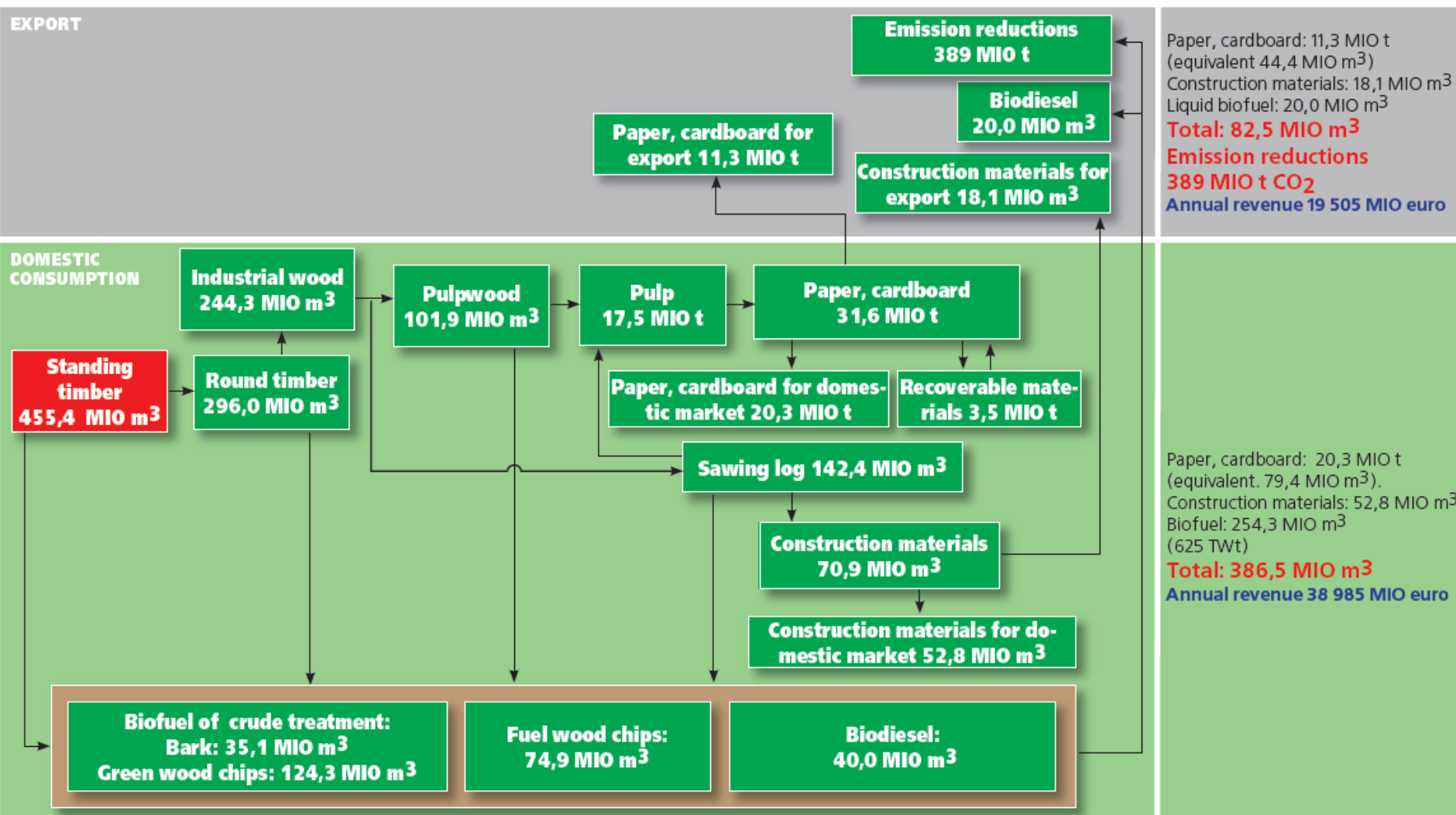


■ Export

■ Domestic consumption

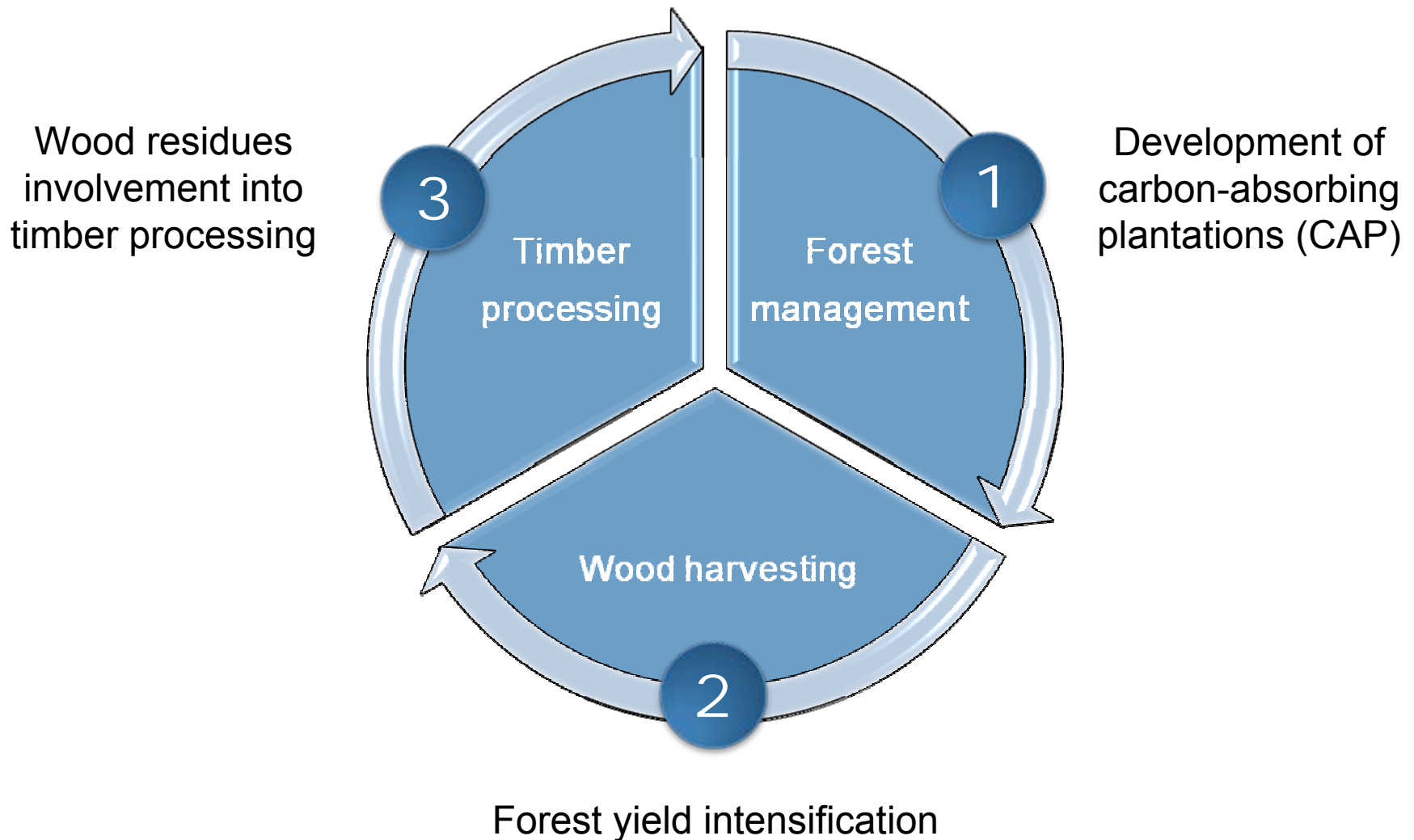
■ Waste

DEVELOPMENT STRATEGY OF RUSSIA'S FORESTRY SECTOR – 2020



Development strategy of the forestry sector deals with climatic opportunities of Russian forests as well as their primary opportunities

