

## **Requirements for the Development of Latvian Agricultural Risk Management System**

### **Prasības Latvijas lauksaimniecības riska vadības sistēmas attīstībai**

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**Abstract.** In conformity with Paragraph 5, Subparagraph 131 of the European Community guidelines regarding the state aid for the agricultural and forestry sectors for the years 2007-2013 each European Union Member State shall introduce the agricultural risk management system by the year 2010. Under Article 12, Paragraph 1 of the law “On Agriculture and Rural Development” agricultural risk management assures the efficient system for the compensation for losses caused by agricultural production risks. The goal of the concept of Latvian agricultural risk management policy is to develop the agricultural risk management system which in future would envisage specific actions performed by both the state and farmers under the emergency situations. The article deals with the analysis of the experience of the EU member states concerning the introduction of agricultural risk management systems as well as the research on the possible variants for introduction of risk management system in Latvia. The variant is to be supported as the agricultural risk management policy concept envisages supporting the payments of insurance premium and the establishment of compensation fund. This solution is characterised by the ensured state basic responsibility and participation using the compensation fund, the funds which consist of the state and farmers’ annual payments. The systems analysis has been performed for this variant regarding the information system introduction in order to find out the information system integration possibilities necessary for the risk management policy implementation.

**Key words:** agricultural risk management system, information system, systems analysis.

### **Introduction**

Since 1998, the elements of producers’ risk management system have become an integral part of the practical structure of Latvian agricultural state policy. Initially they were the instruments of compensation for losses caused by market crisis, and they were in a form of market intervention and compensation payments. Later they were followed by the promotion of preventive elimination (lessening) of possible risks and losses through the purchase of production insurance policy in a form of subsidies, thus hoping for the development of production insurance system. In addition to the above mentioned measures, since 2002 the Cabinet of Ministers has repeatedly granted funds from the national budget for the compensation for losses caused by adverse weather conditions. Since the accession of Latvia to the European Union Common Agricultural Policy, combating of losses caused by possible market crisis has become the competence of the Common policy instruments. In conformity with Paragraph 5, Subparagraph 131 of the European Community guidelines regarding the state aid for the agricultural and forestry sectors for the years 2007-2013 each

European Union Member State must introduce the agricultural risk management system by the year 2010.

During the last years – since 2004, the government has implemented into practice and institutionally strengthened the risk management policy with three main state participation measures paid to the farmers for the compensation for losses caused by risks. They envisage:

- 1) the subsidisation of the purchase of insurance policies as a possible regular state aid to every concerned producer;
- 2) the compensatory payments from the funds of national budget, guaranteed by the state, under the epizootic conditions of certain animals. Such funds are envisaged for emergency cases;
- 3) the compensatory payments for losses caused by adverse weather conditions, natural calamities and animal diseases and similar reasons. These compensatory payments are disbursed in conformity with certain political decisions.

Annually the co-financing of the purchase of insurance policies is included in the state subsidisation programmes for agriculture. While the financial

resources for the compensatory payments in case of losses are not really planned. In case of losses the Ministry of Agriculture considers the farmers' applications, and makes decisions on the granting of funds, redistributing the existing budgetary resources or demanding additional financing from the national budget. Therefore the present approach has several considerable disadvantages:

- a) public expenditure cannot be forecasted, and it is unbalanced within a period of time;
- b) the system does not motivate farmers to perform the risk management activities on their farms, and thus lessen the risks and potentially possible losses;
- c) the system does not solve the problem of prevention and lessening of losses – it only diminishes the consequences, and their financial manifestation;
- d) the system distorts the competitiveness in the market of risks and compensatory measures for losses, hindering the development of privately financed service – the insurance of agricultural risks;
- e) it does not precisely define the principles of co-operation between the state and farmers, the limits of the responsibilities of parties, their obligations, and accountability;
- f) the present system is more based on the political decisions, and it cannot be considered as durable and sustainable policy, which is observed by producers, when working out the strategy of their business development.

The result of the above mentioned disadvantages is a situation when both the political management of the sector and the authorised representatives of agricultural sector, being aware of the threat the situation causes, have agreed on the necessity to develop new Agricultural risk management policy (Fīrere, 2008).

The aim of the article is to find out the development tendencies and the principles for introduction of Latvian agricultural risk management system. In order to achieve the aim, the following objectives are set:

- to analyse the experience of the EU member states regarding the introduction of agricultural risk management system;
- to analyse the possible variants of risk management system to be introduced in Latvia;
- to analyse the variants of the concept of Latvian agricultural risk management policy;
- to perform the systems analysis regarding the information system introduction necessary for the implementation of risk management policy.

## **Latvian Agricultural Risk Management Policy**

Risk management is based on the identification and assessment of risks (Arhipova, Arhipovs, 2005; Riski lauksaimniecībā ..., 2005), studying their possible influence on the farm, and choosing one of four strategies:

- 1) to leave the risk zone – to reprofile the farm by choosing specialisation with less risk;
- 2) to perform no particular activities regarding the risk lessening – the farmer takes upon himself all the consequences that might occur in case of such risk;
- 3) to take risk lessening measures – choosing safe farming, undertaking the preventive measures – vaccination of livestock, spraying of cultivated plants, establishment of rational rotation of crops, and other measures;
- 4) to transfer risks or hand them over to the third party – insurers, funds, and other financial institutions.

