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# RMK DEVELOPMENT PLAN 2015–2020

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3. WE HOST 2.5 MILLION VISITS TO THE NATURE RESERVES AND RECREATIONAL AREAS EACH YEAR
4. WE RESTORE 10,000 HA OF HABITATS THAT ARE ENDANGERED OR IN AN UNFAVOURABLE CONDITION
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**INTRODUCTION**

RMK is a profit-making state agency established in 1999, aimed at managing the state forest in the area of government of the Ministry of the Environment and Ministry of Defence, and establishing opportunities for diverse use of the forest. RMK's management and its rights and obligations as manager of the forest are defined in the Forestry Act. The objectives for the management of the state forest are set out in the Estonian Forestry Development Plan.

State decisions regarding the management of state forest have not changed very much over the last decade: The Estonian Forestry Development Plan until 2020 still considers the balance of RMK's environmental, social and economic objectives as important, seeing the function of the state forest as a balancing factor for the timber market, as a protector of the forest environment and as a provider of everyman's right. Accordingly, the RMK has the following objective: to guarantee that state forest management objectives are set and followed to meet the interests of the largest part of society, to provide for the sustainable and effective application of the principles of Estonia's forest policy in the management of the state forest.

The RMK development plan sets out how these objectives are met. The RMK's Supervisory Board approved the previous development plan in September 2008 and, following a regular review by the Supervisory Board, the development plan was extended by two years, lasting from 2009–2014. The stable economic environment and systematic performance has allowed most of the objectives set out in the development plan to be met (a detailed analysis is provided in Appendix 1). In summary, it may be highlighted that in the last five years the management of around a quarter of Estonia's mainland territory has brought EUR 140 million to the State Treasury as net profit and as income tax, and an additional EUR 20 million from land tax. EUR 33 million has been invested over those years into nature conservation, education and the development of the visitor infrastructure based on everyman's right. In addition, the state forest and nature conservation areas are covered by a 8,000 km long network of roads that, besides providing access for forest vehicles, is also actively used by people who pick mushrooms or berries or simply enjoy nature. A total of EUR 77 million has been spent on the upkeep of these roads over those years.

In return, the number of visits has more than doubled, reaching 1.7 million visits per year. As a confirmation of nature's variety and biodiversity, thousands of new key biotopes have been discovered, and as a result of prudent forest management, the amount of timber brought on the market each year is over one million cubic metres more than five years ago. The number of people engaged in the management of the state forest and nature conservation has doubled while the development plan has been in force, reaching 5,000 today.

Prompted by the desire of our partners for a longer time-frame, but also by the desire to combine the planning of state forest management with the deadlines of national plans (including the duration of EU Structural Funds), the present development plan will be effective 2015–2020. Nevertheless, it must be emphasized that since the objectives for the state forest will be complemented and adjusted over time and there may be unforeseen changes in the RMK's operating environment, it will be practical to review the fulfilment of the development plan on an annual basis and to make amendments, if necessary (the last amendment to the RMK development plan was made in April 2013 after the Government of the Republic approved the Nature Conservation Development Plan until 2020).

Since the position of our partners is an important factor in the forming of RMK's development, the development plan will be made available on RMK's website.

## CHANGES IN THE EXTERNAL ENVIRONMENT OF THE RMK

Whilst the RMK's previous development plan was prepared following an extremely turbulent period of difficult economic downturn, the ratio of supply and demand has remained practically unchanged over the last four years. At the same time, economic recovery has brought about the restructuring of forest and timber industry businesses locally as well as on neighbouring markets, which has significantly increased the competitiveness of the forest sector in the Baltic Sea region. In Estonia, besides the traditionally strong sawmills, investments into the development of the veneer industry in the UPM-Kymmene factory at Otepää and the expansion of Latvijas Finieris into Kohila also deserve highlighting. The only local pulp and paper manufacturer, Horizon Pulp & Paper at Kehra, has also made investments into technology which have helped it to remain competitive.

The fact that log and pulpwood consumers have remained in the market means that harvesting of lower quality wood is also still viable. Nevertheless, looking back, it must be recognised that expectations regarding the rapid development of wood energy have been greater than what has been realised by today. The application of European Union energy policy, which was predicted to have the largest impact on the use of wood as a renewable energy source, has been slower than predicted and, as a result, the investments that should enable decreasing the use of fossil fuels have also been held back. Nevertheless, Estonian forestry has done better than average in this regard because in the bigger cities (Tallinn, Tartu, Pärnu) wood has been adopted as fuel for use in the district heating systems.

We have also developed remarkable local production capabilities for wood fuel granulation (for instance, AS Graanul Invest has become the world's leading pellet manufacturer), which creates the necessary circumstances for transporting wood as a fuel with a relatively low energetic value to consumers outside of Estonia as well. Considering the short-term prospects for timber consumption, demand will increase moderately.

The second factor that has had a significant influence on RMK's activities in the previous development plan period, comes from the changes that have taken place in the arrangement of nature conservation. Since 2009, when RMK connected the visitor infrastructure in nature conservation areas with the infrastructure previously developed in the state forest and also took over practical nature conservation tasks on state land, support for these activities from EU Structural Funds has steadily increased. Foreign funding has been used to reconstruct the RMK's network of nature centres and to restore boardwalks, observation platforms and other visitor sites in national parks and in several other nature conservation areas. Access roads to the management areas of larger semi-natural biotic communities have also been created and work has started on habitat improvements in various forests and other ecosystems. In 2014 as well, the RMK's nature conservation works budget is the net beneficiary. The European Union budget period for 2020 has significantly greater means earmarked for nature conservation activities, which means that there are now possibilities for the reconstruction of a large number of habitats that are in a critical state.

The development of world climate policy, including that of the European Union, will be the factor that has potentially the biggest effect on (state) forest management in the near future and, at the same time, is nearly impossible to predict. Although, despite lengthy research, the direction and scale of climate change is still up for speculation, the strategy for preventing climate change (above all decreasing carbon emissions and increasing carbon capture) and the chosen strategy to adapt to climate change will definitely impact on forestry as well. The Government of the Republic recently made the decision to prepare a national strategy for adapting to climate change by the end of 2015, which means that it is practical to assess the impact of its implementation on the RMK's development plan after it has been prepared. The European Union already has common norms in place for calculating the carbon balance of different forms of land use. Whether at all, to what extent and when these will start to be applied to forest growing and use in Estonia, will probably become apparent in coming years.

