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# Impact of the Environmental Factor on the Dynamics of Development of Neighbor Law in the Context of Issues of Sustainable Development

# Wpływ czynnika środowiskowego na dynamikę rozwoju prawa sąsiedzkiego w kontekście problematyki rozwoju zrównoważonego

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## Abstract

The article deals with evolution of neighbor law beginning from the age of the ancient world and up to our times. The authors prove that already by the middle of the 19th century environmental and technological threats become greatly important in the neighborhood relations, and from the early 21st century these threats start acquiring a new systematic attribute associated with the beginning of the age of globalization. Sustainable development at the local level is greatly influenced by the dynamics of population settlement leading to emergence of giant megalopolises, where millions of people reside at the same time.

This causes new types of neighborhood disputes not existing before. The post-Soviet legal science, courts and legislation are not completely ready for their resolution. Nevertheless, even now we can observe the outlines of new environmental threats to sustainable development at all its levels, caused by development of green energy, nanotechnology and the climate change. There are no simple ways to resolve neighborhood conflicts either – it is necessary to create an integrated system of containment and counterbalance, including both private and public methods.

**Key words:** neighbors, disputes, environment, technologies, private law, development

## Streszczenie

Artykuł przedstawia rozwój prawa sąsiedzkiego począwszy od starożytności po czasy obecne. Autorzy udowadniają, że już w połowie XIX w. zagrożenia środowiskowe i technologiczne odgrywały istotną rolę w relacjach sąsiedzkich, a od początku XXI w. wzbogaciły się o nowy atrybut systemowy związany początkami ery globalizacji. Rozwój zrównoważony na poziomie lokalnym pozostaje pod znaczącym wpływem dynamiki osadniczej, związanej z powstawaniem gigantycznych mega-metropolii, zamieszkiwanych w tym samym czasie przez miliony ludzi.

Warunkuje to powstawanie nowych typy konfliktów sąsiedzkich, dotąd nieznanych. Postsowieckie nauki prawne, sądy i prawodawstwo, nie są do takiej sytuacji przygotowane. Ponadto już teraz możemy dostrzec zarysy nowych środowiskowych zagrożeń dla zrównoważonego rozwoju i to na wszystkich jego poziomach, a związane z rozwojem zielonej energii, nanotechnologii i postępujących zmian klimatycznych. Nie ma także prostych

sposobów rozwiązywania konfliktów sąsiedzkich – należy stworzyć zintegrowany system kontroli i przeciwdziałania, który uwzględniałby zarówno środki publiczne, jak i prywatne.

**Słowa kluczowe:** sąsiedzi, konflikty, środowisko, technologie, prywatne prawo, rozwój

## Introduction

The emergence of neighborhood relations was initially caused by transition of tribal communities from hunting and gathering to settled agriculture. The first conflicts between neighbors were resolved in accordance with customs and traditions of the peoples, and only much later, with the emergence of positive law, resolution of neighborhood disputes and conflicts moves to a more formal basis. Already in the *Law Code of the Babylonian of king Hammurabi* we find the first formulae to resolve conflicts between neighbors. However, the most successful and detailed were the neighborhood rules of Rome. Further development of legal regulation of neighborhood relations acquires a strong national basis, and from the middle of the 19th century *classical* threats and conflicts are supplemented with those associated with scientific, technical and environmental factors. This is particularly evident in the 21st century. Despite this trend, analysis of legislation, legal doctrine and judicial practice of most post-Soviet countries shows unreadiness of developing legal systems to resolve even *classical* neighborhood disputes existing without any major change since the time of Roman law. The latest environmental challenges and threats to neighborhood relations are simply ignored.

Meanwhile, the strengthening impact of the environmental factor on the dynamics of the development of social relations at the local level is a part of a more global issue associated with sustainable development.

First issues of sustainable development became the center of world attention in 1972, during the United Nations Conference on the Human Environment held in Stockholm, which established the connection between economic and social development as well as environmental issues.

In 1983, according to the Decision of the United Nations General Assembly, the World Commission on Environment and Development was created. In 1987, this Commission prepared its report *Our Common Future* for the UN. Its authors suggested understanding *sustainable development* as *development which meets the needs of the present without compromising the ability of future generations to meet their own needs*. According to the Commission, it contains within it two key concepts: the concept of *needs*, in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs. Later this report was further developed in the proceedings of the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992.