KYOTO OPPORTUNITIES IN RUSSIAN FORESTRY SECTOR



1 CAP DEVELOPMENT

CAPs PROGRAM IDEA

Keynote idea | Expansion of forestry areas due to involvement of unused lands not being covered with forest vegetation during last 50 years for the Russian Federation to meet its quantitative obligations in terms of increase of greenhouse gas absorption

	Stage 1: 2007-2012	Stage 2: 2012-2017
Regions of Program realization	Oryol region, Nizhni Novgorod region, Orenburg region, Saratov region, Ulianovsk region, Omsk region, Republic of Mariy-El Total area – 33 962 ha	Kaluga region, Voronezh region, Kostroma region, Tula region, Pskov region, Volgograd region, Belgorod region, Ulianov region, Rostov region, Lipetsk region, Kursk region, Tambov region, Ivanovo region, Novgorod region, Saratov region, Republics of Mordovia, Bashkortostan, Kalmykia, Kabardino-Balkariya, Krasnodar and Altay territories Total area – 112 800 ha
Amount of reduced emissions within a period of time	31,9 MIO t CO _{2-equ} Total 185,6 MIO t CO _{2-equ} during 2007- 2017	105,9 MIO t CO _{2-equ}
Register of plantations	Plantations are developed in accordance with “Procedure for design, CAP establishment and their management” and are registered at the international level complying with the Kyoto protocol requirements	

1 CAP DEVELOPMENT

STAGE 1: 2007-2012

RF constituent entity	Volumes of plantations development, ha							Cost of plantations development, MIO euro
	2007	2008	2009	2010	2011	2012	TOTAL	
Bryansk region		500	600	700	600	600	3 000	3,6
Oryol region		500	500	500	500		2 000	3,4
Republic of Mariy–El		800	800	800	800	800	4 000	4,8
Nizhniy Novgorod region	2 500	4 000					6 500	8,1
Orenburg region		1 522	2 173	2 266	2 244	2 257	10 462	24,1
Saratov region		500	700	600	700	500	3 000	6,9
Ulianovsk region	1 000	1 000					2 000	2,4
Omsk region		500	500	600	700	700	3 000	5,8
TOTAL	3 500	9 322	5 273	5 466	5 544	4 857	33 962	59,2

Carbon-absorption plantations represent significant investment projects which require large areas. Only a government can develop such projects

STAGE 1: 2007-2012

RF constituent entity	Area, ha
Bryansk region	3 000
Oryol region	2 000
Nizhniy Novgorod	6 500
Orenburg region	10 492
Republic of Mariy El	4 000
Saratov region	3 000
Ulianovsk region	2 000
Omsk region	3 000
TOTAL	33 962