Under the present conditions the farmers do not observe the risk management principles concerning the issues related to the agricultural risk management. In most cases the farmers prefer not to transfer the risk to the insurers, considering that these risks had been taken by the state. Such point of view exists irrespective the fact that there had been no agreements signed regarding the transfer of risk to the state, and there had been no binding payments made, which contradicts to the normal practice. Although after several years of work, the Ministry of Agriculture provided for hope in spring of 2008 that from May, the fund of agricultural risk insurance in Latvia might start functioning; the introduction of the system is delayed. Besides, the insurance system has become more complex at the stage of inter-ministerial harmonization, and thus it is less attractive for the farmers (Fīrere, 2008). According to Aivars Lapins the deputy state secretary of the Ministry of Agriculture, the rules for the operation of agricultural risk insurance fund, most probably, would be submitted to the government in July. Risk Management Fund will be introduced within the Agricultural Risk Management System. It will deal with the problems related to the agricultural production risks, and it will consist of the state and farmers' payments. Thus there will be savings accumulated, and only in clearly defined cases there would be compensatory payments made from the Fund. The State Treasury will be the holder of the finances of the fund, but Rural Support Service will administer the payments made in the fund and the compensatory payments made from the fund. The payments in the fund will be made annually by both the farmers and the state (Par lauksaimniecības risku ..., 2008).

Latvian Agricultural policy regarding risk management issues is defined only partially. There is a procedure worked out, how farmers can apply for receiving subsidies to cover partially insurance premium. But the terms for receiving insurance compensatory payments are provided in the insurance contract. Thus there had been a stable system established which is legally grounded and provides for the liabilities, obligations and rights of all parties involved.

However, the procedure for the compensation of losses is not developed. There are no main elements:

- a) applicant's definition;
- b) the definition for the losses to be compensated;
- c) the terms and volume for the compensation for losses;
- d) the form and procedure of application submission;
- e) the procedure for the consideration of application and prevention of losses;
- f) decision-making and granting of financing.

Thus the present system is more grounded on the political decisions, which are based on the experts' evaluations regarding the topicality and importance of separate cases as well as the validity of applications concerning losses, instead of figures. As a result in some cases the received compensatory payments do not correspond to the volume of losses, and are unreasonably small or too large. Although, within the framework of present policy, the state uses two instruments (direct compensations and subsidisation of insurance premium) for the compensation for agricultural losses, they are not mutually balanced. Farmers prefer not to insure their risks at the insurance joint-stock companies, relying on the state that would cover their losses in case of any risks (Pamatojuma izstrāde ..., 2006).

Under Article 12, Paragraph 1 of the law "On Agriculture and Rural Development", agricultural risk management assures the efficient system for the compensation for losses caused by agricultural production risks (Lauksaimniecības un lauku ..., 2004). The Ministry of Agriculture has started to develop the agricultural risk management system. By participating in the insurance system a farmer would have a guarantee that he would receive the compensatory payments for the losses. The state would also benefit from the system, because it would clearly determine the criteria according to which the farmers could be granted the compensatory payments. Thus the state would not need to compensate single losses. The Ministry of Agriculture plans to submit to the government the conceptual project of the agricultural risk management system by September 1, 2008 (Krastiņa, Klints, 2008).

Each European Union Member State shall introduce the agricultural risk management system by the year 2010. The necessity for the insurance of agricultural risks is provided not only by the EU rules, but also forced by situation, when every year the farms are exposed to the danger of cataclysms. The research was performed on the experience in other countries in order to develop the agricultural risk management system (Iespējas un risinājumi ..., 2005).

### **The Experience of the EU Member States Regarding the Introduction of Agricultural Risk Management System**

The EU member states have developed different systems that are used to manage the agricultural risks. On the whole the systems could be grouped according to the degree the state is involved in the risk management.

In Greece, the agricultural risks are mainly managed by active state participation. The state involves farmers in the insurance system, administrates it and guarantees the covering of losses. Thus the activities of private sector are limited and are related to the products and risks the state does not cover, or it provides additional covering for the insurance offered by the state.

Spain has rich experience regarding agricultural insurance. Within the agricultural insurance system in Spain there are no risks divided, which should be insured in the private sector, from the risks, which are the objects of the aid for the national agricultural policy. All insured agricultural risks are covered, using the private sector, but the state provides the subsidisation of all types of insurance policies. Spain and Portugal have established the co-operation between the private insurance and state, where the state dominates. The state provides both subsidisation of premium and reinsurance. Private insurance companies are involved in the system, administrating programmes and partially taking upon them risks and covering losses.

Italy, France, Austria, Germany and the Netherlands have the agricultural insurance systems, which are mostly private. However, there are also differences among these countries, and they are related to the amount of premium subsidised. For example, in Italy the state is involved in the agricultural risk management and the covering of losses with the compensation system the subsidisation of insurance premium as well as the private insurance companies are also involved. The state partially participates in the agricultural risk insurance system, subsidising the premium in certain regions, which are particularly

exposed to the danger of disasters and adverse weather conditions.

In the Netherlands, the participation of state in the agricultural risk management is relatively limited. In relation to the covering of losses the Ministry of Agriculture and farmers have agreed on the system, within which there is a co-operation among the farmers, the Ministry and credit institutions. Within this system the state can receive capital from a private bank for financing or co-financing of actual losses. In Germany, like in the Netherlands, there is a voluntary, private insurance system, which is based on the offer provided by insurers, instead of the governmental agencies (Risk Management Tools ..., 2001).

In Latvia there had been several attempts to encourage the farmers to insure their planted fields against the losses caused by adverse weather conditions. However, the farmers do not prefer insurance. Already for several years the farmers blame the insurers that they are not interested in this type of business – it does not provide them profit. In their turn, the insurers think that the farmers are not interested themselves in the solution of their own problems (Kraštinā, Klints, 2008).