The following stage of discussion of the concept of sustainable development started in 2002, when an essential political document, the *Johannesburg Declaration on Sustainable Development*, was adopted at the World Summit in Johannesburg, and as a result of the United Nations Conference on Sustainable Development, RIO+20, held in Rio de Janeiro in 2012. The outcome document of the conference *Future We Want* shows, that the idea of sustainable development gained widespread acceptance all over the world. In it.1 of this document the Heads of State and Government confirm that, having met at this conference, they renew their commitment to sustainable development and want to ensure the promotion of an economically, socially and environmentally sustainable future for our planet and for present and future generations.

This focus on the transition to sustainable development means, that all its constituent components (economic, social, environmental), should become a part of a new civilization survival strategy. The essence of the sustainable development model is to identify the causes of the negative trends of the current economy-centric development, when profit and benefit are the main value. In addition, the change of goals in modern civilization may lead to preservation of the biosphere due to reduction of the anthropogenic pressure. This new planetary purpose will not only stop degradation of man and nature but also create conditions for environmentally safe development. However, at the moment, in terms of global challenges and threats, declarations on commitment to ideas of sustainable development are obviously not enough. A comprehensive approach to sustainable development of society affecting all the aspects of social life and ensuring an equal concern for sustainable development at local, regional and national levels is necessary, along with identification of numerous sectors requiring a special concern, including development of transportation, housing, interaction of public and private sectors (Eisen, 1999).

Hence it follows, that study of issues of sustainable development at the local level, associated with emergence of new threats to neighborhood relations, appears particularly important today, as it enables to find a new dimension in the issues of sustainable development – *degree of comfort of living environment of citizens*, which is little studied today. However, in our opinion, this is the point where environmental, economic and social aspects of sustainable development are closely intertwined, which requires reasonable regulation of this issue by means of development of national legislation.

Central, regional and local legislation of any country, including countries of the post-Soviet space, may suggest various measures aimed at sustainable development, full analysis of which goes beyond the scope of our article. Nevertheless, we should note that the most part of legal regulation of sustainable development at the local level should be governed by legal acts of local government bodies. Exactly they are capable of both ensuring comfortable living for local residents and creating a lot of problems for them by means of urban development zoning, determination of the procedure for collection and disposal of waste as well as by means of many other measures. This raises the question of search for the balance of private and public interests at the local level, the attempts to find which have been repeatedly made before in the history of different countries and peoples.

## 1. Main trends of historical development of neighbor law

*1.1. Neighbor law in the age of the Ancient World*

Neighborhood relations in the early centuries of human civilization were governed by traditions and only the transition to settled agriculture and formation of compact settlements with a lot of farmlands led to emergence of law and formal (written) rules for resolving neighborhood conflicts. We find the first mentions of neighbor law in the *Law Code of the Babylonian of King Hammurabi (*1792-1750 BC), which states that if a person is too lazy to strengthen a dam in his field, and the neighboring fields are flooded due to water breakthrough, the guilty person must reimburse the cost of the damaged bread (§53, 55) (The Law Code of the King Hammurabi, 1996). The Laws of Manu (India, 2nd century BC – 2nd century AD) establish rules for determining the borders between two villages, as well as the procedure for settlement of boundary disputes between neighbors (The Laws of Manu, 2016). However, the structure of neighbor law acquires its most complete and modern form in the time of ancient Rome.

Analysis of Roman law (including the *Laws of the Twelve Tables*) shows, that in Rome the main principle regulating neighborhood relations consists in the fact, that the area of rule of one owner was limited to his land plot, and any violation of its boundaries allowed another owner to make a claim for elimination of obstacles. The exceptions were two groups of cases. First, it was necessary to accept and tolerate the adverse effects if they were caused by normal methods of disposal of the property. They included the owner's obligation to endure nuisances associated with the neighbor's tree branches extending over his plot, if the branches grow at a height of not less than 15 feet and do not rise above his building; to allow the neighbor to collect the fruits that fall from this tree; not to change the natural flow of rain water. Later these limitations were supplemented with other ones, for example, nobody is obliged to endure the smell of smoke or manure from a neighboring plot, except the cases when these phenomena are within the custom (Pokrovsky, 1999), as well as with the rules stipulating the height and location of the neighbor's structures on the plot border, enduring moderate noise sound of neighbors, etc.