Carbon absorption
volume within a
period

31,9 MIO t CO₂-equ
Plantations cost
59,2 MIO euro

up 1 000 ha 1 000–5 000 ha
 5 000–10 000 ha 10 000 ha and more

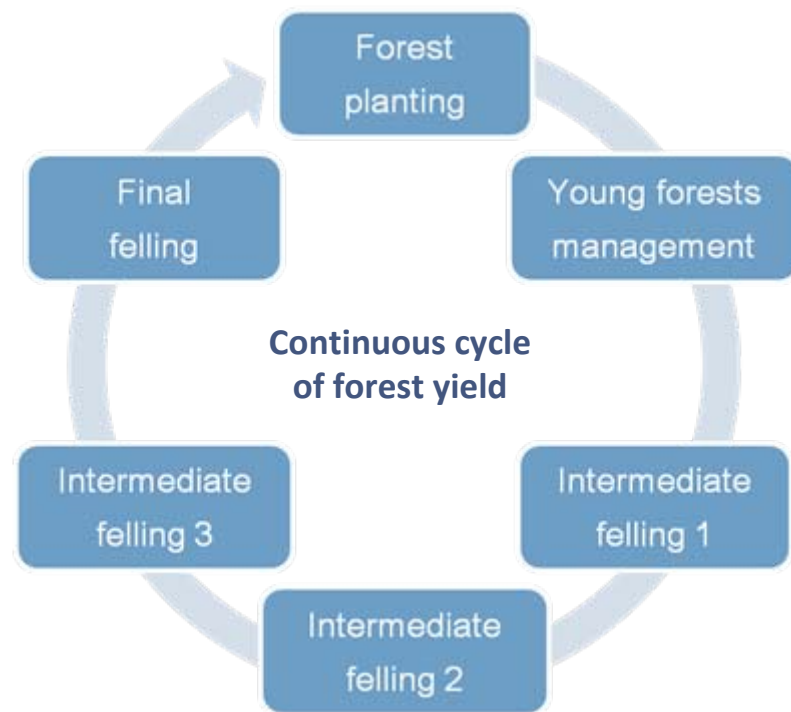
RF constituent entity	Area, ha
Kaluga region	5 000
Voronezh region	5 000
Kostroma region	1 000
Tula region	1 000
Pskov region	5 000
Volgograd region	2 000
Omsk region	5 000
Belgorod region	3 000
Ulianovsk region	3 000
Rostov region	8 000
Lipetsk region	5 000
Kursk region	5 000
Republic of Cabardino-Balkariya	300
Republic of Mordovia	25 000
Republic of Bashkortostan	8 000
Krasnodar territory	10 000
Tambov region	3 000
Ivanovo region	3 000
Novgorod region	5 000
Republic of Kalmykia	500
Altay territory	5 000
Saratov region	5 000
TOTAL	112 800

STAGE 2: 2012-2017



VARIANTS OF FOREST YIELD INTENSIFICATION




- Development of continuous forest management system, including intermediate and main exploitation (final felling which provides plantations digenesis) on a permanent basis
- Global approach to the arrangement, development and management of forestry and forest exploitation

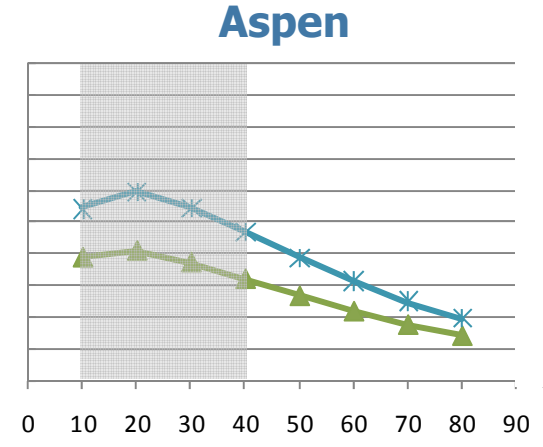
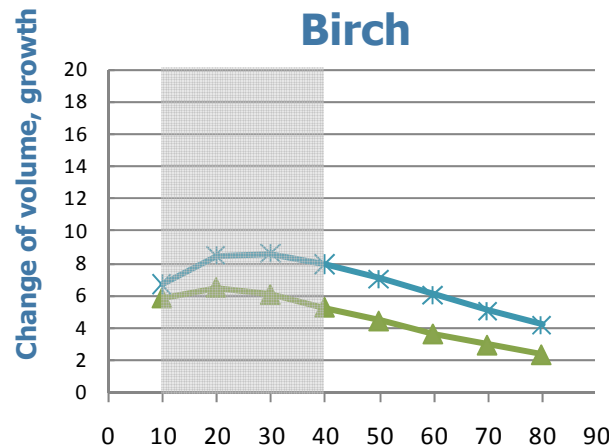
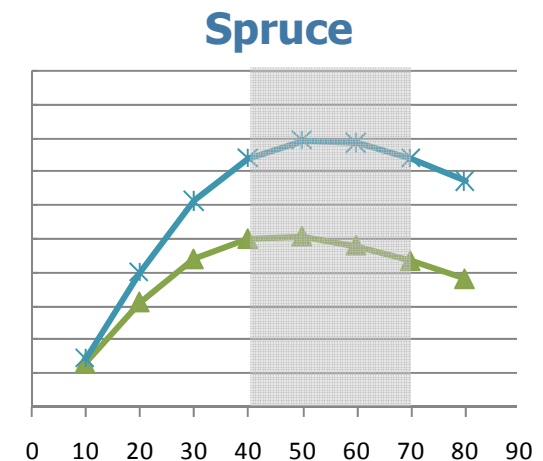
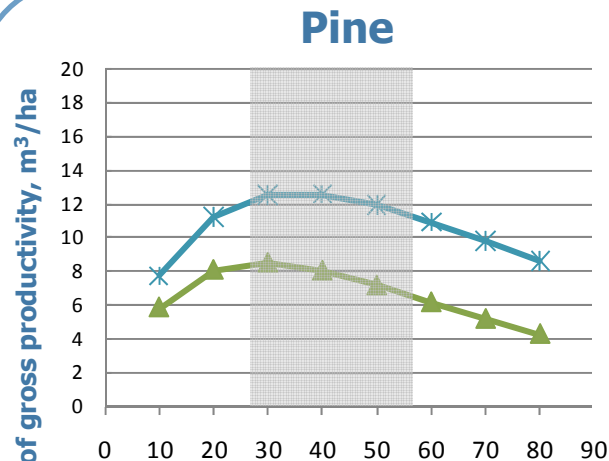