### **The Concept of Latvian Agricultural Risk Management System**

Since 2004, the state has implemented into practice and institutionally strengthened the risk management policy with three main state participation measures paid to the farmers for the compensation for losses caused by risks. They envisage:

- 1) the partial subsidisation of the purchase of insurance policies from the private insurance companies as a possible regular state aid to every concerned producer;
- 2) the compensatory payments from the funds of national budget, guaranteed by the state, under the epizootic conditions of certain animals. Such funds are envisaged for emergency cases;
- 3) the compensatory payments for losses caused by adverse weather conditions, natural calamities and animal diseases and similar reasons. These compensatory payments are disbursed in conformity with separate decisions, if it is admitted that a natural calamity has taken place in the country.

This concept is based on the basic principles that the state responsibility and co-responsibility should be related only to the risks caused by adverse weather conditions, epizootic conditions, and natural calamities. According to the spheres and types of risks, the levels of state responsibility, the forms of their implementation within the framework of

agricultural risk management policy are grouped as follows:

- a) the state basic responsibility in case of large volume risks – natural calamities, emergencies, infectious diseases of animals or plants under the state monitoring and epizootic cases;
- b) the state co-responsibility in case of average volume risks – adverse weather conditions;
- c) farmer's responsibility in case of the rest of risks (spheres for which the state is neither responsible nor co-responsible).

The aim of the concept is to develop the agricultural risk management system, which would provide for specific activities of both the state and farmers in case of emergency in future. The developed solution variants are based on a single goal and basic principles, but the difference between the variants exists at the level of institutional ensuring by means of which the problem is being solved (Par koncepciju ..., 2007). In order to evaluate the possible variants of risk management system introduction, it is necessary to define clearly the state participation in particular cases. When introducing any of offered variants, it, like any other type of state aid, will be submitted for the approval of the European Commission.

The concept offers the variants of solution.

### **The Concept of Latvian Agricultural Risk Management System: Variant 1 – only the payments of private insurance premium are supported**

The aid is granted for covering insurance policy purchase costs to insure cultivated plants and animals used for the production of agricultural products. The aid covers up to 50% of the costs of insurance premium. The aid can be increased up to 80% of the costs of insurance premium, if the insurance policy indicates that it covers only the losses caused by adverse weather conditions, which should be considered as natural calamities (frost, hail, ice, rain or drought, which destroy more than 30% of the average annual production of one farm, taking into consideration the production of three previous years).

This variant also offers an opportunity for the organizations or enterprises founded by farmers to establish, on the basis of their own initiative, private funds for compensating for losses caused to farmers. According to the premium calculations performed by the private fund and conditions set by this fund, the state covers 50% of the insurance premium costs, but not more than the price of a single unit (area ha or cattle unit) provided by the laws and regulations. The private fund accumulates these financial means and, in case of emergency, decides on the granting

of compensatory payments to the farmers for the losses.

The aid payments are administrated by Rural Support Service (hereinafter – RSS) in conformity with the laws and regulations on the state aid for the agricultural development. On the basis of farmers' applications (in case of a fund – on the request of each fund (data aggregation)), RSS settles the accounts with the insurance companies within 30 workdays after it has received the application (in case of a fund, the accounts are settled with the holders of the fund within 30 workdays after RSS has received the application).

The financing for ensuring of payments is envisaged in conformity with the laws and regulations on the state aid for the agricultural development. The state aid for the agricultural development may not be less than 2.5% of the total expenditure of annual base budget.

Every year, within the framework of measures, the financing in the amount of LVL 200 000 is used, and the last evaluation of data shows that year by year the farmers have become more and more active concerning the purchase of insurance policies. Thus there is no need for additional financing of insurance premium payment aid from the budget.

In case of a private fund, the co-financing for the insurance premium payments is envisaged in conformity with the laws and regulations on the state aid for the agricultural development on the basis of experience gathered during previous years (every year there are regulations worked out on the state aid for the agricultural development and the procedure for granting such aid. During the last three years, LVL 100 000-200 000 have been allocated for the partial aid of insurance premium). The total financing for these measures is determined in compliance with Article 5, Paragraph 3 of the law "On Agriculture and Rural Development" providing that the state aid for agricultural development is 2.5% of the total expenditures of the annual base budget, which are covered from grants from general revenues, deducting the contributions to the budget of the European Union. Additional financing for the implementation of this variant will not be requested – it will be implemented within the financial resources of the national budget sub-programme 21.01.00 "Subsidies for the Producers of Agricultural Products".

**The benefits from the introduction of the solution:**

- a) the commensurability of the payments of state finance with the benefit from the functioning of programme;
- b) the involvement of private insurance companies in the system in order to facilitate the offer of additional services;

- c) lessening of market distortion;
- d) the compensatory payment granted to the policy holder is proportional to the caused losses;
- e) there is no need for changing the present administration system;
- f) there is a possibility to provide regular state aid to every concerned producer of agricultural products regarding the purchase of insurance policy.

**The problems related to the introduction of the solution:**

- a) insurance joint-stock companies do not offer the variety of insurance opportunities corresponding to the farmers' needs;
- b) the provisions, offered by insurance companies, are not attractive enough, because their aim is gaining profit and providing for all expenses, related to risks, in the cost of policy;
- c) lack of the initiative of non-governmental organizations concerning the establishment of funds;
- d) problems in relation to the attraction of financing for maintaining of operational activities of private funds.