*1.2. Dynamics of development of neighbor law in European history (in terms of the Russian state of the XI-XX centuries)*

*Russkaya Pravda* is traditionally named as one of the first monuments of law of Kievan Rus (9th-13th centuries). Its authors focused their attention on regulation of boundary disputes (responsibility for destruction and damage of landmarks), which is reproduced in all other subsequent Russian regulations. Later monuments of law (Sudebnik 1497 and Sobornoye Ulozhenie 1649), in addition to settlement of boundary disputes, include the rule of establishment of hedges, in order to prevent damage of crops by cattle (and, accordingly, compensation of harm, if such damage takes place), as well as prohibitions on destruction of alvearies (Vinichenko, 2013). Particular attention in *Sobornoye Ulozhenie* 1649 was focused on prohibitions on setting stoves and kitchens close to walls of neighbors, sweeping up rubbish from buildings or *playing mean tricks* on neighbors' buildings, if they are lower in height. These rights were negative, forbidding neighbors to make a certain kind of actions. Positive rights were those stipulated by articles 239-241 of *Sobornoye Ulozhenie* – a right to walk and ride through other people's forests, arable lands, water bodies (Kalinichev, 2007).

However, in general the level of development of neighbor law was low, as spaces of the Russian state, its small population size, insignificant (compared to Europe) growth of cities, did not give rise to European *tension of conflicts*, and clashes between neighbors were rare.

In general, development of neighbor law in the end of the 19th – the beginning of the 20th centuries was of contradictory nature.

On the one hand, laws of the Russian Empire did not include many *classical* wordings of Roman law, for which this legislation was criticized by Russian civil law scholars. On the other hand, it was then that the conventional civil concept of neighbor law started including rules of public law becoming more modern. Exactly during this period cities grew rapidly, and neighborhood relations emerged not only among separate citizens (and their families), but also among hundreds of residents of neighboring blocks of flats. At the same time, there was a growth in emissions of harmful substances from the rapidly growing (and still far from the modern understanding of environmental standards) industry, which started causing damage to health and property of a large number of urban residents.

Therefore, by the end of the 19th – the beginning of the 20th centuries, a lot of environmental, sanitary, fire protection and other regulations were approved with the purpose to maintain the safe living environment of people residing close to the industrial facilities, in order to prevent diseases, accidents, damage and destruction of the property. For example, there is a ban on location of some industrial facilities in cities, and a classification of other facilities according to their degree of hazard to the environment. They were divided into completely harmless and harmful, which later made it possible to improve their classification and helped to develop new rules for the various production facilities. Fire protection regulations affected the area of industrial facilities: they stipulated their separate location, including at a certain distance from residential buildings, with earthen mounds surrounding them around the perimeter. The regulations provided for details of location of production buildings, their isolation in relation to other plant buildings, as well as their distance from railways, navigable rivers and canals. Flammable goods could be stored only in closed rooms far from factories and plants as well as places where people lived. Development of these rules served as a guarantor of environmental safety in Russia in the 19th – the beginning of the 20th centuries (Kovaleva, 2015). Development of these trends was not affected by the seizure of power by the Bolsheviks and the creation of the USSR. It is more likely that the rules existing before became more detailed and full-scale. Within the entire period of existence of the Soviet Union, its laws recognized the possibility of neighborhood of land plots of citizens and government agencies, in connection with which, certain limitations were imposed on citizens using the land. For example, if their plots bordered upon an airfield, it could be prohibited for the land user to erect buildings and structures on them above a certain size established by Article 34 *Air Code of the USSR*. Obligations arising out of the neighborhood could be also imposed on land users whose plots were adjacent to the state borders of the USSR, navigable rivers and canals, transmission lines and other special facilities.

These obligations were different from obligations of common land users to their neighbors. The difference consisted in the fact that the neighborhood obligations served subjective interests of neighboring land users and the above mentioned ones were aimed at protection of interests not of certain persons but of the entire state as a whole. On this basis, they were under protection according to the criminal and administrative procedures. Enforcement of these obligations was never implemented by bringing an action (Nefedov, 2015).

Public limitations of neighborhood relations were greatly affected by sanitary rules, environmental standards, construction norms and regulations, as well as other special technical standards developed in large quantities by the executive authorities and issued in the form of orders, instructions and other regulations. They established the acceptable exposure limits for noise, electromagnetic radiation, vibration, maximum permissible concentration of harmful substances which may be present in water, soil or air. All these limitations of neighborhood rights with minor changes are still in force.

### *1.3. Trends and approaches to regulation of neighborhood relations according to legislation of some modern European countries*

In the past hundred years, neighbor law have been governed by civil codes of most European countries (§ 906-924 *Deutsches Bürgerliches Gezetzbuch* (BGB), Articles 669-701 *Schweizerisches Zivilgesetzbuch* 1907 (ZGB), it.2 §364-§364b *Österreich Allgemeines Bürgerliches Gezetzbuch* (ABGB), as well as laws of former socialist countries of Europe (Czech Republic, Hungary, Bulgaria).

