NEW CHALLENGES FOR RISK MANAGEMENT IN AGRI-FOOD INDUSTRY

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ABSTRACT
Increasing of population in some part of the world demands appropriate quantity and quality of food supply. It leads agri-food production to changes having many of the characteristics of manufacturing industries. So, together with the advantages we have to manage also different deficiencies.

The changing business climate is creating new agriculture with new risks. And some of these risks require new approaches and different perspectives to evaluate and manage them adequately. The new risks create both challenges and opportunities for agri-food producers and those who finance them. Furthermore, the common perception is that vertical linkages through contract production will also reduce risks quality and quantity. The industrialization of agriculture is likely to compound the risk and uncertainty related to the effectiveness of markets in providing a clear model to consumers and suppliers in the food chain concerning prices, quantities and qualities of products and attributes.

Governments and industry have to work jointly to integrate all production elements that investors and customers can be confident in ability to succeed today and into the future.

Keywords: Risk Management, Agri-Food Production, Food Supply

1. INTRODUCTION. In modern conditions of world development the food security became one of the main statement problems in the face of world community. Increasing of the population in some part of the world demands the appropriate quantity and quality of food supply. It involves the agri-food production into the changes having many of the characteristics of manufacturing industries. So, together with the advantages we have to manage also different deficiencies in terms of operating cycle as well as production and capital structure. It also associates with the land use and land rent relationships.

Other problem facing the economic society is the search of the new investment and financial model and determination of the important and interesting spheres. To our opinion agriculture in modern condition of the reducing financial and investment activity precisely going to be the one of the most important both for business and society. On the other hand it is just a part of the world business environment which extremely depends on nowadays changes in financial sphere.

But the other side of this problem is that agriculture is the risky activity describable by the different natural and financial instability. The rapidly changing business climate is creating a new agriculture with new risks. And some of these risks require new approaches and different perspectives to adequately evaluate and manage them. The new risks create both challenges and opportunities for agri-food producers and those who finance them.

So, in our paper we would like to evaluate the different risks for agriculture as the “old-new” investment sphere. To achieve this aim we have to answer for a few ‘ex facte’ simple questions: What types of risks is more powerful for agri-food production – natural or financial? What is the difference between managing financial risks in agriculture and other businesses? And, at last, is the risk management instruments the private or government area of responsibility and how they distribute the acquiring and failures?

2. DISCUSSION. The management instruments for food security in modern conditions of the world increasing demand still the application the agricultural insurance programs. The main risks we would like to pay attention in our paper are the Price (market) Risk (access to output and input markets, output prices decline, input prices decline), Financial Risk (leverage (high level of debt capital in total capital), changes in access and conditions for external finance) and Natural (Climatic, Catastrophic) Risks (hail, rainfall, frost, drought, ice crust and similar phenomenon). So, in our paper we try to take a look at the insurance in agriculture as the financial stability instruments.

Any economic activity can potentially undergo the following risks: production, financial, marketing or climatic. Cohesion of these risks in different forms and time periods is peculiar for agriculture. So, the risk management strategies have to include the integrated approach to decrease possible losses from one or few types of risks or their combination.

The transformation in agriculture introduces a few new risks in market share identification and branding, production process and technology equipment. Investment in value-added activities by
producers is essentially. Furthermore, the common perception is that vertical linkages or alliances through ownership or contract production will also reduce quality and quantity risks (PERRY, 1989).

The industrialization of agriculture is likely to compound the risk and uncertainty related to the effectiveness of markets in providing the clear model to consumers and suppliers in the food chain concerning prices, quantities and qualities of products and attributes. Critical assumptions of this argument are that product attributes are accurately measurable, and that consumer demand for attributes is predictable (PORAY ET AL., CLOUTIER, 2002).

Following the BOKUSHEVA, R AND H. HOCKMANN. (2006), CHAMBERS & QUIGGIN (2004) regardless the farmers risk preference the maximum price that they would be willing to pay for an insurance contract depends on marginal costs, stands for output price, and represents payout, input price, and stochastic production.