In order to implement the offered variant, it is necessary to evaluate the laws and regulations, providing for the procedure of the establishment of private funds and the principles of their functioning. When preparing the draft regulatory enactment on the state aid for agriculture in 2008 and the procedure of its granting, there should be regulations provided for the covering of insurance premium costs in the private funds.

### **The Concept of Latvian Agricultural Risk Management System: Variant 2 – payments of insurance premium are supported and the establishment of compensation funds**

The essence of the solution regarding the compensation fund is characterised by the fact that, in order to prevent the co-responsibility risks, the state uses the compensation fund, the financing of which consists of annual payments made in the fund by subjects – both the state and farmers.

A farmer and the state make determined, equal payments in the compensation fund. These payments accumulate, and in clearly defined cases the compensatory payments are made from the fund. The basic principles of the compensation fund are as follows:

- 1) risks to be insured: drought (heat), incessant rain, frost and black frost, storm;
- 2) insurance against the farmer's not obtained harvest;

- 3) the minimum area to be insured is 1 ha; if the farmer participates in the fund, all the territory of the farm is insured;
- 4) the payment to be made in the fund is determined on the basis of risk occurrence probability;
- 5) in case of risk occurrence, the compensatory payments are granted only to those farmers, who have made payments in the fund on voluntary basis;
- 6) the compensatory payments from the fund are granted only if there are the respective meteorological data on the deviation of weather from the norm, and the adverse weather conditions have caused damage to the area of cultivated plants (including those of fruit-trees and bushes as well as forage crops) of at least 30% of the total area of the respective crop in a particular region (the region is considered to be RSS regional offices), but the compensatory payments are calculated for each farm individually;
- 7) the compensatory payments are calculated and granted for the actual losses. If there is insufficient financing in the fund, the amount of compensatory payments are determined according to the financial resources available in the fund or by scaling down the amount of compensatory payments;
- 8) there should be at 10% reserve left in the fund from the payments in the fund; the rest of the fund resources are available for the compensatory payments;
- 9) the deadline for the introduction of compensation fund is the year 2008.

The State Treasury which ensures the liquidity and profitability of the fund is the holder of the finances of the fund, but the payments made in the fund and the compensatory payments made from the fund are administrated by RSS in conformity with the procedure provided by the laws and regulations. The payments in the fund are made by both farmers and the state on an annual basis.

The payments in the fund are made on the basis of the application submitted by the applicant for the aid on receiving the aid regarding the single area payment. When the applicant receives the aid payment, RSS deducts from it the payment in the compensation fund (specially established non-budgetary account), if the applicant has agreed to make such payments and to participate in the fund. When the applications from the national budget sub-programme 21.01.00 "Subsidies for the Producers of Agricultural Products" had been aggregated, part of the state co-financing is being transferred to the compensation fund. This part is proportional to the payments made in the fund by farmers.

Then all the payments made in the fund are directed to the holder of the financial resources of the fund, which ensures the management of financial resources and maintaining of financial rate of return and liquidity.

When, in conformity with the laws and regulations, emergency occurs (EC Regulation No. 1857/2006, Article 2, Paragraph 8), the applicant for the aid submits an application to RSS on the losses caused to his farm, and the report of inspection issued by the parish consultant. On the basis of submitted application and the report of inspection issued by the parish consultant, RSS performs inspection on their farms for a part of applicants, calculates the caused losses, submits the application for the financing to the holder of the compensation fund and settles the accounts with the applicants for the aid.

Since the state participation in the fund is a state aid and the financial resources will be taken from the national budget sub-programme 21.01.00 "Subsidies for the Producers of Agricultural Products", the fund is a subject to the provisions defined in Sub-paragraph 4.5 of the Regulations No. 78 "Regulations on the State Aid for Agriculture in 2007 and Procedure for the State Aid Granting", issued by the Cabinet of Ministers on January 23, 2007 that Rural Support Service performs selective inspection of at least 5% of decisions made regarding every case.

In case of a local risk (for instance, hail, etc., or infectious diseases) RSS compulsory performs inspection regarding each application.

In order to ensure the functioning of such fund, it is necessary to plan about LVL 1,000,000 as the financing from the national budget for the first year of the functioning of fund. This financing would ensure the functioning of the administrative institution and the execution of its functions in conformity with the procedure provided by the laws and regulations. In future, the current administrative costs of fund are covered from the payments made in the fund.

The part of state co-financing for the ensuring of payments in the fund is envisaged annually in compliance with the laws and regulations on the state aid for agricultural development. The total financing for these measures is determined in compliance with Article 5, Paragraph 3 of the law "On Agriculture and Rural Development" providing the state aid for agricultural development in the amount of 2.5% of the total expenditures of the annual base budget, which are covered from grants from general revenues, deducting the contributions to the budget of the European Union. Additional financing for the implementation of this variant will not be requested – it will be implemented within the financial resources of the national budget sub-programme 21.01.00 "Subsidies for the Producers of Agricultural Products".

**The benefits from the introduction of solution:**

- a) clearly defined institutional structure of risk management system, which determines the co-operation principles of all concerned parties, their obligations and responsibility;
- b) in case of emergency there is a possibility of immediate decision making and use of necessary financial resources for the compensatory payments;
- c) the farmers are involved in the solution of problems, and the psychological factors play a significant role: if one participates with his/her payment in the fund, s/he is granted a compensatory payment in case the risk occurs;
- d) the regulations are clearly defined, therefore political decisions are not necessary in case the risk occurs.

