Agricultural insurance as climate change adaptation tool

Introduction	As a result of climate change natural risks of agriculture become more frequent and less predictable. Only during the last decade as a result of spring freezing, hails, drought and floods the average annual damage caused to agriculture of RA has been around AMD 20 billion. In terms of management of agricultural risks, importance is given to development of irrigation, anti-hail and anti-flood systems. But due to peculiarities of agriculture, even in that case the level of risk remains high. Thus, as a guarantee of stable income for farmers, importance is given to the agricultural insurance. Currently, due to high risks of the sector insurance companies avoid implementation of agricultural insurance schemes. Small sizes of farms, difficulties of implementation of innovative technologies and low level of solvency are among other obstacles. Nevertheless, international practice shows that application of insurance based on public private partnership is an important guarantee of effective business. Thus, during the first phase it is recommended implementing a pilot project on voluntary insurance of vineyards and fruit orchards, as well as vegetable crops in Armavir province of RA.
Technology characteristics	Based on average data for 2010-2014 there has been determined the gross output of vegetables, fruits and grapes, then via assessment of insurance risks of these years there has been calculated the minimum premium for 70% compensation and the total and per hectare amount of insurance premiums have been determined. Taking into consideration the low level of solvency of farms and the international practice of agriculture insurance the option of 50% public participation is preferable (Table 1). Selection of Armavir province of RA is dictated by intensiveness of climate phenomena there during recent years. Preference has been given to the most valuable crops, the impact of risks related with which is more significant for farmers. Obtained data shows that this option of insurance is accessible for farmers and profitable for insurance companies. A joint project on agricultural insurance, particularly insurance of cattle, has been developed by the Ministry of Agriculture and Ingo Armenia Insurance Company, but due to lack of funds in 2016 state budget the Government has not provided 50% co-financing. Table 1. Insurance estimations for Armavir province of RA (based on average data of 2010-2014)

Indicators	Vegetables	Melons	Fruits	Grapes
Gross product, AMD million	32705.3	12035.6	18472.0	23043.1
Insurance payments, %	3.0	3.0	3.5	4.0
Total insurance payments, AMD million	981.2	361.1	646.5	921.7
Insurance payment per hectare, AMD thousand	110.4	103.7	79.0	129.7

	Public participation, 50%, AMD thousand | 55.2 | 51.9 | 39.5 | 64.9
Costs, including	
cost to implement adaptation options	In case of 100% participation of farmers in recommended crop insurance scheme based on the example of Armavir province of RA the amount of public support will be AMD 1,455.2 million. For comparison, the hail of May 12, 2013 alone has caused damages in 47 communities, and the total damage has exceeded AMD 22 billion. State support has to be provided from the state budget of RA via depositary system of the Ministry of Finances of RA.
cost of not modifying the project	If the project shall not be implemented, then after each natural disaster there will increase the discontent of farmers with the government, since partial assistance provided by the state does not cover the damage.
Potential development impacts, benefits	
Economic	Ensures stability of expanded reproduction, implying production, financial results of which enable compensating incurred costs, ensuring net profit and investing part of that amount into expansion of production.
Social	Compensation of losses of farmers and poverty reduction.
Environmental	Thanks to rapid restoration of consequences of disasters, there will be regeneration of orchards and reduction of GHG emissions.
Status	No agricultural insurance is implemented yet.
Barriers	High risks of the sector, low insolvency of policyholders, lack of trust in insurance companies.
Acceptability to local stakeholders	The technology is acceptable for insurer, policyholders and the Government. The insurer receives an opportunity for expansion of the market, the policyholders ensure at least 70% compensation of losses, and the Government addresses the request for compensation of losses carried by farmers each year due to natural disasters, eases social tensions and creates preconditions for management of risks in agriculture.
Endorsement by experts	Agricultural insurance is applied in many countries of the world. This option is used for agricultural insurance in some of EU countries, including Cyprus – 100%, Austria – 78%, Germany – 43%, Spain – 26%. It is widely used in USA, Canada, Argentine and other countries[34].
Timeframe	Pilot project can be initiated in case of provision of co-financing of insurance premium by the state budget or another source.
Institutional capacity	There are insurance specialists, but there will be need for short-term training and awareness raising.
Adequacy for current climate	The importance of insurance is becoming even more significant under climate change.

[34] http://www.rae.ru/meo/?section=content&op=show_article&article_id=7141

Size of beneficiaries group	About 340 thousand farmers in the Republic of Armenia and 55,325 farmers in Armavir province[35].