Continuous, inconsumable and efficient forest exploitation results in constant increase of forestry fund quality, rapid plantations growth and, consequently leads to more rapid carbon absorption

PERIODS OF MAXIMAL PLANTATIONS PRODUCTIVITY

Maximal plantations productivity can be observed within the period of 40–55 years for coniferous plantations and 10–40 years for broadleaved ones. After that, plantations growth rates significantly decrease

-  Change of wood volume, m^3/ha per year
-  Growth in terms of gross productivity, m^3/ha
-  Period of plantation maximal productivity



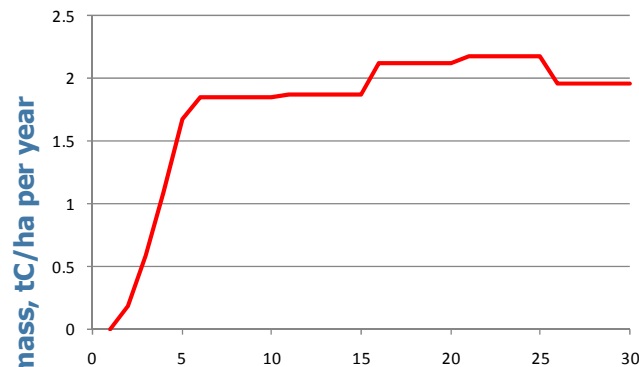
Age, years

PERIODS OF MAXIMAL CARBON ABSORPTION

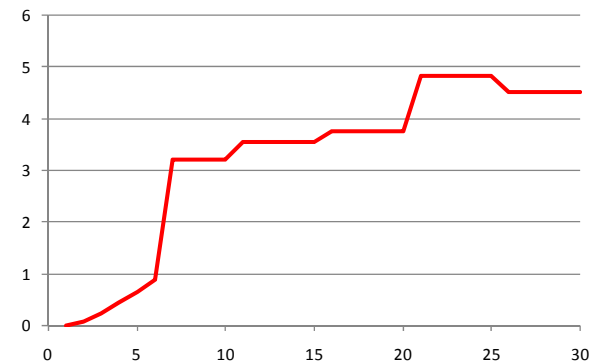
Maximal carbon absorption and oxygen precipitation can be observed within the period of 5–25 years for coniferous plantations and 5–15 years for broadleaved ones. After that, carbon absorption and oxygen precipitation are significantly decreased