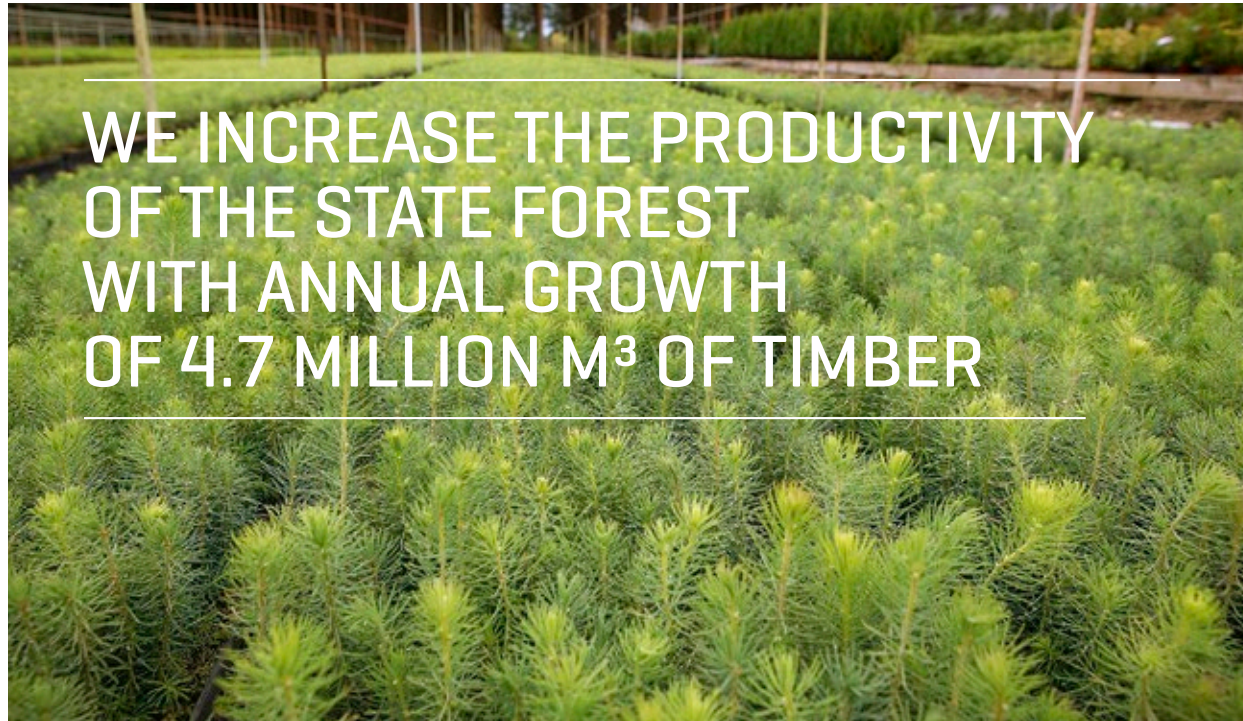


# STRATEGIC OBJECTIVES

The strategic objectives summarise RMK's ambitions until 2020. Achieving these objectives requires effort and co-operation on the part of all of RMK's fields of activity, assures increasing the effectiveness of the organisation and guarantees the smart upkeep, protection and management of forest and other natural biotic communities under the RMK's care.

RMK's objectives for 2020 are as follows:

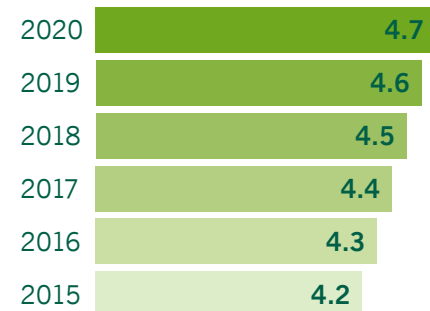
1. to increase the productivity of the state forest with annual growth of 4.7 million m<sup>3</sup> of timber
2. to harvest and sell 4 million m<sup>3</sup> of timber from the state forest each year
3. to host 2.5 million visits to the nature reserves and recreational areas each year
4. to restore 10,000 ha of habitats that are endangered or in an unfavourable condition
5. to earn an annual profit of EUR 45 million
6. to remain among Estonia's ten most valued employers and pay competitive salary and wages to our employees



Almost half of Estonia is covered by forest, out of which 40% belongs to the state. The size of the inventoried state land under RMK's care is 1.2 million ha, of which forest land makes up 74% – 900,000 ha.<sup>1</sup> The state forest reserve is 164 million m<sup>3</sup> and the annual timber increment is 4.2 million m<sup>3</sup>. The timber increment exceeds the annual cutting volume by one quarter. In the future, the increment in the state forest must exceed the rate of cutting.

Better planning of forestry works and taking into use new lands can increase annual timber regrowth in the state forest to 4.7 million m<sup>3</sup>.

Annual timber increment (million m<sup>3</sup>)



<sup>1</sup> Over the last five years RMK has formalised more than 200,000 ha of forest land as the property of the state. Since inventory-taking follows the formalisation process with a delay (at the current rate up to two years), the total area of the land at RMK's disposal is around 100,000 ha larger – about 1.3 million ha.

By 2020, when Land Reform will have been finalised, there will still be up to 100,000 ha of mostly forested land formalised as the property of the state. Calculations show that, after that, smart management will bring the productivity of the state forest to 5 million m<sup>3</sup>. Since the impact of silviculture works takes time to manifest, the RMK's first objective is to achieve the timely application of all state forest management measures by 2020. This means that:<sup>2</sup>

- suitable types of trees and renewal methods have been selected for habitats, that renewal of the clear cut areas is guaranteed within 5 years of cutting
- forest renewal maintenance and cleaning will be performed with a frequency that allows young growth to reach a diameter of 6–12 cm in at least 15 years
- thinning will be performed to the extent that for 90% of middle-aged stands fullness does not surpass 0,8
- regeneration cutting will be carried out within 10 years of reaching maturity
- all stands that are significantly damaged and have too low fullness ( $\leq 0.4$ ) will be replaced with new ones

**In the future, the increment in the state forest exceeds the rate of cutting.**

The precondition for making correct and timely economic decisions is the existence of high-quality investment data. That is why RMK will continue to take inventory of the state forest itself, employing all modern tools and technologies. Whilst today the average age of appraisal data for the state forest is five years and even four years for managed forests, by 2020 the average age of appraisal data may not be more than two years.

