Chapter 4

The 2010 Catastrophic Forest Fires in Russia: Consequence of Rural Depopulation?

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Abstract Catastrophic forest fires hit the European part of Russian Federation during summer 2010 as result of a two-month-long period with temperatures above the average by 10 °C coupled with an unusually long drought period. Even though forest fires are usual for Russia, these are typically located in the sparsely populated Asian part of the country. As a consequence of the 2010 summer fires in the densely populated European part of Russia, the mass media poured forth reports of burning forests, villages, victims, about lost crops by fires. The situation was further dramatized by the fact that the extreme smoke from these fires reached Moscow. Seventeen million people lived in the regions where the state of emergency has been declared, and another 10 million in Moscow suffered from smoke. Over one-third of the population of the Russian Federation lived in those regions where the fires were very intense in summer 2010. Still, the main question remained after the disaster which I attempt to answer in this chapter; was the heat the only cause?

Keywords Russia · Forest fire · Forestry · Rural depopulation · Land use

4.1 Introduction

Catastrophic forest fires hit the European part of Russian Federation during summer 2010 as result of a two-month-long period with temperatures above the average by 10 °C coupled with an unusually long drought period. Even though forest fires are usual for Russia, these are typically located in the sparsely populated Asian part of the country. As a consequence of the 2010 summer fires in the densely populated European part of Russia, the mass media poured forth reports of burning forests, villages, victims, about lost crops by fires. The situation was further dramatized by the fact that the extreme smoke from these fires reached Moscow (see similar case in

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Chap. 10). Seventeen million people lived in the regions where the state of emergency has been declared, and another 10 million in Moscow suffered from smoke. Over one-third of the population of the Russian Federation lived in those regions where the fires were very intense in summer 2010. Still, the main question remained after the disaster which I attempt to answer in this chapter; was the heat the only cause?

Chapter 3 by Sharygin highlighted how a California bush fire influenced outmigration from affected areas; while in contrast, this case study attempts to highlight a vice versa causal relationship: Could demography be a root cause for a forest fire disaster? In this study, I used media analysis and my existing knowledge and experience on spatial organisation of Russian countryside (Nefedova 2003; Nefedova et al. 2001), the rural demographic problems (Ioffe et al. 2004, 2006; Nefedova 2013) and the land use and agricultural change (Nefedova 2017; Nefedova and Pallot 2007) in the European part of Russia to explain the root causes of the 2010 catastrophic fires.

4.2 Data About the 2010 Russian Forest Fires and the Course of the Disaster

According to the estimation by ADSR (2010), there were 55 thousand excess deaths as the consequence of extreme heat, smoke and fire in Russia in 2010. Although the death toll published by the annual report of ADSR (2010) seems overestimated, there is no reliable direct data available in Russia on the fires and their consequences. The area of fires in Russia are normally underestimated by the official statistics. There is an objective reason for it—in a huge and sparsely populated country, not all forests are available for monitoring and protection. Besides, some officials intentionally understate the areas and consequences. So, according to the Ministry of Emergencies and the Federal Forestry Agency (*Rosleshoz*), fires affected 1.5 million ha of forests in 2010. Independent institutions suggest 6 million ha were affected, while, according to the Global Fire Monitoring Centre, which used satellite image data, it was 10 million ha. So, the difference in the sizes of affected areas reported by different agencies reached 5–10 times. For Europe, or the USA, it is never more than 20%.

Another problem is how to estimate the scale of the disaster. Either by the number of hot spots? Or according to the total area of affected forests? Or by the number of the devastated villages, or of the human victims? All these could be considered, while there is no exact data available on each of them. I analysed publications about fires in mass media. The intensity of fires may be estimated according to the frequency of reported areas, villages and other facts concerning fires. Such a digest is not quite full and reliable; however, it reflects the chronicle of the 2010 forest fire disaster.

The initial reports about local fires in April and May were not terrifying. In spring, residents usually burn old grass which results in local fires in the suburbs of Moscow and neighbouring regions. Also, as usual, forest fires began to occur in the Siberian part of Russia. The first signs of the catastrophe in European Russia appeared in June 2010, when extensive fires were reported in the so-called Black Earth Zone (Fig. 4.1),

Fig. 4.1 Fire risk during summer 2010 in Russia (Author Nefedova, cartography by Karácsonyi)

the southern part of the core regions European Russia, where the hot weather had been observed first. In early July, large fires have passed through the Ural and Volga Region in the southeast part of European Russia, moving towards the core Russian areas.

Since the mid-July, fires had been extending to the east from Moscow, burning not only the forest but also dried peat bogs fires (Nefedova 2010). At the time, initial media reported burnt-down villages and associated deaths. Over 19 thousand hot spots were reported in early August 2010. The area affected by fire, according to the official data, covered 0.5 million ha. However, the Federal Forestry Agency and the Ministry of Emergencies pointed out that this was less than in the year 2009 by a factor of 2 or 3. Their arguments were right, except the fact that this summer was cooler in Siberia, where fires usually extended in previous years. President Dmitry Medvedev, who at that time was acting president of Russian Federation, decreed a state of emergency in seven regions of the Russian Federation on 7 August 2010 (Fig. 4.1).