Thousands of scientific papers are dedicated to analysis of rules of these codes, however, we are interested in them only with regard to search for the balance of private and public interests by means of civil law aimed at sustainable development at the local level. One of these rules determining the content of neighbor law is it.1 § 906 BGB, according to which the land owner may not prohibit impact of gases, vapors, odors, smoke, soot, heat, noise, vibration and other such impact from another plot, if it does not affect or insignificantly affect use of the land plot. As a rule, impact is insignificant if the extent and rules established by law are not violated as a result of impact, which is provided for and qualified in accordance with regulatory prescriptions. The same principle applies to the indices set by general guidelines which are published in accordance with § 48 of the *German Federal Act on the Prevention of Harmful Effects on the Environment*.

§ 364a ABGB enshrines the rule that states, that if violation results from operation of a structure officially permitted in a neighboring land, the land owner may apply to court in order to claim compensation for the inflicted damage, even if the damage is caused by circumstances which are not taken into account in the framework of administrative proceedings.

As for the Swiss ZGB, we can also observe a similar rule, but it is enshrined in relation to exercise of the property right on the plot on which activities of a company are performed. According to it. 1, Art. 684 ZGB, everyone exercising property rights is obliged, in particular in case of operation of a company on their plot, to refrain from excessive impact on the rights of neighbors. Any impact by means of smoke and soot, odors, noise, or concussion, harmful and unjustified by position and nature of plots or local customs, is forbidden. According to Art. 1087 *Civil Code of Latvia*, no one has the right to build on their land such industrial or craft facilities that can create obstacles or endanger public safety and health of

people due to danger of fire, noise, odor, excessive amount of smoke, etc. The question of whether there is actually an obstacle or a threat at the moment is to be decided by the court.

Therefore, the listed rules of legislation of various countries are based on a general doctrine permitting two types of impact on a neighboring land plot: **material** impact (solid substances and liquids) and **non-material** impact (smoke, odor, soot, etc.).

Austrian law distinguishes *direct* and *indirect* impact, *admissible* and *inadmissible* impact. An example of deep impact in modern Austrian judicial practice may be flow of drained rainwater from downpipes to a neighbor's plot or the output of a lightning rod cable in it. In search of balance of interests Austrian judicial practice allows some indirect effects in relation to a land plot. In particular, judicial decisions recognized entry of wood chips, red sand to a neighboring plot, possibility of playing tennis on a neighboring plot admissible. In addition, analysis of judicial practice makes it possible to conclude that reduced light in residential premises or air pollution resulting from activities on a neighboring plot may be recognized as inadmissible impact. These are forms of so-called negative interferences, their legal meaning in Austrian practice is rather significant, and, at the same time, disputable. The issue of admissible impact is settled in different ways: if negative impact is caused by technical means, as a rule, it is recognized as inadmissible impact (Iro, 2008).

Interrelation of rules of European public and private law in terms of protection of neighborhood rights requires special consideration. In special legislative acts, public law includes a range of standards, urban planning norms and rules, sanitary and epidemiological rules, which, in their turn, serve as a criterion for determination of significant impact from the neighbor on a land plot. Proof of excess of limits and rules established by law leads to proof of inadmissible impact. In addition, in this case rules of neighbor law grant the owner a right, first, to allow this impact with establishment of adequate compensation, second, to prohibit the impact by means of various lawsuits (prohibitions of activity, requirements to demolish structures etc.). As it is shown by German and Austrian judicial practice, prohibition of activity is most often claimed by land owners in case of violation of environmental protection standards.

However, in European practice, instead of court injunctions in relation to activity on neighboring land, courts often make decisions on compensation for caused damage the amount of which depends on the extent to which the emissions exceed the admissible limits (for example, in accordance with it. 2 § 364a ABGB). Moreover, courts usually make decisions on obligatory cleaning of oilfield waste facilities and fulfillment of other duties to eliminate excessive emissions to the environment (Iro, 2008).

Therefore, the above overview of modern European law indicates a very high level of development of European measures aimed at regulation and protection of neighborhood rights by means of tools of private law. Meanwhile, recently the legislator and the courts increasingly frequently begin to apply public law criteria and estimates allowing establishing a measure of admissible impact of one neighbor's activity on the rights of another one. This trend is particularly evident in the field of environmental protection. Further we will show the universality of this process, which is widespread among countries of the post-Soviet space as well.