The long-term success of increasing the productivity of forest land is only guaranteed if high-quality reforestation material is used for forest renewal. That is why, in co-operation with scientific establishments, the initiation of areas for pine and spruce progeny trials will be finalised, and birch, spruce and pine seed orchards will be renewed, which allows to forgo harvesting of seedlings in the forest. In order to fully cover the planting needs of the state forest managed by RMK, the total volume of forest plants with bare and covered roots in RMK nurseries will be increased to 22 million plants per year.

The productivity of forest land can be rapidly increased in those forests where there has been a long pause in management for some reason. The impact of neglecting silviculture works is especially visible on newly included land that has not been maintained for at least 20 years. But the situation is very similar in managed forests with additional restrictions where goal oriented management has been restricted as a result of the expiry of previous legislation or due to a lack of new legislation. Newly included forests immediately undergo silviculture works depending on the state of the forest. In managed forests with additional restrictions, the purpose of land use at the respective location will be analysed (improving the environmental situation, enabling recreational activities, protecting natural values, etc.) in order to find the most suitable silviculture methods for that purpose. If necessary, a proposal will be submitted to amend the legislation imposing the restrictions or to create new legislation.

<sup>2</sup> As a result of the differences between the habitats there may be deviations in the absolute values of the objectives (for instance, fertile habitat types will renew in 3 years while less fertile ones will renew in 7 years); the objectives have been set out while considering the representation of the dominant habitat types.

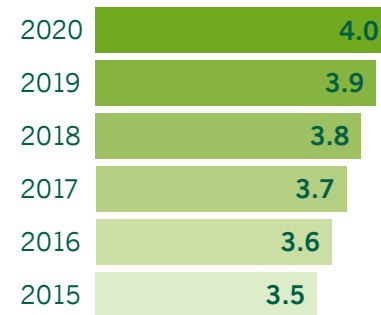


**WE HARVEST AND SELL  
4 MILLION M<sup>3</sup> OF TIMBER  
ANNUALLY FROM  
THE STATE FOREST**

Timber is an eco-friendly and renewable natural resource, its use improving our living environment and its harvesting, processing and transportation currently providing work for almost 35,000 people living in Estonia today. According to the analyses that were made when preparing the Estonian Forestry Development Plan until 2020, the harvesting, transportation and processing of 1 million cubic metres of timber creates at least 2,350 jobs. Based on that calculation, the forest material additionally harvested from the state forest will create around 1,500 new jobs by 2020.

The amount of timber harvested and sold from the state forest has increased each year, in 2013 it was 3.4 million m<sup>3</sup>. The increasing timber increment and finding new opportunities to utilize lower quality timber allows RMK to harvest and to sell even more timber in the future.

**Timber harvested and sold from the state forests (million m<sup>3</sup>)**



Timber harvested through cutting is divided into logs, pulp and firewood; RMK sells the latter as round timber or wood chips. If possible, a market is also found for cuttings, twigs and treetops that remain after cutting, as well as stumps, which are put on the market mainly as wood chips. Nevertheless, from an economic standpoint, the production of logs is the most important for RMK, which, thanks to more accurate planning and performance of silviculture works, has to make up at least 40% of the total volume of harvested timber in the future as well.

While the demand for logs is projected to increase over the coming years, the key question for increasing sales volumes will be finding new markets and possibilities for the use of lower quality timber. This is mainly related to the transition to environmentally friendly fuels – the construction of new co-generation power plants and the conversion of existing fossil fuel based power plants in Estonia and elsewhere in Europe.

In co-operation with entrepreneurs, more options for processing timber locally have to be found. In order to keep the investment environment attractive, long-term contracts are concluded for 85% of the timber being sold. The rest is sold based on market demand at public auctions as round timber and as cutting rights in growing forests.

RMK has been awarded the international sustainable forest management certificates PEFC and FSC®. These are of particular importance for the sale of pulpwood and therefore it is important that RMK re-acquires the certificates once the current ones expire in 2015 and 2017 respectively.

The performance of forestry works and the transporting of harvested timber out of the forest requires that forest roads and drainage systems are kept in a good state and working order. In 2008–2014 RMK significantly increased expenditure on forestry improvement. Today we have reached a level where forest roads can be renovated and drainage systems can be maintained on a 30 year cycle. Nevertheless, at the current level, reconditioning of the entire road and drainage network will take around 10–12 more years. In the scope of the development plan RMK's goal is to renovate 2,500 km of forest roads and 90,000 ha of forest drainage systems.

**Additional timber harvesting creates an additional 1,500 jobs in the forestry sector.**

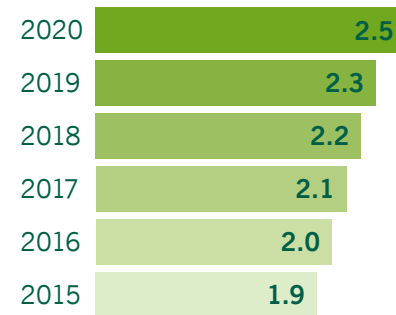


# WE HOST 2.5 MILLION VISITS TO THE NATURE RESERVES AND RECREATIONAL AREAS EACH YEAR

Estonian people love to relax and practice sports in the outdoors, to go berry-picking and mushrooming. In 2013, RMK's nature reserves and recreational areas welcomed a record 1.7 million visitors. Given the existing network of RMK's nature reserves and recreational areas and the condition of the constructed infrastructure, this is an optimum figure – the satisfaction level of guests is high and the load tolerance of our nature is not compromised.