### 2.1. **PRICE (MARKET) RISK**

Many independent producers have entered into contractual agreements with other businesses. Sometimes regardless the contract production reduces the level of risk for the producer, it returns by contract (KLIEBENSTEIN AND LAWRENCE, 1995). A key consideration in assessing the economic impact of contracting and other business arrangements on the producer is the interrelationships between the risk aversion (and risk-return trade-offs) of the producer and the risk attitudes of lenders and the capital markets as reflected by the financing terms and arrangements and credit availability under different business arrangements. Because of their risk specificity, lenders are careful in extending credit to businesses that exhibit significant operating risk; they will often extend more credit to those businesses that manage the operating risk through various techniques such as contract production.

The simplest way to describe the difference between market-based price risk management instruments and non-market instruments is that the former externalize risk – they transfer risk from one party to another. In contrast; the latter depend on asset reallocation within a group or over time. The main Risk Management Tools we consider in our paper are Hedging, Options, Forward Cash Contracts, Basis Contracts and Minimum Price Contracts. Stand-alone price risk management instruments are available only on the organized futures market as well as the over-the counter market (L.RUTTEN, F.YOUSSEF, 2007).

Organized futures markets offer two products: Futures and Options. By using futures contracts, producers can lock in certain price levels independent of their physical trading operations. For example, by selling futures contracts when prices are attractive, they can lock in these prices even if they do not yet have any product to deliver, or they have them in storage but are not yet ready to sell. If by the time that the producer is ready to sell prices have fallen, the low price he will receive for his produce will be compensated by a profit on his futures position (realized by buying futures to offset the earlier sale). However, the use of futures markets for risk management purposes is only useful if the prices of the markets for one’s physical products and the futures prices are well-correlated. In the case of coffee, this is not always so: premium grades generally have poor correlation. Using futures contracts can also be cumbersome: timing decisions are difficult to made, and cash flow requirements (to pay upfront margin depositions as well as later margin calls) can be demanding.

Options give the buyer the right, but not the obligation, to buy or sell an underlying asset (usually a futures contract) at a certain fixed price. This right expires at a certain date (the maturity date) and in order to procure this right, the buyer has to pay a premium. An option which gives the right to buy is called a call, and an option which gives the right to sell a put. Buyers can have this conversion right at any time until the option’s maturity (in this case, the option is called “American”), or he could have the right to convert only at maturity (a “European” option). Options on futures contracts are easier to use than futures. From the perspective of a producer, they are similar to an insurance contract: he pays a premium to buy put options, and the “insurance” pays out when prices fall. Indeed, options can be used to replicate the price guarantee schemes abolished in recent years by many developing country governments. There are no margining requirements, and operational requirements are not overly cumbersome. The principal such tool is the average price option, also called Asian option. One would normally expect that such options fit best with the farmers’ pattern of sales: relatively small quantities spread out over a period of several weeks or a few months. A cooperative may bundle farmers’ deliveries for sale to traders, but the price is then normally based on an average of recent prices, not just the day’s price. Asian options are cheaper than exchange traded options.

There are many other tools, some of which may well fit with a farmers’ association’s price exposure. Zero cost options combine the purchase of put options with the sale of call options, which implies that the producer is paying for the price insurance by giving up their potential gain from price increases above a certain level. In a modified version of this, participation options, he has some of the potential upside. Knock-out options, which are options that automatically disappear once a certain price level is reached, could be a possibility for cooperatives with a well-established reputation on international markets, who are able to sell forward long before the start of the harvest. For input supply programs, binary (digital) options can be a good fit (they provide for a single payment once a certain price level has
been breached – so a fertilizer distributor could use it as a marketing ploy, selling on credit but with the proviso that the farmer does not need to reimburse if coffee prices fall below a certain level).

Price risk management can also be retailed under the guise of vouchers – similar, in a way, to lottery tickets. They could be sold on a stand-alone basis, or packaged together with other goods or services – for example, fertilizers. If such vouchers are distributed regularly, it is possible that an active secondary market is created; making it possible for farmers to choose themselves their optimal level of price risk management.