Entire villages were devastated by the fires during summer in 2010. In total, three thousand houses from over 150 settlements burnt down and some people were lost and died. Proceeding these events, the government allocated construction funds for new buildings to support the victims of the fires who became homeless. Large cities, including Moscow, suffered heavy smoke from these fires. By mid-August, the situation began to stabilise. The number of eliminated fires began to exceed the number of new ones. By the end of August, after the rains started, the situation in most regions of Central Russia improved significantly. However, it remained difficult even in September that year in the Urals and in the south of Siberia.

4.3 Institutional Causes of Fires in Russia, in Particular to the 2010 Forest Fire Disaster

The authorities classify fires by causes as natural, household or industrial fires. This classification is artificial because 90–95% of all forest fires, which occurred in 2010, are caused by human factors. The root causes of fire are usually human activities as well as the problems within the institutional system, especially those areas responsible for regulation and policy. There is also a separate group of causes, which is seldom mentioned. These are the factors related to the organisation of Russian populated space, in particular the rural depopulation and associated population concentration into large cities and their surroundings. The human and institutional factors are summarised in the following paragraphs, while a new factor will be introduced in the next section (see also Nefedova 2013, pp.338–346).

- (1) The main cause of fires is human activity. Activities causing fires, such as burning the old grass, making fires, dropping cigarette butts, is especially significant in the areas of people concentration, for instance, in Moscow's and other cities' suburbs. Sometimes individuals or enterprisers even provoke forest fires purposefully to conceal illegal or excessive woodcuts. This is possible only because the penalties for breaching fire-prevention rules are too lenient in Russia. In addition, officials lack initiative and funding. They have not taken basic fire prevention measures; for example, ploughing around villages and maintaining ponds. Some officials misrepresent the information about fires, concealing real danger and so on.
- (2) Many people thought that the 2010 catastrophic forest fires are caused by the reform of legislation and of forest management in 2007–2009 (Gricyuk 2010). In Russia, with its vast forest areas, these changes have had grave consequences. According to this reform, a new Forestry Code was issued by the federal government, partly based on the European and Canadian best practices. In frame of the new Code, the Federal Service of Forest Wardens was eliminated, and all forest management was handed over to regional authorities who employed a small number of forest inspectors. Before the legislation change, fire security in forests was provided by 70 thousand foresters, but according to the new legislation, supervision of forests is charged to 12 thousand people who are engaged in a considerable amount of paperwork leaving almost nobody in the forests to detect fires. According to this new legislation, logging concession enterprises not only harvest timber, but they are also responsible for protecting and restoring forests. However, they control only 13% of forest areas. Moreover, small enterprises have neither means nor desire to do so. As for large companies, they prefer to pay small penalties for not implementing forest protection, than to spend a significant amount of money on implementing them. Air protection of forests was also handed over to regions, according to the new Code, after which its performance has decreased dramatically. It became impossible to transfer forces quickly from one region to another.

When the disaster occurred in 2010, President Medvedev dismissed the head of Federal Forestry Agency and transferred the Agency into direct subordination to the government and has charged to correct the Forestry Code. The legislation about the supervision and control in the Forest Code has been amended hastily during December 2010, and the Federal Service for Forest Wardens has been restored with a limited budget (Kuzminov 2011). Because of the limited budget, the amendment of the Forest Code happened only on paper according to Kuzminov.

4.4 Demographic Root Causes of the 2010 Forest Fire Disaster

As mentioned previously, there is another root cause of the 2010 forest fire disaster in Russia, which is the organisation of Russia's demographic space. The deep stratification of the Russian space was seldom mentioned during the discussion of the 2010 fire disaster (see, for example, articles of Rossiyskaya Gazeta journal in the period of May–August 2010), especially the rapid rural depopulation of periphery areas of the Non-Black Earth or Forest Zone and the suburbanisation in urban cores.

Rural population in European Russia has sharply decreased and concentrated in cities as a result of urbanisation during the twentieth century (see Nefedova et al. 2001). The rural population decline coupled with a negative social selection because young and most active population left villages for cities. The zone of the rapid rural depopulation between 1959 and 2017 (Fig. 4.2) has affected almost the entire Russian

Fig. 4.2 Rural depopulation in Russia (Author Nefedova, cartography by Karácsonyi)

core areas. In the 1990s, the trends of migration have changed, so not only large cities but also suburbs started to attract rural population from peripheral districts. At the same time, the urban population from large cities leaked out to the suburbs as a result of suburbanisation as well (Nefedova and Treivish 2019). Hence, the contrast between suburbs and periphery areas has been increasing. The largest gap exists in the northern Forest Zone between peripheries and urban–suburban cores. In the periphery areas of the Forest Zone, not only villages but also towns are characterised by strong outmigration and depopulation. As an illustration, even in the Core of European Russia, only 100 km out of Moscow, you can find periphery areas without passable roads. At the same time, public bus services in many areas were eliminated due to economic insufficiency. On the other hand, the lack of roads is partially compensated by recent technical developments of other communication facilities (mobile phones or the internet), but the territory equipped with these facilities is also limited. As a result, these peripheries are forming a social and economic “desert” within urban core areas of large cities.