By 2020, the aim is to bring the number of visitors up to 2.5 million (by comparison – this is the number of movie tickets purchased by the population of Estonia in 2013). Increasing the number of visits presumes that the infrastructure meant for receiving guests is in good order and that the visited objects are interlinked with each other.

**Number of visits to the nature reserves and recreational areas (millions)**



Continuous potential to increase the number of visitors is offered by Estonia's protected areas, which have belonged under RMK's care since 2009. This mostly concerns Estonia's five national parks, where their natural wealth certainly favours further familiarisation. A good example of how well and how responsibly it is possible to use a national park for recreation and nature education is the Lahemaa National Park, which has a very high number of visitors. The Karula, Matsalu, Vilsandi and Soomaa national parks are deserving of equal interest.

In order to keep being in nature as an attractive option for Estonians and foreign visitors alike, RMK takes care that there are diverse possibilities and that information is readily available. The existing network of hiking trails will be supplemented over 2014–2018 by the third and fourth branches of the long hiking trails that run across Estonia. During the berry and mushroom seasons RMK provides people with information about forests likely to provide a good harvest and the RMK mobile app, which makes it easier to hike in nature, is constantly undergoing development.

**RMK's nature reserves and recreational areas are visited by almost as many people as visit cinemas.**

An activity that is strongly intertwined with visitor organisation is nature education, which, besides its nature reserves and recreational areas, RMK also provides at its nature centres, at the Sagadi Nature School and Elistvere Animal Park. In order to offer nature education to even more people<sup>3</sup>, RMK will start training teachers and create modern educational materials for nature education. Besides RMK specialists, these will allow teachers as well to teach the programmes developed by RMK. In 2020, the number of participants in nature education and informative events will make up 10% of all visits to RMK's nature reserves and recreational areas.



<sup>3</sup> In 2013, RMK's nature education programmes had 48,400 participants, additionally, there were 63,000 visitors at information desks, 58,000 visitors at the Elistvere Animal Park and 25,200 visitors at the Sagadi Nature School.

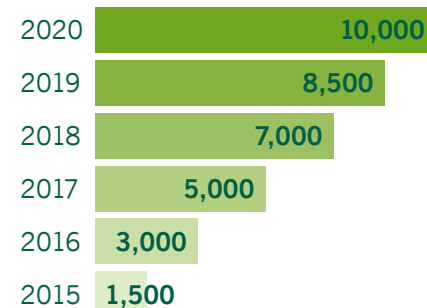




Estonian nature provides a habitat for more than 30,000 plant, animal, mushroom and other species. While the percentage of protected areas in Estonia is among the highest in Europe and 17% of the Estonian state forest is protected, many species are still endangered and their numbers are decreasing. Many species indigenous to Estonian nature are endangered because their habitats have become unsuitable for them due to past human activity or as a result of human activity having ceased.

To preserve nature's biodiversity, it is inevitable that we must improve the condition of the habitats of species that are endangered and in an unfavourable condition. RMK is focusing its nature protection activities towards proactively improving endangered habitats or habitats that are in poor condition. By 2020, the state of 10,000 hectares of habitat will be improved.

Restored habitats, ascending (ha)



Restoring is seen as active work and the creation of preconditions for improving the state of a habitat. This does not include sustained activities that RMK undertakes in an ever increasing volume, like the annual maintenance of the different communities.

The main habitats that are endangered and in an unfavourable condition, which require proactive intervention to improve their condition, are semi-natural biotic communities, marshlands, and open dune and heath biotic communities.

Nature conservation activities are based on the best known practices. For this reason, RMK works together with scientists and the RMK science fund underwrites research aimed at improving the state of habitats of specific species, like the wood grouse and the flying squirrel.

**RMK preserves and protects the biodiversity of Estonia's nature.**

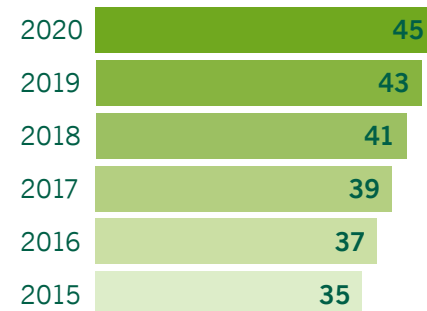
Also relevant for natural diversity are activities at the Põlula Fish Farm, which has been a part of RMK since the beginning of 2014. If until now Põlula has mainly populated Estonia's rivers with salmon, which has resulted in an increased number of salmon in most Northern Estonian rivers where salmon live, in the future restorative fish farming should be seen in a wider context together with the possibility of restoring the spawning and living habitats and the opening of migration paths. As the initiator of the water biota reproductive programme that will be ready by 2014, RMK is ready to extend its activities to other fish species as well.





As a profit-making state agency, RMK carries a great responsibility in front of society, its has been trusted with the smart and responsible management of Estonia's valuable natural resources. The state forest provides thousands of jobs and contributes millions of euros to the State Treasury and the budgets of local municipalities. In 2013 RMK earned a profit of 35.7 million euros before VAT with a turnover of 155 million euros, and in 2020, RMK wants profit before VAT to reach 45 million euros.

RMK's annual profit (million EUR)



Whether this profit objective will be reached mainly depends on the characteristics of the timber market, which RMK as a price-taker cannot influence. However, an increase in profit can be significantly influenced by completing objectives related to forest management and timber marketing – with more forestry works being done in order to increase the productivity of the forest, so that we are able to harvest more timber and direct it to the market and increase sales and profits.

By exactly fulfilling long-term contracts that have been concluded first of all with industries that provide timber with added value locally, RMK offers its partners better security of supply and cost savings and reinforces their competitiveness and, consecutively, the competitiveness of Estonia's economy as a whole.