There are many ways to embed price risk management into physical trading contracts. As an illustration, in the United States Cargill offers 19 different pricing formulas to cereal growers and elevators. Contracts can include clauses guaranteeing floor prices, price increase sharing agreements, etc.. The major advantage of this from the producer’s perspective is that his buyer will take care of margin deposits, margin calls, execution of transactions and administration; also, the credit risk aspect of risk management can be dealt with as part of the underlying physical contract. The major disadvantage is that the cost of the risk management component is not transparent.

The principal way of incorporating a risk management instrument in a physical contract is the fixed-price forward contract, which specifies delivery of certain quantities at certain times, at a fixed price. The buyer (who may have to resell the coffee after delivery has been made) is likely to manage his price risk on the futures market. The seller thus has indirect access, without having to deal with any of the practical issues involved in dealing with an organized commodity exchange. Note that forward contracts do not eliminate price risk: if the producer is unable to deliver and market prices have fallen, the producer will be asked to make a compensatory payment.

Banks can insist that as part of their loan package, the producer engages in a parallel risk management program, with the bank having control over the related bank and brokerage accounts. Alternatively, banks could manage price risks themselves, and pass on the effects in commodity-price indexed loans. Commodity loans specify the repayment of principal and/or interest as linked to commodity prices, either in a direct manner, or as an option. They have been mostly used in the gold sector, but their use for coffee is feasible (in the early 1980s, a cotton plantation in Zimbabwe was financed using a cotton-price linked loan).

Commodity bonds are similar in scope, although here, the finance is provided by investors rather than a bank. While traditionally such bonds have been mostly used in oil and metals market, use in agricultural is possible (the first commodity bond was cotton-price-linked, issued in the 19th century by the Confederate States of America), and has been expanding in recent years. Currently, they are being used to finance a range of tree crops in Australia and Chile.

One mixed product that may be feasible though (although still untried) is that warehouse operators offer those storing coffee the choice between taking the coffee back, or (before a certain period) just leave it with the warehouse operator and receive a pre-agreed price. This is similar to one of the programs used in the U.S. (for sugar) to give growers a minimum support price (called a “loan rate”). Warehouse keepers can manage their risks by buying call options, and they can include the related premiums into their warehousing charges. If this is considered a socially beneficial operation, governments could subsidize the option premiums.

2.2. Financial Risks

During the past decade, catastrophes have periodically strained the insurance industry’s capacity to provide catastrophe risk insurance. Hence, new instruments were introduced to transfer and finance catastrophe risk exposures, such as catastrophe risk swaps and contingent capital and risk-linked securities that are placed through the global capital market. These instruments provide new risk financing opportunities for developing countries.

The first capital market instrument linked to catastrophe risk (called a catastrophe bond and, more commonly, a cat-bond) was introduced in 1994. Risk-linked securities transactions have since become common; total cat-bond issuance is estimated at around US$6 billion. Other financial instruments provide outright funding commitments to recuperate economic losses from catastrophes. These contingent capital instruments have amounted to some US$8 billion (CUMMINS J. D., SUHER M., ZANJI G., 2007).

One of the first important initiatives to be undertaken is to encourage prevention and mitigation efforts that reduce vulnerability to natural catastrophes. These include urban planning, enforced building codes, titling of properties and emergency contingency plans, among others. Since mitigation can only accomplish so much, there is also a need to improve preparedness in order to increase responsiveness and protect the poorest.

Reasonable risk financing arrangements should be established to allow for the fast and effective recovery of the economic infrastructure after a major disaster.

Several new risk transfer and contingent funding instruments are emerging that allow countries to modify their risk management profile to fit acceptable standards. The instruments include layered

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reinsurance contracts, risk-linked securities, catastrophe risk swaps, and contingent surplus notes. They do not represent either/or alternatives but constitute elements of complementary solutions that should all be integrated into a country’s overall risk management strategy.

The risks involved in lending to industrialized production agriculture are different than those in traditional agricultural lending. If the product produced is a specialized or differentiated product rather than a commodity, the risk of market access may increase. Differentiated product markets can disappear or be flooded by alternative suppliers; the borrower must have a thorough understanding of the market as well as well-developed marketing and distribution skills to be successful in differentiated product markets. And the growth in differentiated products and contract production may also have important implications for commodity markets and commodity producers. Open access commodity markets may increasingly become residual markets with growth in contract and differentiated product production. Those who participate in these markets may thus be the subject to increased price variability with the prospect of more downside price risk than upside.