Carbon absorption by phytomass, tC/ha per year

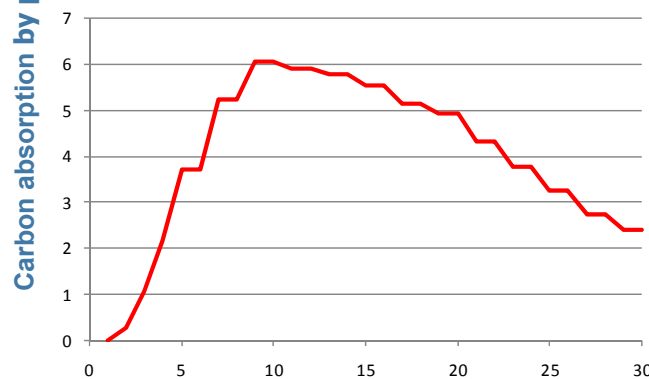
Pine



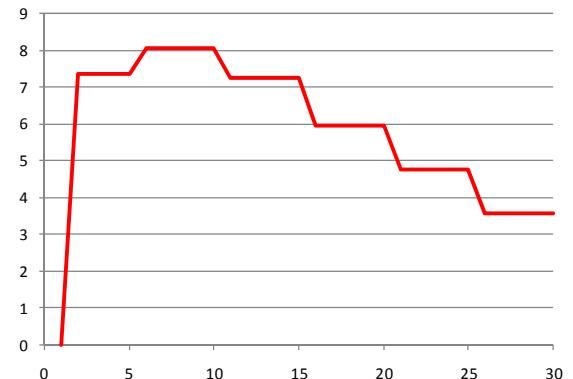
Spruce



Birch

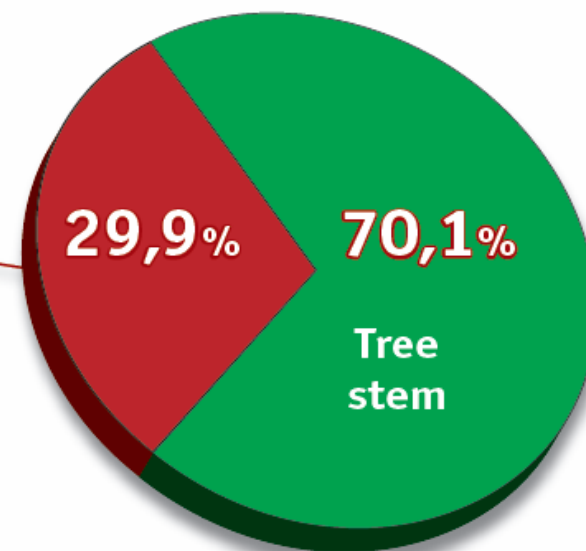
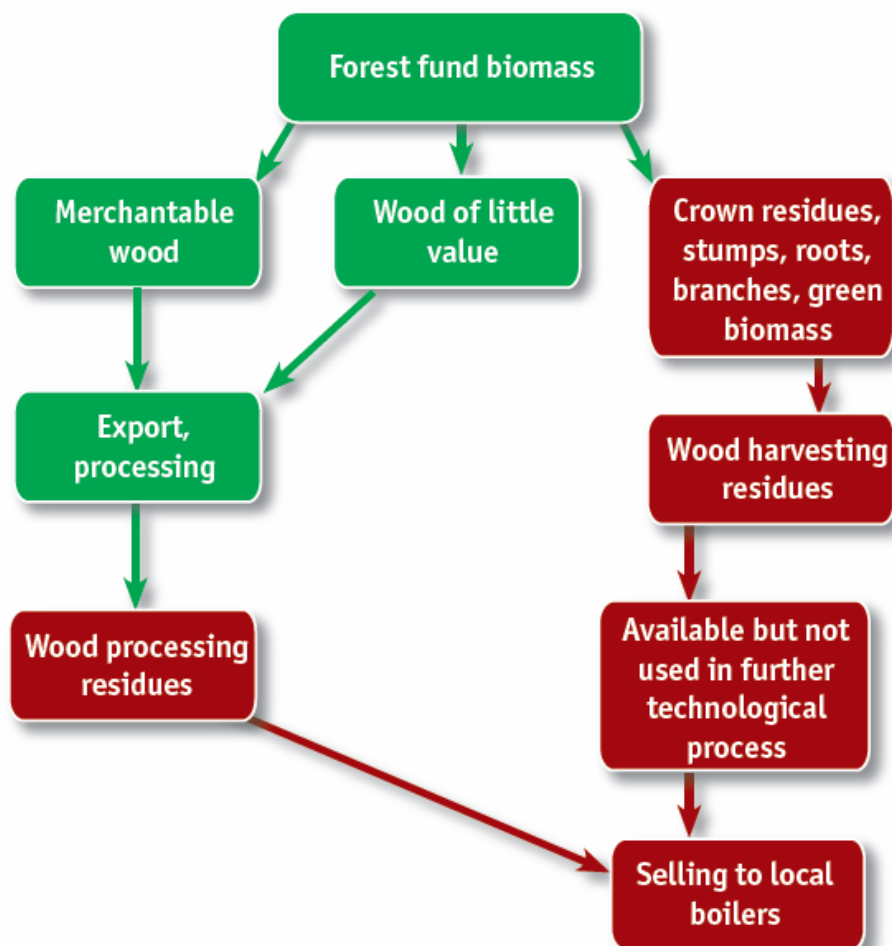