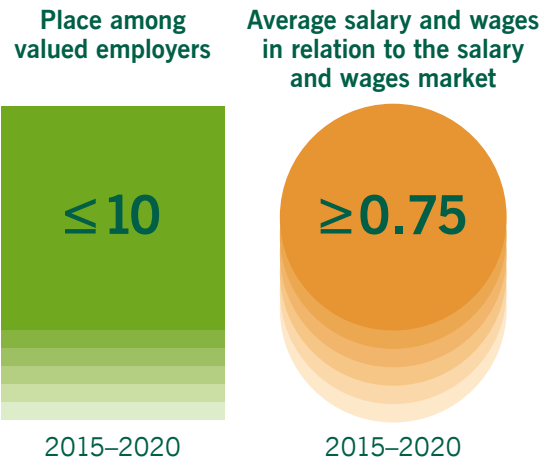
**RMK earns money for the Estonian people.**

Controlling the expenditure related to nature conservation works and for receiving guests also plays an important role for increasing profits. The resources at RMK's disposal have to be treated prudently. For every decision regarding the use of funds its long-term impact on the achievement of RMK's objectives will be calculated.





The success of an organisation depends on the people working there. RMK is able to meet the ambitious goals it undertakes only if shared by its dedicated employees who appreciate the values of the organisation. Remaining among the top ten most valued employers in Estonia and paying competitive salaries and wages to our employees is therefore vital for our success.



In an employer reputation survey<sup>4</sup> RMK held the high third place in 2014. Thereby, RMK was a highly valued employer in rural areas, but was not in the top ten in Tallinn and in Viru County. This position cannot be taken for granted in the future and to keep it and to reinforce it, attention must be paid to inclusion, good organisational information exchange, the continued strengthening of RMK's reputation and competitive salaries, because the latter was why RMK came second to other employers in the eyes of the public.

**RMK cares for its employees.**

The current wage level of RMK employees, as compared to Fontes salary and wage market survey, is rather good and the goal set out in the first RMK development plan has been achieved – in all fields of activity wages are equal to or better than the median wages of the same positions on the wage market. Achievement of the strategic objectives by 2020 aims at raising the wage levels of all RMK employees to a level that is equal to at least the uppermost quartile of the wage market (0.75); at the same time the employees of RMK as well as of contract partners working in the state forest are expected to have a professional certificate.



<sup>4</sup> TNS Emor's Estonian employer reputation survey 2014.

# APPENDIXES



## APPENDIX 1. RMK DEVELOPMENT PLAN 2011–2014, AN ANALYSIS OF OBJECTIVES ACHIEVED

Following the changes made in work organisation in 2008, RMK's Supervisory Board approved the development plan for the next four years. In the development plan, the objectives of the organisation were broken down based into fields of activity, according to the new structure, and cross-organisational objectives concerning all fields of activity were presented separately. After the first two years of implementing the development plan, the Supervisory Board reviewed the objectives and their achievement, adjusted them accordingly and extended the development plan period by two years until 2014. The following is a summary of implementing the development plans for 2009–2012 and 2011–2014. Since the summary was prepared in autumn 2014, it lacks data regarding the last year of implementing of the development plan, which is why it includes only the first five of the six years of the development plan. Where data is available, the text includes references to 2014 as well.

### 1. Cross-organisational objectives

#### 1.1 Acting according to international requirements for sustainable forestry

Objective	2009	2010	2011	2012	2013
FSC <sup>®</sup> sustainable forestry certificate held	Yes	Yes	Yes	Yes	Yes
PEFC sustainable forestry certificate received and held	–	Certificate received	Yes	Yes	Yes

The first international certificate proving compliance with sustainable forestry principles – FSC<sup>®5</sup> – was already awarded to RMK in 2002. In 2010 RMK also applied for the PEFC<sup>6</sup> certificate for the management of Estonia's state forest; it is an internationally recognized and the most widely awarded certificate today. The existence of these certificates has not yet had a direct impact on the price of timber, but in a context of economic downturn it has provided Estonian timber and wood products with a better competitive advantage on world markets.

<sup>5</sup> FSC<sup>®</sup> – The Forest Stewardship Council.

<sup>6</sup> PEFC – The Programme for the Endorsement of Forest Certification.

## 1.2 Efficient organisation management

Objective	2009	2010	2011	2012	2013
ISO 14001 certificate held	Yes	Yes	Yes	Yes	Yes
ISO 9001 certificate received and held	–	Certificate received	Yes	Yes	Yes
Client claims handled and solved within the agreed time	–	–	–	Yes	Yes
Employer reputation in the top ten of respective surveys	4 <sup>th</sup> place	3 <sup>rd</sup> place	2 <sup>nd</sup> place	6 <sup>th</sup> place	4 <sup>th</sup> place
Wage level of employees is above the salary and wage market median	No	Yes	Yes	Yes	Yes

RMK's system for managing environmental risks and mitigating environmental impacts was awarded the internationally recognised ISO 14001 certificate in 2002. Further developing the management system, RMK received in 2010 the ISO 9001 certificate, certifying the quality of management of the entire organisation. Once per year independent auditors assess that the requirements of the International Organization for Standardization (ISO) certificates are being followed and every year RMK's management system has been deemed to meet the requirements.

According to the requirements of the quality management standard, in 2012 RMK introduced a system for handling client complaints, aimed at finding solutions for potential misunderstanding and ambiguity within the agreed time. In the case of timber sales, all claims have so far been solved based on the agreed system. Only a few individual claims related to the use of roads and tenders have reached the courts; so far, all court rulings have been in favour of RMK.

When assessing RMK's attractiveness as an employer, the wage levels of the specific positions were compared to the wage market median levels. Since 2009, correcting wages when possible, wage levels across all positions have remained competitive. Corresponding opinion polls also suggest that RMK continues to be an employer with a positive image, mostly considered favourably by people living in rural areas.

## 1.3 Raising forestry awareness in society

Objective	2009	2010	2011	2012	2013
Increasing the reputation of forestry and the use of timber through forestry related information campaigns	Unchanged	2009+	Unchanged	Unchanged	Unchanged
RMK's reputation in the top ten of respective surveys	18 <sup>th</sup> place	9 <sup>th</sup> place	9 <sup>th</sup> place	21 <sup>st</sup> place	15 <sup>th</sup> place

Unfortunately, there is no reliable data regarding public opinion on forestry and timber use from recent years. Based on indirect assessments, it could be claimed that the reputation of the field has not deteriorated. The problem may rather lie in the fact that forestry is little noticed and valued in society and that there is little relation between forest and timber use (e.g. people may like timber as a commodity, yet they do not like forest cutting). Therefore, RMK's campaigns aimed at the public have been centred on increasing the options for forest use (e.g. a hiking trail running across Estonia) and introducing forestry through cultural events (e.g. a theatre picnic in the forest).