Successful use of risk transfer instruments depends on the ability to effectively estimate the amount of risk involved. Based on calculations of risk and estimated loss impact, reinsurance companies and investment banks can assess the implied risk profile of insurance contracts and risk-linked financial instruments. The information may also help develop parametric insurance contracts that use “triggers” (such as earthquake magnitude, sea level rise or wave height, rainfall, etc.) to objectively indicate when damages would have to be covered.

2.3. Natural (Climatic, Catastrophic) Risks

However, technological options of risk management might be more preferable considering economic and environmental sustainability of production, e.g. provision of subsidized crop insurance might provide incentives to extend crop production to marginal production sites; insurance quite often facilitates a higher level of the production intensification, and thus might exacerbate negative externalities (INNES & ARDILA, 1994)

Private sector innovation in the insurance markets requires the search of new instruments and alternatives. In grain production, futures trading in yield contracts combined with futures and options on commodity prices have facilitated the development of a broader set of insurance contracts including crop revenue insurance and revenue assurance. The complex risk management alternatives that combine various forms of crop insurance with traditional forwarding pricing, hedging with futures and options, contracting or similar instruments are being offered. Contract production in livestock including penspace, window or minimum price contracting is increasingly common in the pork industry in particular. Income per acre contracting has been used in specialty crop and seed production, and may have potential in commodity production in the wheat and corn industries. More input supply firms are offering performance warranties as part of their product package (not just in machinery and equipment, but also in the genetic and chemical industries). And more consulting firms are offering a broader set of risk management services. The number of instruments and strategies for managing risk in crop and livestock production is proliferating rapidly, yet we know little about how effective these instruments and arrangements are and under what circumstances they may be useful.

Natural forces such as hail, rainfall, frost, drought, ice crust and similar phenomenon often leaves human and economic losses in their wake. Such hazards are considered natural disasters when they lead to extremely large losses, which typically is the case when they affect densely populated areas. However, many developing countries take few precautions to lessen the impact of disasters and local insurance markets are unable to satisfy the risk financing requirements. As a consequence, the human costs of natural disasters are unevenly borne by the poorest countries in the world.

In the absence of well functioning local insurance markets, post disaster rehabilitation depends on other funding sources. Often, local governments step in to assist in the recovery process, but this aid tends to reduce incentives to engage in prevention and insurance. In addition, post disaster financing requirements can often divert funds from public capital budgets and disrupt long-term development investments.

3. Ukrainian Reality and Role of Agri-Insurance. The current situation in Ukraine with respect to agriculture insurance is at best an impediment to progress and can even be considered a program development crisis. Policy makers throughout government, insurance company managers and even agriculture and traditional insurance experts lack sufficient knowledge in all the functional and operational aspects necessary for sound development of agriculture insurance. Government premium subsidies do not reach a majority of farmers in Ukraine, are often directed toward ineffective insurance designs simply to access credit with no real risk protection and distribution is deterred by overly-bureaucratic and costly operating procedures.

The entire system, whether subsidized or not, is based on limited data, inadequate actuarial expertise, a lack of transparency as well as under-funded research, coordination and informed scrutiny. It is insufficiently licensed and regulated and consumer protection is practically non-existent. The government of Ukraine acknowledges the potential value of agriculture insurance to enhance the
agriculture sector. Presidential Decree identifies a significant role for agriculture insurance within the National Agriculture policy. Yet, no strategic plans are apparent within government to improve the current environment.

This situation is exacerbated when one considers the technical awareness, specialized expertise and paradigm shift relative to historical agriculture risk management that is required of primary stakeholders to fully realize the benefits of an agriculture insurance system. Thus, the current situation is highly unstable and cannot serve as an effective platform for further development. It represents considerable risk to the insurance companies, a source of confusion to producers, is “overpriced” (considering all costs to producers) and contains elements of poor ethics.