## 2. Trends and contradictions of the modern stage of development of neighbor law in the post-Soviet space in the context of issues of sustainable development

The task set at international summits regarding sustainable development at global, national and local levels has its own peculiarities in each country. With regard to the republics of the former USSR (and, in many respects, to the countries of Eastern Europe), modern local threats to sustainable development are as follows.

1) In the age of mass housing construction the most typical neighborhood conflict in megalopolises is not between two owners of cottages but a few hundreds of apartment owners (whose land plots are in joint property), who cannot determine the order of distribution of lots in the underground parking or outdoor parking located between their apartment buildings. Other typical disputes are those about recognition of the joint shared property right of owners of premises in an apartment building relating certain nonresidential premises of the building (for example, underground garages) belonging to other owners (*Decision of the Supreme Commercial Court of the Russian Federation* of January 13, 2014 No. BAC-16030/13) or disputes about property rights to plots intended for parking and not included in the joint shared property of tenants of a building (*Decision of the Supreme Court of the Russian Federation* of May 25, 2015 No. 309-ЭС15-5293).

We should point out disputes of collective owners of buildings about siting of a cell phone tower in the neighboring yard. For example, on 03.06.2014 Limited Liability Company *Construction Company 'Atlanty'* appealed to the Commercial Court of Omsk Region against Open Joint-Stock Company *Vympel-Communications* for recognition of the cellular base station of the joint-stock company as an unauthorized structure and its demolition. The claim was denied because the court found that the base station is not immovable property, erected in accordance with construction norms and regulations, the state of the main engineering structures of the facility complies with the current construction norms, regulations and national standards. Establishment and operation of the base station poses no threat to the life and health of the citizens, which is confirmed by the sanitary

and epidemiological inspection report of the *Directorate of the Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing for Omsk Region* and the report of physical factor measurement (electromagnetic emission of radio-frequency range and industrial frequency of 50 Hz) (*Resolution of the Commercial Court of the West Siberian District* of March 19, 2015 in case No. A46-7540/2014).

These conflicts are also well known in other countries of the world (Iro, 2008). In the course of their resolution a neighbor appealing against siting of a cell phone tower on another plot must prove that this change restricts the use of his property and decreases its value. The plaintiff may file a claim to the court for compensation also if a local government by its decision modifies land use conditions infringing his rights (Sommers, 2005). There are also ongoing discussions about the possibility of placement of advertising signs on neighboring plots, the degree of public regulation and forms of overcoming *neighborhood nuisances* (aesthetic, informational and other kinds) (Loshin, 2006);

2) Today, there are quite a lot neighborhood conflicts between owners of industrial enterprises once built on the outskirts of cities but later situated in the centers of residential areas and residents of private houses and apartment buildings owing the corresponding land plots as private property (or joint shared property). Evaluation of the health hazard from *odors* of this plant involves application of environmental standards stipulating exposure limits for harmful substances. It is impossible to regulate the parameters and the size of such emissions in another way. Moreover, if the proposed amendments to the *Civil Code of the Russian Federation* are approved, this will more likely to impede rather than to facilitate consideration of even common neighborhood conflicts by judges. For example, a *classical* neighborhood dispute is associated with maintenance of an excessive number of cattle on the plot, which leads to unpleasant odors for a neighbor. At the moment, this issue is settled by means of tools of public law (sanitary norms and regulations). It will be quite difficult to resolve it through implementation of Roman ideas of neighbor's *borders of patience*, as there is no objective criterion of evaluation of these nuisances;

3) Even more negative consequences will follow if the rules of the draft law referring construction of buildings and structures which a neighbor may not *like* to *neighborhood* issues will come into force. The reasons for this *discontent* may consist in the fact that residents bought apartments or houses because this neighborhood provided suitable conditions (lack of noise, roads and railways, a small number of residents, etc.). However, in this case these citizens, prohibiting new construction in their or a neighboring area, will violate public interests. It is necessary to deny this right because land owners already have the *right to veto* through urban planning procedures, including zoning and elections of local governments (Lewyn, 2015).

The urban development zoning procedures existing in most developed countries of the world are one of the most efficient ways to ensure sustainable development at the local level, creating criteria of *comfort of living environment* for citizens. This zoning implies that the whole area of an urban district is divided into territorial zones. Urban planning regulations are established for each of them. They stipulate the height and the number of storeys, the percentage of site development, the distances from the plot boundaries, the intended use of the facility being built (industrial, residential, commercial, etc.). These norms and regulations make it possible to resolve not only neighborhood disputes regarding construction of buildings but also many other ones. For example, in the USA a plaintiff considered restriction of his rights to extract sand and gravel caused by zoning illegal. He made an equal protection claim based on the fact that a competitor was allowed to extract sand and gravel from a 125 acre parcel contiguous to his. However, the Supreme Court of the USA concluded that in this case there were substantial differences in terrain and degree of development between these two contiguous parcels. Zoning draws lines that may benefit one owner over another. Nevertheless, merely alleging that a competitor might prosper as a result of zoning is not sufficient under the equal protection clause (Kramer, 1996).