Increasing the reputation of forestry through RMK's reputation fell in 2012 and 2013, but a new survey at the beginning of 2014 showed that the objective was back at the expected level. More precisely, according to public opinion, RMK has risen to a historically high 3<sup>rd</sup> place.<sup>7</sup>

It is worth highlighting that for several consecutive years RMK has ranked as the most trustworthy actor in nature according to the study on the environmental awareness of residents, commissioned by the Ministry of the Environment.<sup>8</sup>

<sup>7</sup> TNS Emor's survey on the reputation and image of large Estonian enterprises.

<sup>8</sup> Turuuuringute AS's survey on awareness of nature amongst the population.

## 1.4 Research and development

Objective	2009	2010	2011	2012	2013
Number of innovations implemented	3	2	2	3	3
Funding for applied research (euros)	63,900	63,900	149,584	187,372	274,215
Endel Laas Scholarship for two forestry doctoral students (4,800 euros per year)	9,600	9,600	9,600	19,200	19,200
Heino Teder Scholarship for two forestry postgraduate students (3,200 euros per year)	6,400	6,400	6,400	6,400	6,400
Toomas Ehrpais Scholarship for vocational training (1,900 euros per year)	1,900	1,900	1,900	1,900	1,900

The RMK scholarships awarded at vocational and higher education institutions have generated considerable competition each year and provided an additional argument for applying for doctoral studies. In 2013 two doctoral scholarships were not awarded because the proposed research topics did not tie well enough with RMK's activities, which is why, in co-operation with the Estonian University of Life Sciences, the statute for the scholarships was made more specific. The first of the grantees of previous scholarships are about to finish their theses, meaning that shortly it will be possible to assess the impact that the scholarships have on the development of forestry.

The RMK Research Council, comprised of six of Estonia's top forestry researchers, has so far decided on the financing of 11 research topics.<sup>9</sup> Of the finished projects, RMK's day-to-day work has been influenced most by the forest drainage analysis, the results of which were also incorporated into RMK's forest drainage system instructions. Of the completed research work, the work done in the field of LiDAR surveying holds perhaps the most future potential, providing equal or even more accurate forest appraisal data when compared to the currently used method. Nevertheless, adoption of the new methodology should be preceded by a further testing period, which is why it was decided to continue the research. In terms of ongoing research, there are high expectations regarding the shelterwood cutting analysis, which assesses options for more natural forest management, and the research on improving the living conditions of the wood grouse.

The widespread adoption of various IT solutions has played an important role in achieving the goals of these innovations (e.g. the transfer of appraisal data to tablet computers, smartphone applications introducing various RMK services, etc.), but also the large leaps in development made with regard to increasing the quality and growth rates for forest plant cultivation.<sup>10</sup>

<sup>9</sup> The following research projects (11) have received support: carbon and nitrogen circulation in forests with an altered water regime; a complex study of the factors influencing the habitat quality of the wood grouse; a methodology for assessing the impact of clear cutting and for preventing conflicts on terrain level, considering social, economic and ecological aspects; finding formulae applicable in Estonian conditions for calculating the volume of growing forests and forest material; forest protection problems associated with forest cultivation in Estonian forestry and their prevention with environmentally sustainable control methods; an ecological economic analysis of shelterwood cutting and the establishment of a network of model testing areas; assessment of forest stand characteristics based on LiDAR measurements and multispectral imagery on the Aegviidu testing area; assessment of the forestry related aspects of harvesting spruce stumps and the related environmental impacts; epiphytic and epixylic species in Estonia endangered by the use of residuals; the effect of forest drainage on potentially endangered biota; improvement of the models for the increase in forest stand survey criteria.

<sup>10</sup> 2009 – introduction of timber and wood chip use, mobile application for Christmas trees, mushroom and berry forests on the Internet.  
2010 – introduction of the pot+field forest plant cultivation system, securing VEP inventory-taker certificates for forest managers.  
2011 – hunting permit auction, development of mobile application for supporting hiking in nature.  
2012 – introduction of greenhouse seeding at nurseries, implementation of ecaro lists, opening of a hiking trail running across Estonia.  
2013 – supplementing of forestry improvement design requirements with nature conservation provisions, introduction of an electronic log measurement report between clients and RMK, development of the forest data (AMK) e-application.

## 2. Objectives according to fields of activity

### 2.1 Forest administration

Objective	2009	2010	2011	2012	2013
Registration of forest land managed by RMK and newly added registered land (ha)	22,600	26,135	44,700	54,300	58,610
Inventory-taking in forests handed over to RMK, including the natural values therein (ha)	5,665	9,600	41,800	29,660	41,160
State forest inventoried according to forest survey criteria, i.e. data not older than 10 years	80%	84%	88%	90%	84%
Long-term forest management plans (incl. forestry improvement plans)	–	–	–	47%	100%

At the end of 2013 the area of state forest at RMK's disposal had reached over 1.3 million hectares, increasing by about 20% during the period of the development plan. About half of the land added so far is forest land, the rest is mostly marshland and (former) grasslands that were left to the state for nature conservation reasons. The area of the added land is large and the job is far from complete despite the fact that five years have already been spent registering the land into state ownership. Therefore it is estimated that the area of state land may increase by a further 100,000 hectares over the coming years.

Since the tempo at which new (forest) land has been added has surpassed the capabilities for appraising such new land according to forest survey criteria, the objective set in the 2013 development plan has not been achieved. In part, this is related to the changes made in work organisation in 2013, during which RMK started requiring foresters to have forest appraiser certificates and combined the positions of forester and forest manager into one. Nevertheless, the collecting of forest appraisal data shows that acclimatisation has been fast and in the coming years the new work organisation should enable the deficit to be overcome in appraising new land as well as in keeping a record of virgin state forests. It is important that increasing efficiency allows increasing the frequency of appraisals, thus improving the quality of data.