**The problems related to the introduction of the solution:**

- a) the establishment of the fund and ensuring of its efficient functioning may take several years;
- b) the functioning of the fund is based on the principle of voluntary participation, which may not be supported by farmers. Thus the administrative costs of the fund may be higher than the payments made in the fund;
- c) in comparison to Variant 1, there is a need for additional expenses regarding provision and maintenance of the administrative capacity.

In order to implement the offered variant, it is necessary to prepare proposals for the needed amendments of the laws and regulations on the state aid for agricultural development. It is necessary to amend the law on RSS and the law "On Agriculture and Rural Development". It is necessary to work out the regulations on the administration and monitoring of the fund as well as the amount of payments to be made in the fund.

**The Concept of Latvian Agricultural Risk Management System: Variant 3 – the state aid is provided for the losses caused by adverse weather conditions and for the insurance premium payments**

This variant offers to maintain the present system of compensation for losses in case of emergency. If adverse weather conditions have caused significant losses to the agricultural producers, and emergency occurs at the state level, then, on the basis of informative report submitted to the government, the decision is made on granting compensatory payments for the partial covering of losses.

The report contains data on the meteorological deviation of weather from the norm as well as the data analysis on the actual caused losses and

their comparison to the period of time of previous three years. The evaluation and determination of compensatory payments shall be performed in conformity with the provisions of the European Commission Regulation (EC) No. 1857/2006 on the application of Articles 87 and 88 of the Treaty in relation to the small and medium enterprises involved in the production of agricultural products, and the amendments to the Regulation (EC) No.70/2001.

The aid payments are administrated by RSS in conformity with the laws and regulations on the state aid for agricultural development. The compensatory payments are granted only to the farmers, who have declared their farming area at RSS for the single area payment, and registered their animals at the Agricultural Data Centre.

Within the framework of this variant it is not possible to forecast the amount of necessary financing, because it can vary depending on the locality of emergency and the volume of caused losses. On the basis of informative report approved and the decision made by the government, the proposals for the amendments to the law "On the National Budget" and the allocation of the necessary additional financing to the national budget sub-programme 21.01.00 "Subsidies for the Producers of Agricultural Products" for the compensatory payments for losses.

In order to ensure the conformity with the provisions of the European Commission Regulation (EC) No. 1857/2006 on the application of Articles 87 and 88 of the Treaty in relation to the small and medium enterprises involved in the production of agricultural products, and with the amendments to the Regulation (EC) No.70/2001, there is a need for additional financing for the establishment and maintaining of agricultural production accounting data base.

There is no need for additional financing to cover the administrative costs, because it is ensured from the existing budgetary funds.

**The benefits from the introduction of the solution:**

- 1) clearly defined provisions for the compensations guaranteed by the state;
- 2) the present system is preserved, and there is no need for additional financing to establish new administrative institutions.

**The problems related to the introduction of the solution:**

- a) it is impossible to forecast the financial resources, and they are unbalanced;
- b) the system distorts the competitiveness in the market, hindering the development of privately financed service – the insurance of agricultural risks;

- c) the system is more based on the political decisions, and it cannot be considered as durable and sustainable policy, which is observed by producers, when working out the strategy of their business development.

In order to implement this variant, presently it is not necessary to make any amendments to the laws and regulations in force. The developed solution variants have one common goal and basic principles. The difference between the variants is the institutional ensuring.

### **The Comparative Analysis of the Possible Variants of Risk Management System to be Introduced**

Variant 1 envisages the state aid only to the payments of private insurance premium. This variant also allows for the establishment of private funds by the farmers' non-governmental organizations in order to compensate the losses caused to the farmers. The benefit for the state, when ensuring the implementation of purposeful risk management policy, is defining of political responsibility, ensuring and managing the transition from the present system to the privately financed risk management system. There is no compensation guaranteed to the farmers from the state for the losses, except the risks within the state basic responsibility. This variant does not distort the private insurance market.

Variant 2 envisages the aid for the payments of insurance premium and the establishment of compensation fund. This solution is characteristic by the fact that the state basic responsibility and co-responsibility are ensured, using the compensation fund, the financing of which consists of annual payments made in the fund by both the state and farmers. The benefit for the state, when ensuring the implementation of purposeful risk management policy, is defining of political responsibility.

Variant 3 envisages the state aid for the compensation for the losses caused by adverse weather conditions as well as aid for the payments of insurance premium. This variant offers to maintain the present system of compensation for losses in case of emergency. If adverse weather conditions have caused significant losses to the agricultural producers, and emergency occurs at the state level, then, on the basis of informative report submitted to the government, the decision is made on granting compensatory payments for the partial covering of losses.

On November 22, 2007, the Cabinet of Ministers of the Republic of Latvia issued Regulations No. 729 "On the Concept of Agricultural Risk Management Policy in Latvia", which provides for the support

of Variant 2, included in the summary of concept. These regulations also provide that by September 1, 2008, the Ministry of Agriculture should develop and the Minister for Agriculture should submit to the government, in compliance with the procedure, the draft regulations on the agricultural risk fund administration and monitoring as well as the amount of payments that should be made in the fund.

### **The Systems Analysis of Agricultural Risk Management System Introduction**

In the digital era the progress of information technologies provide not only opportunities, but also cause the necessity for simple and efficient means, how to ensure the receiving, processing, storage and exchange of information. Internet gradually, yet more and more becomes one of the main means for the provision and receiving of information and services. The era of technologies has changed the lifestyle and working habits of people, the way the farmers carry out their business and the way the governments serve their electorate. As a result, e-government has emerged towards which are moving the governments of almost all countries. The introduction of e-government is considered by the government not only at the state level, but also by the management level of enterprises for meeting their needs. Recently the electronic government or e-government has become an often mentioned concept both in Latvian society, in mass media and during the governmental discussions. E-government means the inclusion and application of IT for more efficient and modern ensuring of the functioning of the state, local governments and the enterprises related to them as well as for the establishment of mutual links between the population and organizations. E-government is a form in which the state and local government can use the new technologies for their advantage in order to ensure more comfortable availability of information and services for the population and enterprises, to improve the quality of rendered services and provide more opportunities to participate in the government (Ceļvedis e-pārvaldē, 2006).