In case of use of Roman principles of resolution of neighborhood conflicts supposed by Russian lawmakers instead of all these contemporary rules, civil (neighbor) law and urban planning law come into artificially created conflict, which is hardly appropriate. What is different about it is that neighbors can be notified of the expected construction, as it is done in some European countries. However, this neighbor may not prohibit construction of immovable property meeting the requirements of law;

4) A typical example of modern neighborhood conflicts is impact on neighboring plots of polluted air and water from land plots occupied by large livestock farms. In addition, their neighbors suffer, first, considerable economic losses, as this neighborhood reduces the cost of their immovable property. Second, environmental effects of industrial livestock farming (pollution of air, water) involve various health effects for rural residents, who cannot avoid consumption of polluted well water and toxic air emissions. Harmful odors impair the quality of life of the neighbors, which also implies a significantly higher level of tension, depression, anger and fatigue among the residents owning neighboring houses and land plots (Murphy, 2008). Currently, these issues are settled (though not always successfully) by public law methods – by means of development of a system of sanitary regulations and environmental stand-

ards governing the level of pollution of water bodies and air by livestock farms and establishing sanitary protection zones around them – a territorial barrier to the neighboring residential area. Attempts to solve these issues in rural areas only by means of private law methods will have no effect;

5) The issue of guarantees of rights of national minorities or the poor (socially disadvantaged) groups of population is still unsettled in case of location of hazardous waste sites in neighboring areas, construction of industrial or other facilities polluting the environment (for example, waste incineration plants) (Mank, 1995).

The issue of eradication of poverty in the context of sustainable development was first raised at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. The declaration of principles (*Rio Declaration*) issued at this conference states, that the quality of life of people as a priority for sustainable development is implemented through Principle 5 (eradicating poverty, decreasing the disparities in standards of living and better meeting the needs of the majority of the people of the world). With regard to neighborhood relations this issue manifests itself in the fact that environmentally harmful facilities are located on the outskirts of cities, and owners of cheap property suffer from their hazardous emissions. In Russian science this issue has not been discussed yet, while only in 2011 in the Russian Federation 14 684 authorized waste sites of total area of 4 070,158 thousand ha were organized, and 41 854 unauthorized landfills were detected (State report, 2012). Emergence of the latter is just caused by the problem of poverty, as rural residents do not have enough money to pay legal waste disposal;

6) Underground storage tanks. At the moment, such an aspect of neighborhood relations as placement of underground urban facilities is not regulated in Russia. These underground facilities can be various, ranging from car parking or placement of underground tanks of filling stations to laying utilities systems. Today, there is no real way to calculate the total number of underground storage tanks which remain in the ground, consequences of spilled gasoline or other liquids. It is believed that such an inventory and liquidation of the underground pollution consequences only in the USA will exceed $ 41 billion and take more than 30 years (Johnson, 1996/97). Moreover, the annual increase of information about failures of concrete and citizens (their property) affected by it allows us to suggest a discussion of this aspect of neighborhood relations. Settlement of this issue may consist in extending application of urban development regulations not only to surface but also underground facilities, thus defining the parameters and types of their permitted use in different urban areas establishing a number of prohibitions. In addition, it is reasonable to extend the scope of public hearings;

7) A separate issue is distribution of responsibility between sellers and buyers of plots contaminated with hazardous substances which caused damage to the neighbors. This issue is actively discussed in juridical science of the USA. It is noted that settlement of issues of responsibility will depend on whether an innocent purchaser knows that the property purchased by him is contaminated and may adversely impact the property of the plaintiff-neighbor. Consideration of such cases often involves a problem of proving the causal relationships between the presence of hazardous substances and the extent of the caused damage. It is necessary for a balanced allocation of responsibility between guilty neighbors (or previous owners of the plot). The fact is that numerous types of hazardous substances may be present in different places and originate from different sources of emissions, consequently, the lack of potential information of the period between the release and damage creates difficulties in proving causation (Sarlo, 1999).