In 2013 the long-term forest management plans for all 17 RMK forest districts were finalised. Although modern methods for collecting information allow to register changes in forests more accurately and it is possible to react to them more rapidly, the ten-year perspective overview of plans for forest districts / county state forests has proven to be a good method of communication for explaining what is happening in the forests to regular people, including to owners of neighbouring immovables.

## 2.2 Forest management

Objective	2009	2010	2011	2012	2013
Forest renewal area (ha)	6,600	6,850	6,522	7,102	6,125
Maintenance volume of young growth (ha)	12,220	14,121	15,624	16,481	18,147
Volume of performed thinning works (ha)	8,618	11,135	13,602	11,895	10,847
Volume of performed regeneration cutting (ha)	7,296	8,386	8,340	8,606	8,715
Conformity of forest roads to requirements and the effectiveness of forest drainage systems	54%	54%	66%	75%	88%
Number of inadequacies regarding the legal standards for forest management and nature protection found in forest management by RMK and subcontractors (amount)	1	1	0	1	0

In terms of state forest management, the volume of silviculture works – forest renewal, improvement cutting and regeneration cutting – has increased according to silviculture requirements and the work efficiency of subcontractors. With regard to forest renewal works, by 2012 RMK had managed to review all the cut areas that were not renewed in the previous years and to either supplement them with new plants or to regenerate the forest plantations in the required volume. The forest renewal works performed in 2013 correspond to the cutting volume of 2008; in the next five years the forest renewal volume will grow in accordance with the size of the areas cut during 2009–2013.

In terms of making up the deficit of previous years in thinning, RMK reached maximum cutting volume by 2011, after which the area of forest land requiring thinning started to fall gradually and it will remain at 9000 ha over the next development plan period. Compared to the objectives of the development plan the volume of thinning achieved is smaller, but this has allowed an increase in the maintenance volume of young forests. All in all, the area of forest land maintained annually is 1,000 ha bigger than the 28,000 ha objective set in the development plan.

With regard to renewal cutting, the coupes set out by the Minister of the Environment have been adhered to, which, in addition to the forest in the area of government of the Ministry of the Environment, have been complemented by state forests on the exercise sites of the Defence Forces in the area of government of the Ministry of Defence.

In terms of bringing forest roads in accordance with requirements, the 2013 objectives of the development plan have not been fully met, with 88% of roads meeting requirements, not 90%. The majority of non-conforming cases have been registered during a period where cutting works were under way and in all cases the forest roads have been made to meet requirements within the period stipulated in the legislation. In terms of forest road reconstruction RMK reached a level in 2013 where in future roads can be reconstructed within their designed lifetime. The same can be said of forest drainage systems, where the area of the outdated network of ditches is estimated to be 270,000 ha and, continuing at the current rate, they will be reconstructed by 2022.

There have been few individual breaches of the provisions of forestry law during the development plan period. In case of suspicions the Environmental Inspectorate has been included in the proceedings and therefore the results are the reflection of an independent assessment of RMK's work.



## 2.3 Timber marketing

Objective	2009	2010	2011	2012	2013
Amount of timber sold (million m <sup>3</sup> )	2.36	2.65	3.00	3.15	3.37
Percentage of long-term contracts for logs and pulpwood	79%	80%	77%	84%	78%
Percentage of long-term contracts for firewood	25%	50%	51%	54%	53%
Percentage of delivered timber sales	94%	95%	98%	99%	100%
Sale of residuals, stumps and brush (m <sup>3</sup> )	20,550	77,170	96,287	204,131	162,179

Timber marketing, which on the one hand depends on market demand and on the other hand on the availability of forest and forest management possibilities, has increased annually over the development plan period. When in 2007 and 2008 RMK sold barely 2 million m<sup>3</sup> of timber per year, by 2013 the total volume of timber sold had increased nearly 70%. Since the quality of cutting works and the eventual cutting assortment has gradually improved, it has compensated for the increase in the volume of lower quality timber from thinning (and from the side of roads and maintenance of the ditch network).

For logs the percentage of long-term contracts has constantly been at the required 85%. Thanks to the chosen sales strategy it was possible to bring it to the same level for pulpwood after the economic downturn of 2008. For firewood, where there were virtually no long-term contracts at the beginning of the development plan period, the target for concluding long-term contracts was set at 50%. This product group is also estimated to soon reach a market balance, which is why it is practical to increase the percentage of long-term contracts to the same level as it is for other product groups. Among other things, it is estimated that the sale of timber from cuttings, from brush and partly from stumps will remain at 5% of the total timber harvested from state forest.

Out of sales methods, the timber supply from final stock has provided the best way for organising transport logistics. In terms of cutting rights in growing forests, it is reasonable to continue to sell firewood and pulpwood primarily for personal use to the general public, as well as in isolated cutting areas in the state forest (e.g. small islands), where it will also remain primarily for use by the local population and/or businesses.

## 2.4 Visitor organisation and nature education

Objective	2009	2010	2011	2012	2013
Number of people who attended RMK's nature education programme	39,395	39,500	50,776	59,931	51,073
Number of different nature education programmes	122	130	135	160	294
Organising 5-year visitor organisation programmes for nature reserves and recreational areas	On recreational areas	On recreational areas	In national parks	In nature reserves and recreational areas	In nature reserves and recreational areas
Number of forest visits at RMK's recreational and nature preservation objects	1,450,000	1,500,000	1,550,000	1,630,000	1,740,000
Number of people asking RMK for information regarding areas for picking berries and mushrooms	56,500	55,000	78,243	90,453	100,622
Visitor satisfaction (on a scale of 1–5)	4.1	4.2	4.2	4.2	4.2
Load tolerance of nature (index)	< permitted	< permitted	< permitted	< permitted	< permitted

Since 2009, when RMK assumed the responsibility of receiving visitors at nature conservation areas as well, the number of visits has greatly increased. The larger number of objects and increased number of visits has put increased pressure on nature as well as the infrastructure built for the visitors. Visitor monitoring and load tolerance surveys show that, despite the increased number of visits, RMK has managed to keep visitor satisfaction as well as the load tolerance of nature at the target level. All RMK nature reserves and recreational areas have long-term visitor organisation plans, which outline the development and maintenance of the infrastructure.