Aspen



Age, years

WOOD RESIDUES INVOLVEMENT INTO TIMBER PROCESSING



Structure of forest fund biomass

Knots, branches, tops, stumps, stem wood – almost 30% of wood is currently earthed in Russian forests

By 2020 the following is annually planned:

Involvement into turnover	274,3	MIO m ³ of wood harvesting and wood processing wastes	For production	570,0	MIO MWt heat and power	and	389,0	MIO t CO ₂
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Bioenergy development provides significant reduction of greenhouse gas emissions

UTILIZATION OF WOOD RESIDUE IN PROCESSING IN 2020

Type of residues	Green wood chips	Fuel wood chips	Bark	For advanced processing	
Volume	124,3 MIO m ³	74,9 MIO m ³	35,1 MIO m ³	40,0 MIO m ³	
Products	Heat and electrical energy			Biodiesel	
Annual output volume by 2020	Heat: 456 TWt/h Electrical energy: 114 TWt/h			Biodiesel: 8 MIO t	
Domestic consumption	Heat: 456 TWt/h Electrical energy: 114 TWt/h			Biodiesel: 4 MIO t	
Export	Annual volume of emission reductions: 389 MIO t CO ₂ -equ				Biodiesel: 4 MIO t

For strategy implementation a program “Forest Energy” was developed. The main goal of this program is switch of communal boilers from fossil fuels to green wood chips as a result of wood residues (knots, branches and tops) processing

IDEA OF “FOREST ENERGY” PROGRAM

Keynote idea

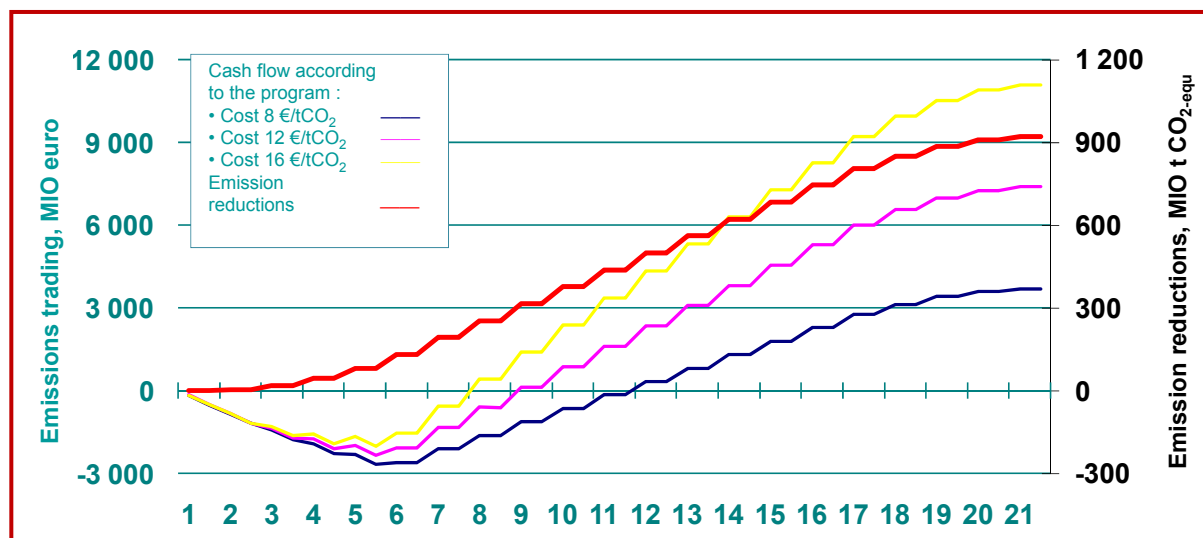
Reconstruction of communal energy sector objects which are located in RF remote settlements for energy production due to emission reductions selling as a result of switch from fossil fuels to renewable fuel (wood chips)