In Latvia, the decision on the implementation of Variant 2 of the introduction of risk management system concept has been made – the aid for the payments of insurance premium and the establishment of compensation fund. The second variant of introduction envisages the establishment of compensation fund. We will view this variant in relation to the information technologies or the system. Designing of models is one of the forms to describe a system. Nowadays, when designing models, the visual modelling language UML (Unified Modelling Language) is used. UML is a special instrument by

means of which several diagrams are designed that help describe the essence of the system. On the basis of requirements set by a client and the developed subject metamodel, it is possible to work out the requirements of information system and its general description. The general description of HACCP (Hazard Analysis and Critical Control Point) information system and the requirements set for it as well as the development of risk management system technologies in the private forestry was incorporated within the framework of the sub-project “Latvian Agricultural Information Technologies System” of the co-operation project “Latvian Agricultural Risk and Crisis Management Systems” (Lauksaimniecības un pārtikas ..., 2007).

All the information obtained from the diagrams will be used to help preparing the documentation for the information system as well as for the development of information system itself. The system is described, grouping three types of diagrams: the diagrams of classes, activities, and the possibilities to use the system, because they are most often used within the process of diagram modelling.

The diagram of classes shows classes (Fig. 1), interfaces and their interaction. When modelling the object-oriented systems, the diagrams of classes are used more often, because they show the systems static model. The static model, firstly, is the identification and defining of the basic concepts of system under the research. Secondly, it is the identification of relations that might exist between these concepts. It is called a static model, as it does not describe dynamics, and changes, which take place within the system. On the

whole, the systems static model can be considered as the main, because, while designing such model, the view on the system to be modelled is formed.

The subjects – a farmer and the state – make determined, equal payments, supplementing the compensation fund. The compensation fund is necessary for the prevention of several risks, or the compensation fund insures against the following risks: drought, incessant rain, frost and black frost, storm as well as insures against the farmer’s not obtained harvest. The compensation fund is supported by the State Treasury, but it is administrated by RSS.

The diagram of activities (Fig. 2) describes the dynamics, or the sequence of activities, which should be performed in order to achieve certain goal. This diagram is important, as it shows specific activities, which should be carried out in a particular case. The reference point could be the beginning of a year, but there could be also a different reference point. At the reference point there are payments made in the compensation fund by both a farmer and the state. When the fund is established or supplemented, it is administrated by Rural Support Service, but the State Treasury ensures the liquidity and profitability of the fund. If during the year or accounting period a risk occurs, and the farmer has losses, he is paid the compensatory payment. If during the year or accounting period no risk occurs, the process of the fund supplementation is repeated from the beginning.

The diagram of use (Fig. 3) opportunities describes the functioning of system from the external

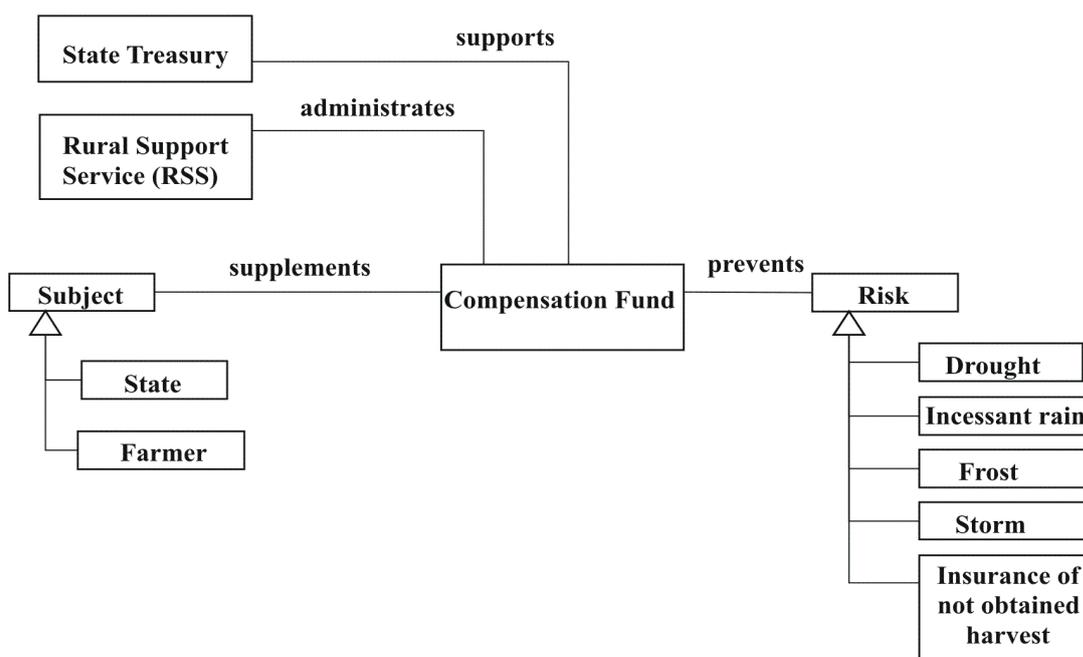


Fig. 1. The diagram of systems classes.

agents' view that are called the actors within the process of modelling, but, in fact, they are the users of the system. The diagram is important, since it shows the functionality of the system. It shows the functions performed by the described system or the object.