Notwithstanding these issues, agriculture insurance experience that has proven effective internationally is available as a guide that can be adapted to Ukraine. Principles of sound agriculture insurance that apply anywhere can form the basis to develop local expertise, transparency and positive interaction among primary stakeholders in Ukraine. Private insurance firms, albeit with varying levels of experience in agriculture insurance, have an appetite to learn and develop effective insurance products for an expanding agriculture sector. However, all primary stakeholders need to acknowledge the significant work effort and commitment required in the near future to achieve the longer term benefits to the agriculture industry.

In the absence of an effective insurance market, the government often becomes the de facto financier of post disaster rehabilitation efforts. Alternatively, governments can encourage the local insurance industry to engage in risk financing arrangements through insurance pools that, in turn, may cover higher exposures in the global reinsurance and capital markets. This study takes a closer look at how this type of international risk financing scheme might be developed.

3.1. BENEFITS OF AGRICULTURAL INSURANCE. The agriculture industry has historically been a major contributor to economic and social development throughout the world. At the same time, the quantity and quality of primary agriculture production – the building block of the agriculture industry – is highly susceptible to weather and other natural risks. This combination of the importance of the industry and the variability of primary production draws the attention of both governments and private industry to risk mitigation strategies.

The most common natural disasters for Ukraine are hail, rainfall, frost, drought, and ice crust. The frequency and severity of these events are rising because of climatic changes and human activity. Much can be done at the national level to mitigate the economic effects of natural disasters by eliminating the above named potential problems. However, even the best risk management approaches leave residual exposure that may benefit from coverage through various risk financing arrangements.

Agriculture insurance has developed globally as the primary risk management tool to reduce the negative impacts of weather and natural perils on primary agriculture production and is attractive because it:

• targets aid to farmers better than other alternatives like ad hoc assistance;
• complies with international trade agreement criteria for government support to agriculture when designed appropriately;
• can stimulate on-farm crop and livestock management improvements within the industry;
• underpins the creditor confidence necessary to expand a local agriculture industry;
• can act as a platform to coalesce partnering arrangements between government and the private sector insurance and reinsurance industry; and
• can act as a catalyst to promote other risk management initiatives within the agriculture sector.

A number of countries like Canada, United States and Japan have a long history with agriculture insurance. Others, like Spain and India, have operated agriculture insurance schemes for some time while countries like Chile, Turkey and Russia are more recent adopters of this risk management strategy. Ukraine has recently decided to incorporate agriculture insurance into its’ National Agricultural Policy framework. Regardless of the maturity of an agriculture insurance program, its success is based to a large extent on the expertise, transparency and positive interaction among primary local stakeholders to the operating process. While agriculture insurance is a worthwhile endeavour, any country seeking to develop agriculture insurance must be cognizant of the ongoing effort and dedication required by all stakeholders to realize its’ full benefits.

3.2. REASONS FOR GOVERNMENT INVOLVEMENT IN AGRICULTURE INSURANCE - PRO AND CONTRA. There are several unique attributes within the agricultural sector that provide a rationale for government involvement in agriculture insurance. First, food production, a basic component of all economies, is inherently risky due to the influence of weather and natural perils. Many countries including Ukraine see a stable agriculture sector as a precondition to steady economic growth of the nation and the enhancement of the well-being of the citizenry. Governments have traditionally intervened in agriculture with ad hoc financial assistance in response to natural calamities, input shortages and/or wildly fluctuating commodity prices that shock this sector. These interventions are becoming increasingly
scrutinized through international trading agreements and national governments with limited financial capacity. Agriculture insurance is seen as a positive technically-sound mechanism to: stabilize production and incomes in the farming sector, encourage agriculture producers to proactively manage their risks, promote best farm-management technologies and more effectively target government resources rather than ad hoc assistance.