Further, due to globalisation and post-Soviet socio-economic development, the contrasts between cities and remote rural areas became more striking. Population density is higher, people are more active, and large enterprises are more successful in suburban zones of urban cores. Those districts lying beyond these suburban zones have been coming under social and economic depression, which resulted in the shrinking of agricultural land. It is also hard to attract agricultural businesses to areas without sufficient human resources. Neither large nor small farms are strong and numerous enough to deal with huge areas of abandoned land. The majority of peripheral villages are populated by old women and strongly drinking men. They are not capable of implementing even basic fire protection measures.

Consequently, destiny of rural territories is closely connected with agriculture and forestry. Agriculture in European Russia strongly varies in space and determined by natural conditions and by distance from cities (Ioffe et al. 2004; Nefedova 2012, 2017). Only 14% of Russia’s landmass has climate favourable for agriculture, such as the highly fertile Black Earth Zone (or Chernozem Belt) located south of Moscow. The collective and state farms in Soviet times were strongly subsidised in the Forest Zone. Because of this, there was a strong expansion of agriculture to the north during the Soviet times, into areas with unfavourable natural conditions and rural depopulation. Furthermore, this expansion was accompanied by large-scale drainage of peat bogs typically located in the Forest Zone. In the course of the 2010 forest fires disaster, these drained out and abandoned peat bogs burned and smouldered.

During the transition period, in the 1990s with the end of subsidies for unprofitable farms, the arable land decreased greatly, and Russian’s agricultural enterprises fell into depression. This was followed by the restoration of production only in the favourable southern Black Earth Zone and in the environs of urban cores in the 2000s (Nefedova 2013, Meyfroidt et al. 2016). However, great losses of arable land were typical for the majority of Forest Zone due to land abandonment that saw recovering wildlife expanding through formerly populated areas (Fig. 4.3). Hence, the traditional rural landscape of the Forest Zone of Central Russia with villages surrounded by fields was transformed. Young forests come nearer to villages as

Fig. 4.3 Land use change in Russia (Author Nefedova, cartography by Karácsonyi)

possible “bridges” for fires. Few trees managed to grow on these abandoned lands, so these strips are covered by very high dry grass leading to the ever-greater danger of fire.

On the contrary, using timber resources is a more promising way for the Forest Zone than agriculture, but the land used by the timber industry has also retreated. As a result of the large state-owned logging enterprises transformation in the 1990s, the Soviet forest infrastructure was wrecked. Timber harvesting moved to forests close to urban core areas with passable roads. As a result, the intensity of logging in these areas and the danger of fire have increased.

During the same time, a large part of agricultural land was transferred into construction land in suburban zones of urban core areas. However, Russian suburbanization is different from the Western equivalent because it is characterised by the so-called *dachas*, which are secondary homes belonging to urban dwellers and only inhabited during the summer. Only 20% of new-built houses in Moscow suburban zone are used as permanent residences. Also, more than 70% of urban dwellers have such secondary house. The concentration of Moscow residents in the suburban zone is very high, and these *dacha* settlements are very crowded during summer, yet, they face a lack of infrastructure, such as garbage removal. The risk of wildfire increases the when people burn their garbage.

Beside these suburban zones, remote *dachas* are existing as well. As an illustration, the *dacha* zones of Moscow and Saint Petersburg have already merged despite the 700 km distance between the two cities. Remote *dachas* in rural depopulation areas are completely different where summer residents double or multiply the local population. They prevent houses and villages from complete destruction, but cannot

restore agriculture (Nefedova and Pallot 2013; Nefedova and Pokrovskiy 2018). However, coming for one or two months a year, these urban dwellers take care of their rural houses and try to cut dry grass around them. Still the problems of fire protection are not solved. There is a lack of local manpower willing to work (aging and alcoholism are a common problems) in spite of high level of rural unemployment. Additionally, one can mention the insufficient financing of local governments, especially those located in peripheral districts. So, they cannot maintain even basic infrastructure for permanent local or summer residents.

4.5 Conclusions

In conclusion, in the struggle against fires, both human activities and forest legislation are important. However, the problem is much more complicated, covering many other issues, including rural depopulation, a decline of agriculture and budgetary support of local communities. Understanding the transformation of Russian rural space is also important. According to Greenpeace Russia's data, there were around 3 million hectare forests on fire in 2012, but some experts (see Delivoria 2019) estimate these fire areas up the 10 million ha. However, the total area on fire was larger in 2012 than in 2010. The fires had not caused smoke in large cities, so the situation was less echoed by the media. In spring 2019, a special firefighting system was introduced in 25 regions of Russia, but only in those areas where it can potentially threaten large cities. In other regions, such as the sparsely populated Siberia, nothing has changed. Hence, the root causes of the 2010 fire disaster still exists. Coupling this with more extreme weather conditions due to climate change could cause a similar disaster at any time again.

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