Risk management systems could consist of three sub-systems: Farmers' Register, System of Payment Calculation, and Compensation Fund.

Farmers' Register is necessary for the registration of all farmers who would like to establish and supplement the compensation fund with the aim of self-insurance against several risks and losses. This

system could be implemented as a data base, where all data about the farmers would be stored.

The System of Payment Calculation could help calculate the amount of payments to be made in the compensation fund, as the payment to be made in the fund is determined on the basis of risk occurrence probability, taking into consideration the average income from the particular crop during the last three years.

The system, called Compensation Fund, could store all the information regarding the fund, its value as well as it could register all participants' payments and compensatory payments.

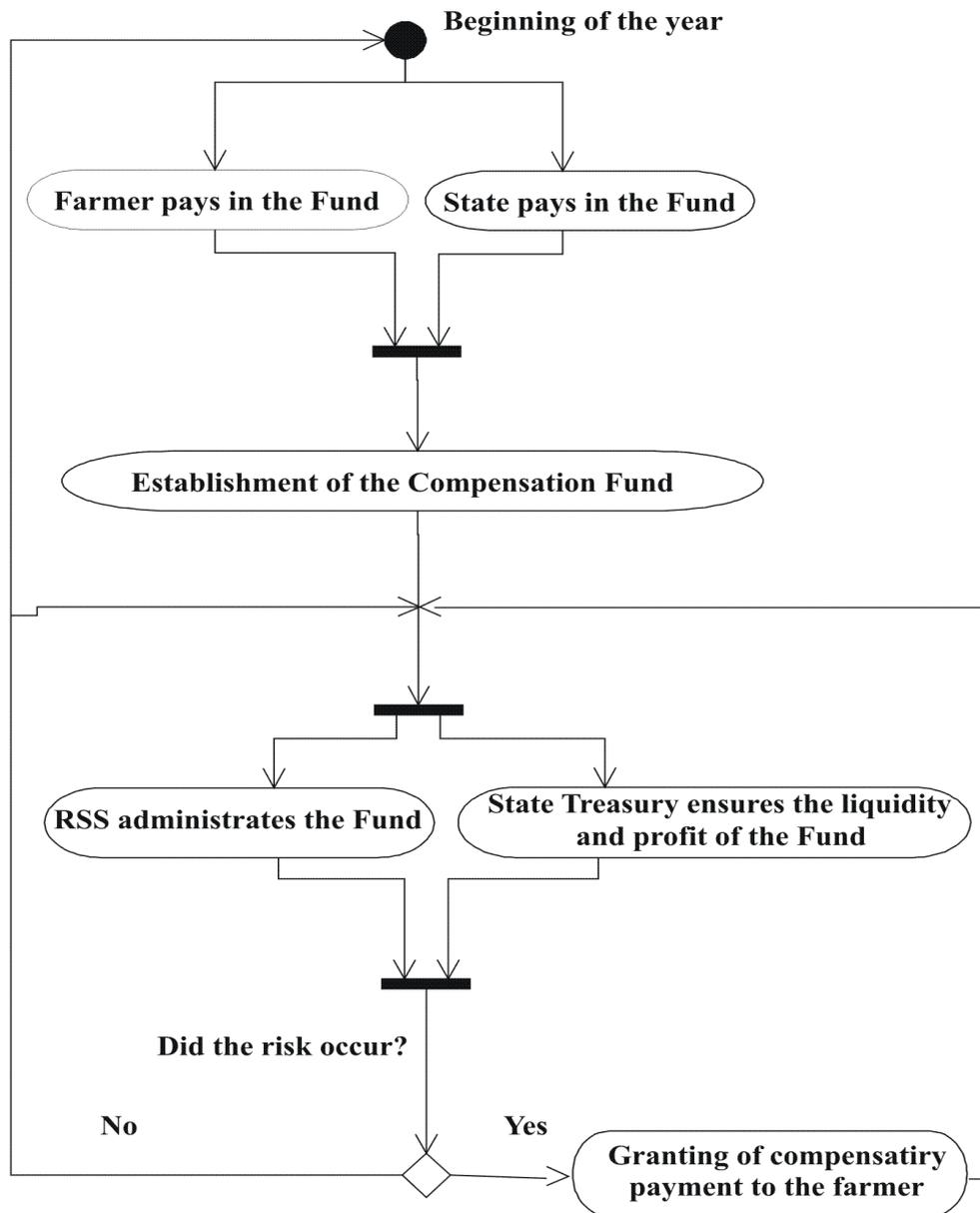


Fig. 2. The diagram of systems activities.