Moreover, we can point out specificity of neighborhood conflicts if an adjacent land plot is used for mining operations (as mining industry is little compatible with other types of land use), which is particularly obvious in case of production of shale gas or oil on a neighboring plot through the use of hydraulic fracturing technology. In this case residents of neighboring settlements often complain about polluted water, ruined farmland, and headaches from airborne toxins. They are often displeased with the noise, trucks, dust, and itinerant workers living on drill sites that overrun their peaceful agricultural town (Apple, 2014). Neighborhood with areas occupied by ports, stations and airports (restrictions on certain types of activity, noise, etc.), areas occupied with energy facilities (transmission lines), construction of canals, ponds, dams or other similar facilities in a neighboring area, which implies a threat to the security of neighboring plots due to a possible breakthrough of hydraulic structures (Pensley, 2008) (by the way, this problem has not been completely solved since the time of King Hammurabi), creation of specially protected natural areas (for example, in case of creation of a reserve close to a citizen's plot, a number of prohibitions and restrictions are imposed on citizens in its protection zones) also have their own specific features. We should point out the specificity of neighborhood relations with military facilities (for example, in 2012 in Chelyabinsk Region undermining of old ammunition by servicemen in the military grounds caused damage to residents of five settlements, houses were reported damaged due to ground vibration during explosions – chimneys, furnace equipment of houses located in the neighborhood were damaged). This list can be continued.

Hence it follows that environmental legislation existing in Russia provides no guarantees for sustainable development, is based on obsolete legal views

and unable to prevent modern environmental threats to local population.

### 3. New challenges and prospects for development of neighbor law in the 21st century: some discussion questions and suggestions in the context of strategies for sustainable development

Along with remaining classical neighborhood conflicts existing since the time of Roman law and emerging contemporary issues of neighbor law, which are not solved completely, we can observe the gradually appearing outlines of new threats to neighborhood rights resulting from the challenges of the age of globalization. The post-Soviet scientific doctrine, legislation and courts are not ready at all to resolve this new generation of neighborhood conflicts.

1) Already since the end of the 20th century *green energy* has been growing rapidly, which is associated with its production, mainly from solar panels and wind turbines. The very *green energy* is a technological step forward and helps to reduce harmful emissions. Development of renewable energy sources is an important step towards sustainable development, and has been repeatedly supported at international environmental summits of the UN (for example, items 127-129 of *Future We Want*, the outcome document of the United Nations Conference on Sustainable Development, RIO+20, are devoted to this issue). However, along with all obvious advantages, development of *green energy* also led to significant changes in neighborhood relations resulting from a completely different set of factors.

These changes may mean allocation of separate areas during zoning of municipalities where it is forbidden to perform any construction or plant trees which would infringe *sun rights* of neighbors, as it already happens in the USA (Klass, 2011). In addition, there is information that massive accumulation of wind turbines can affect the climate worsening ventilation of areas. Solar panels shade lands, which leads to changes in the soil conditions and death of plants. Adverse environmental effects of their operation are considered to include heating of air due to solar radiation passing through it, which causes changes in the heat balance, humidity, wind direction. An important factor of impact of wind turbines on the environment is their acoustic influence. Sound effects from wind power plants are of different nature and divided into mechanical (noise of gears, bearings and generators) and aerodynamic effects. Interference caused by reflection of electromagnetic waves by blades of wind turbines can affect the quality of television and microwave radio transmissions, as well as a variety of navigation systems in the area of wind parks (Sylkina, 2016). Finally, many citizens consider the appearance of windmills unaesthetic, violating their right to the *view from the window*. They complain about direct physiological effects of operation of wind turbines, including rapid heartbeat, nausea and blurred vision caused by ultralow-frequency sound and vibrations of machines. Integrated neighborhood complaints may emerge with statements that the wind engine is loud, affects the health, and the dirt and dust reaches the neighboring plot reducing its cost (Walker, 2011).

2) The priority remaining in the policy of most countries of the world to ensure the economic interests at the expense of social and environmental ones, in violation of recommendations of the United Nations Conferences on Sustainable Development, involves a variety of adverse environmental effects, including global climate change. According to research conducted in Russia and state reports issued on its basis, climate changes are characterized by changes in air temperature and precipitation levels. Trends of growth of air temperature have been recorded in Russia for several years (State report, 2014). The effects of such climate changes may be most unexpected. For example, in 2015, in Volgograd Region, the Volga-Akhtuba floodplain experienced a drought that is the strongest in the history of the region and has involved a range of unexpected consequences.

First, in May-June 2015, in villages located within the boundaries of the Volga-Akhtuba floodplain there were cases of conflicts between neighbors, local residents of different settlements over access to the dry lakes necessary for irrigation of crops.