Second, agricultural risks are highly correlated meaning that they often impact many individual farms at the same time. For example, declining commodity prices affects most farms simultaneously. When prices are low for cattle or hogs they are generally low for all producers of these commodities. A downward trend in wheat prices often coincides with a similar decline for many other grains and oilseed commodity prices. Weather perils like drought, excess moisture and frost can be widespread and impact the quality and/or quantity of production of many agriculture producers at the same time. This potential for the accumulation of risk exposure across many insured farms is in contrast to other forms of risk like house fires or vehicle accidents. The likelihood of a wide segment of insured vehicles being impacted simultaneously is remote to non-existent and specific events like war or conflict which might generate such losses are usually excluded from the insurance policy.

Third, primary producers, the main recipients of agriculture insurance, are engaged in a globally-competitive, low-margin endeavour that requires the cost of agriculture insurance to be affordable. In a highly correlated risk environment where many agriculture producers can be negatively impacted at once, spreading the impact of losses over time and geography is an important counterbalance. Premium collected in “good production years” throughout the country across regions, crops and farms is required to generate sufficient return to cover losses in “bad production years”. However, financial capital within private insurance and reinsurance firms is also generated in a competitive environment (supply and demand) and managers are pressured by their shareholders to generate profits over the short term. This generally means that insurance premiums need to increase substantially after a significant loss year to recoup insurance payments to producers. On the other hand, significant increases in premium can make insurance unattractive to producers, driving down participation thereby making insurance either redundant in the protection it offers or non-viable financially for insurance firms in the short term. In addition, insurance firms are reluctant to invest in significant infrastructure (e.g. sales network, research, data collection and management systems, etc.) to support a country-wide geographical network in a low-margin market.

Fourth, traditional government intervention in agriculture through ad hoc assistance directly competes with planned initiatives like agriculture insurance. Producers can be reliant on ad hoc assistance to protect them for future losses if they have received it in the past. Planned initiatives that focus on encouraging agriculture producers to manage their own risks can be negatively impacted with the continuation of government ad hoc. At the same time, however, agriculture insurance schemes take time to develop especially to reach all farm types, regions and crops some of which are more difficult to insure that others. To be effective, both planned agriculture insurance initiatives and the potential for government ad hoc need to be integrated into national agriculture programs and linked in the application.

Finally, modern efficient agricultural production is highly technical and specialized and dependent on management techniques employed by each individual producer (e.g. crop seeding dates, fertilizer application, water and manure management, livestock feed and genetics, etc.), internationally traded commodities as well as changing consumer demand and food safety issues. As a consequence, agriculture insurance, while appearing simple in concept, will also be specialized and technical. Aspects like underwriting provisions, loss adjustment techniques, program design parameters and personnel resources often require unique solutions/expertise that are not readily adapted from other insurance markets. In countries with a developing agriculture industry, the agriculture insurance sector is often in various stages of development as well. International expertise is concentrated in relatively few individuals or groups and local networks need to be developed to make agriculture insurance viable over the long
term. To be effective developing agriculture economies need agriculture insurance systems that develop local expertise within a transparent public-private learning environment for all stakeholders.

Important changes are occurring in the product and service industries that supply production agriculture. One of these changes is the integration of the financial services industry and the risk management services industry. Insurance companies have always been significant players in both the risk and financing markets, but not as integrated providers. Instead, the investment divisions of life insurance companies in particular have been important providers of mortgage credit to farmers, whereas specialty crop and casualty insurance companies have been the major participants in the risk management markets. But risk is a key issue impacting the terms and rates of the financing package offered to specific customers, and it has been common-place for lenders to require various risk management strategies such as purchasing crop insurance as a condition for extending credit. More recently, new risk management instruments including price, yield and performance warranties by input supply companies and net income contracting in grain and livestock production have been introduced into the market by input suppliers and product purchasers. These new instruments and arrangements are resulting in an increasingly integrated risk management service industry, financial products industry and real product input supply and product processing industries.

Strategies to mitigate and manage risk, whether that be for a farm or agribusiness or a financial institution, can be categorized as either asset management strategies or financial management strategies. Asset management strategies would include the classic diversification approach to managing a farm business or a lender’s portfolio; the pricing or hedging approaches to protect margins in a farm business or a financial institution; insurance programs to mitigate loss exposures for assets in a farm or agribusiness firm and the parallel for financial institutions of credit analysis, loan guarantees, and collateral to mitigate losses on credits and other financial assets for a financial institution. The income management strategies to reduce risk exposure for farm and agribusiness firms and lenders have been the focal point of much of the historical assessment of risk management and the evolution of risk management instruments and markets.