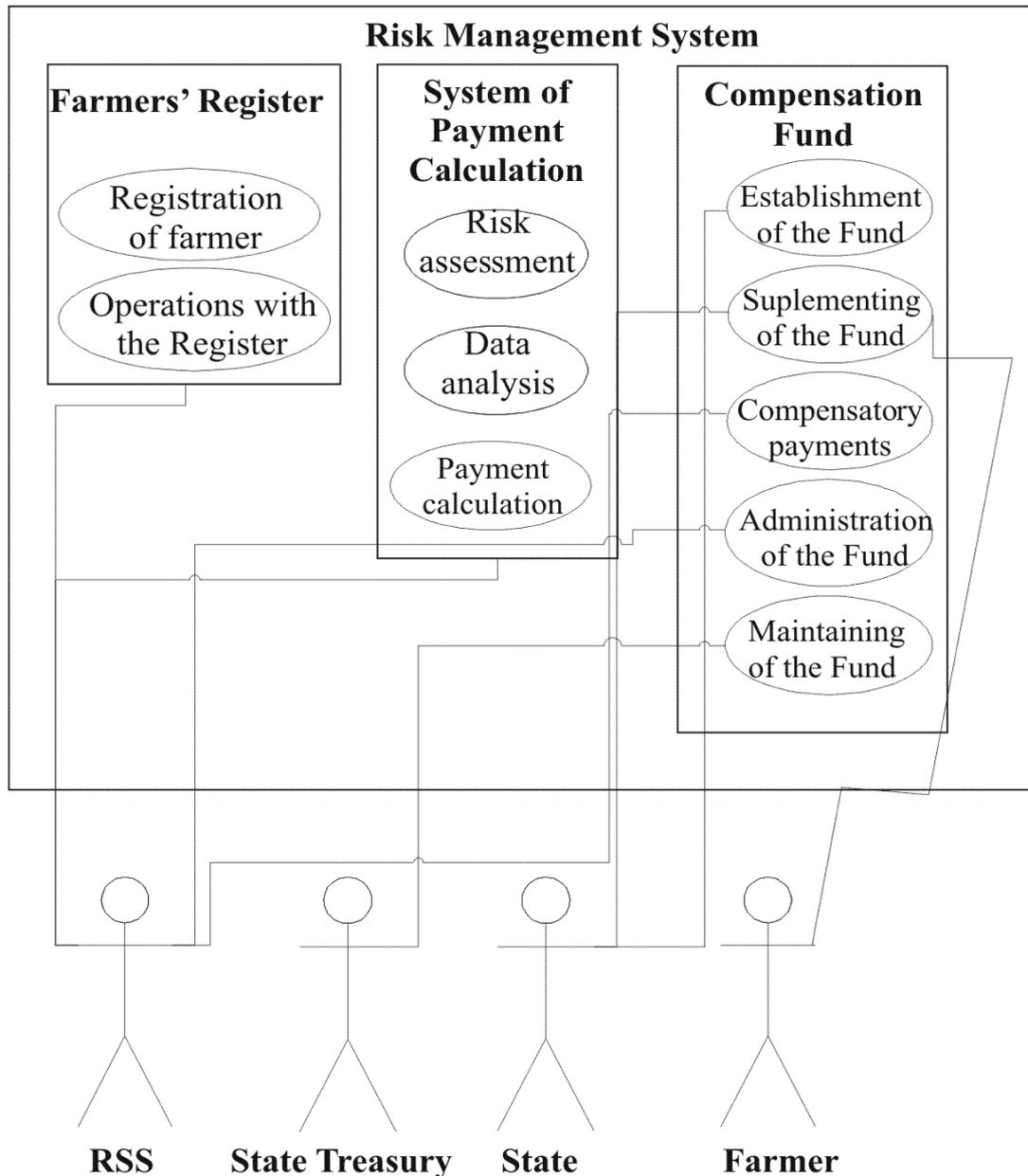


Fig. 3. The diagram of the possibilities to use the system.

### Conclusions

The present situation in Latvia does not provide an opportunity for the population and entrepreneurs to aggregate the information in the entirety at the administrative institutions, since the information is transferred from one institution to another. The introduction of agricultural risk management system would provide benefit not only for its user-client who would receive qualitative service, necessary just for him. The administration would also benefit as e-management is an instrument for the fundamental modernisation of management: the new processes and services are oriented towards the end-user;

the existing services and solutions are revised and adjusted to the new situation or eliminated at all.

The introduction of agricultural and forestry risk management information system will ensure efficient system for the compensation for losses caused by agricultural production risks. It will help determine the actions of both the state and farmers in case of emergency.

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### Anotācija

Atsaucoties uz Eiropas Kopienas pamatnostādņēm attiecībā uz valsts atbalstu lauksaimniecības un mežsaimniecības nozarē 2007.–2013. gadā 5. punkta 131. apakšpunktu, katrai Eiropas Savienības dalībvalstij līdz 2010. gadam ir jāievieš lauksaimniecības risku vadības sistēma. Saskaņā ar Lauksaimniecības un lauku attīstības likuma 12. panta 1. punktu „.. lauksaimniecības risku vadība nodrošina efektīvu sistēmu lauksaimniecības ražošanas risku radīto zaudējumu kompensēšanai”. Latvijas lauksaimniecības risku vadības politikas koncepcijas mērķis ir izstrādāt lauksaimniecības risku vadības sistēmu, kas nākotnē paredzētu noteiktu rīcību gan no valsts, gan no lauksaimnieku puses ārkārtas situācijas gadījumos. Rakstā analizēta ES valstu pieredze lauksaimniecības risku vadības sistēmu ieviešanā, kā arī pētīti risku vadības sistēmas iespējamie ieviešanas varianti Latvijā. Lauksaimniecības risku vadības politikas koncepcijas atbalstāms risinājuma variants paredz atbalstu apdrošināšanas prēmiju maksājumiem un kompensācijas fonda izveidei. Šo risinājumu raksturo tas, ka tiek nodrošināta valsts pamatatbildība un līdzdalība, izmantojot kompensāciju fondu, kura līdzekļus veido ikgadējas valsts un lauksaimnieku iemaksas. Šim risinājuma variantam ir veikta informācijas sistēmas ieviešanas sistēmanāle, lai noskaidrotu riska vadības politikas īstenošanai nepieciešamās informācijas sistēmas integrēšanas iespējas.