Objects of Program realization

Objects of communal energy sector with aggregate capacity 18 724 MW, operating fossil fuels (coal, peat, blacks, diesel fuel, oil fuel)

Emissions reduction amount

922,4 MIO t CO₂-equ up to 2028



WOOD RESIDUES INVOLVEMENT INTO TIMBER PROCESSING

“FOREST ENERGY” PROGRAM:

TECHNOLOGICAL CHAIN OF WOOD HARVESTING AND RAW MATERIALS USE



1
Wood
harvesting



2
Collecting and
packaging of
felling residues



3
Storage in
forests



4
Transportation
to places of
consuming



5
Processing into wood
chips, heat and power
production

THE NATIONAL REGULATORY FRAMEWORKS FOR THE IMPLEMENTATION OF THE KYOTO PROTOCOL MECHANISMS

IN THE RUSSIAN FEDERATION, IMPLEMENTATION OF THE KYOTO PROTOCOL IS SUPPORTED BY THE FOLLOWING LEGISLATION:

- “On the Ratification of the Kyoto Protocol to the UN Framework Convention on Climate Change” The Federal Law of 04.11.2004 № 128-FZ;
 - «The Statute on the Approval and Review of the Course of the Implementation of the Projects Realized in Accordance with the Article 6 of the Kyoto Protocol to the UN Framework Convention on Climate Change», Regulation of the Government of the Russian Federation of 28.05. 2007, № 332;
 - “On the Approval of the Order of Formation and Functional Operation of the Russian Registry of Carbon Units”, Order of the Ministry of Nature Resources and the Ministry of Economy Development and Trade of the Russian Federation of 07.05.2007 г. № 121/148;
 - “On the Approval of Value Limits for Greenhouse Gas Emission Reduction”, Order of the Ministry of Economy Development and Trade of the Russian Federation of 30.11.2007 № 422;
 - “On the Approval of the Statute on the Commission for the Consideration of the Applications for the Project Activities Implemented in Accordance with the Article 6 of the Kyoto Protocol to the UN Framework Convention on Climate Change» Order of the Ministry of Economy Development and Trade of the Russian Federation of 30.11.2007 № 424;
 - “On the Approval of the Methodological Guidance on the Consideration of the Project Documentation and the Rules for Development and Approval of Standard Thresholds for Project Efficiency Targets and Limits” Order of the Ministry of Economy Development and Trade of the Russian Federation of 20.12.2007 № 444.
- On January 29th, 2008 all required documents were ultimately registered, and call for bids for climate projects implementation started in Russia**

THANK YOU FOR YOUR ATTENTION

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<http://www.rosleshoz.gov.ru/english/media>

THANK YOU FOR YOUR ATTENTION



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OF THE RUSSIAN FEDERATION
FEDERAL FORESTRY AGENCY

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«**ROSLESINFORG**»

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