In fact, the opportunity to mitigate some of the strategic risks with traditional income management strategies maybe difficult if not impossible. It may become increasingly important to develop innovative financial strategies for risk management because many firms will be unable to increase their equity capital base and maintain even higher equity financing positions if that is the only strategy available to mitigate the loss exposure from strategic risks.

The experience of different countries in agricultural (crop and livestock) insurance shows that in case if governments working with industry it can change the current approach to support the objectives of growth, diversification and increased value-added activity in agriculture. In particular, programs need a more businesslike approach to risk management – an approach that would focus on enhancing income from the farm through active encouragement of risk mitigation, adaptation and consideration of a farm's future potential. But, sometime it can be dangerous for government, especially in condition of strong governance, when the places and role of insurance companies in the segment of the subsidized agrarian insurance is redistributed. It is possibly, that the subsidized insurance transformations from an instrument on weather and natural risks management into a financial instrument for a management the risk of agricultural enterprises liquidity. Producers should be encouraged to take a more active role in managing the risks to their business. This includes not only assessing and mitigating all risks to income but also looking to capture new production and market opportunities. Producers who wish to diversify into new, potentially profitable crops would be able to do so with full confidence that they would have assistance in risk protection. When a producer chooses to use private risk management tools to help mitigate farm income risks, the new approach would recognize that initiative. Governments, in concert with stakeholders, have much work to do to develop this new risk management approach.

4. CONCLUSIONS. Putting the agriculture and agri-food sector first requires a national vision and a national partnership. Governments and industry moving forward collectively to integrate all elements of the proposed would enable us to brand as the world leader in: the production of safe food in an environmentally-responsible manner; meeting and exceeding diverse market specifications for quality; and innovation throughout the agri-food value chain so that investors and customers can be confident in ability to succeed today and into the future.

Several issues need to be considered when choosing between different types of risk transfer instruments, including moral hazard, adverse selection and basis risk. Moral hazard takes place when the insured party neglects preventive measures after the risk transfer contract has been signed and resorts to excessive reporting of losses. Adverse selection takes place when the covered party uses inside knowledge about the insured exposure to obtain more favourable terms from the company issuing the risk transfer policy. Basis risk occurs when the measurement basis in the insurance contract differs significantly from the actual losses incurred as a result of the insured event. These factors influence the applicability of different risk transfer instruments.
The role of government accordingly to our discussion can be in improvement of the various risk management approaches (which are not necessarily mutually exclusive), such as Catastrophic risks management - manage catastrophe risk through mitigation or risk transfer, such as insurance, at the national level it would help mitigate risk and arrange risk transfer cover. To establish national insurance pools for support by mandatory insurance policies, if needed, and local insurance companies could act as national sales agents to support local market involvement. This would require that the government take stringent initiatives in risk mitigation, such as enforcing effective property registration and building codes. Also government can combine risk exposures across several countries. This could be achieved by pooling the catastrophe risk exposures across the region in order to provide a natural first line of risk diversification that also engages local primary insurance companies in the development of regional insurance markets. It might also provide scale economies to risk financing arrangements in cooperation with international financial institutions.

A wide range of instruments for risk transfer is available on the market, and all have been developed to meet the legitimate business needs of certain enterprises. There is no reason to assume that under all circumstances there is only one instrument which is best for everyone. All instruments have their benefits and drawbacks. In the case of options, the principal drawback is the upfront cost. In the case of futures, they are difficult to use when there is both output and price uncertainty; one cannot use futures for uncertain production (and the same applies to over-the-counter strategies such as collars or participating options). Moreover, futures have large “contingent cash requirements”: those using them need ready access to cash. From a practical perspective, it would seem advisable to use option-based strategies as a starting point for farmers’ associations -probably through the over-the-counter market or embedded in physical or financial transactions. Once such associations have built up skills and have strengthened their links with banks, instruments that are more difficult to deal in, from a cash flow, operational and managerial perspective, can be considered.

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