Interest in stocking forest by-products also shows continuing growth and has grown over the development plan period proportionally faster than the number of holidaymakers.

Compared to the starting period of the development plan, the number of people who have participated in nature education programmes has grown significantly – about 25%. This is partly due to increased programme choice and further growth is expected thanks to the nature centres, which were renovated with the help of European Union Structural Funds and reopened in 2013.

## 2.5 Production of reforestation material

Objective	2009	2010	2011	2012	2013
Forest plant production (amount)	10.1 million	10.2 million	13.3 million	17.4 million	18.4 million
...out of this, container plants (amount)	3.4 million	3.9 million	4.8 million	4.5 million	6.3 million
...out of this, plants with bare roots (amount)	6.7 million	6.3 million	8.5 million	13.0 million	12.1 million
Forest seed stock (kg)	4,750	3,900	3,306	2,750	7,635
...out of this, pine forest seed stock (kg)	3,250	2,550	2,280	2,032	2,108
...out of this, spruce forest seed stock (kg)	1,500	1,150	810	509	5,456
Cost of creating and maintaining new seed orchards (euros)	–	–	61,102	77,660	144,923

When setting objectives for harvesting and producing reforestation material, RMK has proceeded from state forest needs. Since more reforestation works have been performed than initially planned in the development plan, forest plant production volume has increased as well. This is why in 2013 RMK's nurseries produced 18.4 million plants instead of 16 million. Although the use of new technologies has significantly shortened the plant production cycle (pine plants reach the necessary height for planting in the forest in one year instead of the previous two and spruce plants in three years instead of four), the restructuring of the plant production system based on the pot and pot+field system is still under way. It is also estimated that the demand for forest plants will increase to 22 million in the coming years, which is one and a half times more than the current objective of the development plan.

At the same time, new nursery technologies have provided for more economical ways for the use of forest seeds, which is why the need for seeds for producing planting material has decreased by more than two times during the development plan period. Thanks to the favourable conditions in 2013 the spruce seed stock is one and a half times greater than specified in the objective of the development plan, but from an economic standpoint it is more practical to lower the lower limit set for the size of the seed stock. The long-term strategy of transitioning from forest seeds to seeds grown at nurseries is on schedule. The management of seed stocking and the construction of new nurseries or replacing of old ones is also supported by a research and test project regarding selection, which was started in co-operation with the Estonian University of Life Sciences.

## 2.6 Hunting

Objective	2009	2010	2011	2012	2013
Fees from auctions that compensate excessive damage to game			1.72 EUR/ha	1.91 EUR/ha	2.17 EUR/ha

The review of the development plan in 2010 brought about the biggest changes for hunting. Since it was realised that the management model used until then did not work, it was decided to stop the provision of the hunting service and to continue the sale of hunting permits at auction. Already in the first year the auction yielded a sum that exceeded the estimated cost of damage to game and in the following years the prices at auction have increased even further, which has made RMK's hunting activities profitable.

In RMK's development plan for 2011–2014 the second objective for hunting was the concluding of contracts with hunting associations for the use of state land for hunting. Since the passing of the Hunting Act was delayed (it was passed in 2013), the contracts were concluded just before the end of 2013 and (with one exception) the contracts were concluded with all hunting associations that had permits to use the hunting grounds on state land (318).

## 2.7 Nature conservation

### SPECIES

	Restoration of the habitats of the wood grouse	Preservation of the cohesion of the habitats of the flying squirrel	Improvement of the state of other species that are in a bad or unsatisfactory state
<b>Objective 2013</b>	≥3 areas	Mapping of connecting corridors	Inventory-taking by the Ministry of the Environment
<b>Realised 2013</b>	2 areas	Mapping performed	Inventory taken

### HABITATS

	Area of maintained semi-natural habitats	Restoration of semi-natural habitats	Restoration of swamp habitats	Restoration of the natural state of forest habitats
<b>Objective 2013</b>	≥10,000 ha	≥200 ha	1,000 ha	≥20 ha
<b>Realised 2013</b>	13,259 ha	125 ha	267 ha	Work has been started, first areas were restored in 2014

### PROTECTION OF BIODIVERSITY IN ECONOMIC FORESTS

	Implementing of measures for the protection of biodiversity in economic forests
<b>Objective 2013</b>	RMK's internal norms are being implemented
<b>Realised 2013</b>	Yes

### INFRASTRUCTURE

	Development of infrastructure at protected areas	Marking of protected areas
<b>Objective 2013</b>	Works on selected protected areas	55% marked
<b>Realised 2013</b>	Works performed on all protected areas	Yes

Since 2009, RMK's forest administration and management objectives have included separate results for nature conservation. The list of objectives in the previous development plan included the preparation of the necessary amount of work plans for nature conservation works (4.1.5), keeping of valuable habitats (VEP) as intact (4.1.6) and the performance of the prescribed amount of nature conservation works on state land (4.2.5).

Keeping VEPs as intact has not involved any problems over the development plan period. And since RMK forest managers underwent VEP inventory-taker training in 2010, even more VEPs have been found in the state forest. But since it was found rather quickly after the development plan was approved that there were not enough national conservation management plans and it was not clear in what order and volume nature conservation works should be performed, the Supervisory Board reformulated a more thorough list of objectives for planning RMK's nature conservation activities. The new objectives took effect in 2013 and they form the basis for the budget of RMK's works in that particular area and the activities performed (see previous table).

Nature conservation is a relatively new area for RMK and it connects many parties (the Ministry of the Environment as financier, the Environmental Board as manager of the protected areas), which is why the works have been preceded by a relatively longer preparation and coordination period. All in all, it can be said that with regard to all nature conservation objectives the activities have at least been started.



RMK  
Toompuiestee 24  
10149 Tallinn, Estonia  
Tel +372 676 7500  
[www.rmk.ee](http://www.rmk.ee)

Photos:  
Rando Kall 8, 15, 19;  
Kaupo Kikkas 10, 13, 15, 17, 18, 19;  
Siim Lövi cover, 6, 12;  
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