Second, new species of plants and insects not peculiar to this area have been recorded in the Volga-Akhtuba floodplain and in the city of Volgograd. For example, for the first time in many years of observations in Volgograd, numerous bites of Mediterranean black widows, inhabiting the south in the deserts of Central Asia, were recorded. Mediterranean black widows build their shelters on the slopes of ravines, ditches, abandoned structures, piles of garbage. From this it follows that the failure of owners of land plots to perform their responsibilities of rational use, stockpiling of branches, other garbage near their plots can cause nesting of dangerous insects that threaten the life and health of all the surrounding neighbors. We should also note that in case of reproduction of these dangerous to humans insects it is not possible to resolve the conflict with a neighbor by means of private law, as consideration of the civil claim will take a long time, but intervention of the sanitary epidemiological services will give a quick effect.

3) One of *classical* examples of neighborhood conflicts are conflicts over maintenance of livestock. However, apart from unpleasant odors or destruction of crops by animals, the *livestock* aspect of neighborhood relations in the 21st century is increasingly burdened by mass diseases of livestock, bird flu or swine flu. The probability of spread of these diseases is especially high in large farms, which are often characterized by tightness and filthy conditions of

maintenance of birds or animals, which creates perfect conditions for the spread of viral diseases among animals and their transmission to humans (Stathopoulos, 2010). This situation gives rise to questions about compensation for damage by the neighbor who fails to take measures for veterinary examination of sick animals. It is necessary to develop new methods of evaluation of the size of this damage and proving of causal relationships, as such epidemics spread from one infected animal to the entire livestock (poultry) in the village, and often cause diseases of people, often fatal. It is also necessary to develop new methods of prevention of these epidemics with the participation of all the neighbors.

4) One of the most discussed technological breakthroughs of the 21st century is the invention and mass use of nanotechnology. In the context of our interest, it should be noted that nanomaterials can enter the environment through their use in agriculture, industry, etc. Studies of biologists, medical professionals and representatives of other sciences show that nanoparticles are not always harmless to human health and the environment. Nanoparticles released into the environment are hardly biodegradable and absorbed. This is a new class of pollutants, the harm of which is due to their unusual properties, including mobility, stability in soil, water, air, bioaccumulation, unpredictable interaction with chemical and biological materials (Antsiferova, 2012). If the environmental effects of use, for example, of conventional pesticides are well known both by lawyers and biologists (Morriss and Meiners, 2003), the further development of nanotechnology will lead to new emissions of modern plants or use of nano-pesticides and nano-agrochemicals in agriculture with damage to the health or property of neighbors.

This will be a completely new type of neighborhood disputes and threats to national sustainable development in all countries of the world.

## Conclusion

Dating back to Ancient Rome as an institution of private law, neighbor law underwent significant transformation over the following centuries. By the middle of the 19th century environmental and technological threats become more significant in neighborhood relationships, and since the beginning of the 21st century such threats have been acquiring a new systemic feature due to emergence of new problems caused by the age of globalization (for example, climatic ones). Hence it follows, that the issues of modern neighbor law gradually obtain all signs of complexity, and their proper regulation is possible only through the synthesis of achievements and methods of various social, humanitarian and other sciences. Strengthening of this specificity is greatly influenced by the dynamics of population settlement that involves emergence of giant megalopolises where millions of people reside at the same time. This causes new types and forms of neighborhood relations that had not existed before.

This issue should be considered in the context of the concept of sustainable development, emergence of which resulted from development of national environmental legislation due to the increased anthropogenic impact on nature as well as awareness at the international level of the sharp deterioration of the environment on a global scale and the adverse social and economic consequences arising in connection with it. In addition, the issue of sustainable development should be addressed daily not only at the global or national levels but also at the local level, where people involved in neighborhood conflicts directly live. At this local level, *comfort of living environment of citizens* can be considered as one of the criteria of sustainable development, which is achieved through adoption of laws by the central government bodies as well as legal acts of local government bodies which combine rules of private and public law, the reasonable balance of which allows achieving the set goals.

Despite the constant increase in the *specific weight* of rules of public law in the mechanism ensuring sustainable development at the local level, this does not mean a complete rejection of the Roman idea of tolerance in neighborhood relations, the need *to endure the neighbor's impact*. It is rather about the further development of criteria of inadmissible impact with consideration of the new needs of life, with the subsidiary application of norms and regulations existing in public law as the main criteria of excess of admissible impact in neighborhood relations.

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