IFAD
Investing in rural people

APRACA

APRACA FinServAccess Programme

Training Modules on Risk Management

APRACA FinServAccess Publication: 2015/2

Training Modules on Risk Management

Ramon C. Yedra
Marlowe U. Aquino
CS Sundaresan

An Asia-Pacific Rural and Agricultural Credit Association (APRACA) Training Material prepared and supported by the International Fund for Agricultural Development (IFAD)

Published by: Asia-Pacific Rural and Agricultural Credit Association (APRACA)

Distribution: For copies, write to:

The Secretary General
Asia-Pacific Rural and Agricultural Credit Association (APRACA)
Room A303, Bank for Agriculture and Agricultural Cooperatives (BAAC)
469 Nakhonsawan Road, Dusit, Bangkok 10300, Thailand
Tel: (+662) 282-0693
Fax: (+662) 280-1524
E-mail: apraca@apraca.org
Website: www.apraca.org

Secretary General: Chamnong Siriwongyotha

Project Manager: Marlowe U. Aquino

E-copy: The report in PDF can also be downloaded from the APRACA website.

Printed: August 2016

ISBN 978-616-92335-7-2

This training manual is published by APRACA under the auspices of the IFAD-supported APRACA FinServAccess Project.

Opinions expressed by the experts and documenters do not necessarily represent the official views of APRACA or of IFAD.

This manual is published during the incumbencies of Mr. Shitangshu Kumar Sur Chowdhury (APRACA Chairman), Mr. Maha Prasad Adhikari (APRACA Vice Chairman), Mr. Chamnong Siriwongyotha (APRACA Secretary General) and Dr. Marlowe U. Aquino (FinServAccess Project Manager).

Acknowledgement

Over the years, key players and stakeholders in rural and agricultural development including finance are constantly faced with issues, concerns and constraints in accessing, delivering and providing the needed services in a timely manner. These are usually observed in times of natural calamities and disasters where products and services including other technologies barely reach the intended clientele.

On the other hand, development and financial institutions formulating and ensuring that programs, products and services address these needs and requirements of individuals tend to experience and suffer the same fate as that of the intended clientele.

In particular, risks are all over the place for both the provider and the recipient. Observantly done, these affect the operation and management of institutions especially in times of disasters and destruction. More so, the rural and agricultural key players like the farmers, fishers, traders and entrepreneurs are affected from damage to property, loss of lives and even their whole production and profit.

Based on these, we are happy to provide and share an important document that aid in addressing the impacts of risks encountered during extreme conditions and situation including the challenges and its effects to local people and communities.

This document is an evolving knowledge product that comes with latest and up-to-date exercises and experiences from several Asian countries wanting to exchange and learn the WHAT-WHY-WHEN and HOW in ensuring a responsive and appropriate people-centred risk management and agricultural insurance products and services that benefits all key players and stakeholders.

We would like to thank the training module developers, Dr. Ramon C. Yedra (ACPC, Philippines), Dr. Marlowe U. Aquino (APRACA, Thailand) and Dr. CS Sundaresan (AARDI, India) in coming up with this latest material that empowers financial institutions and individuals interested to make a difference in the field of financial risk management including agricultural risks management and agricultural insurance.

May you find this as an important document that guides any development and financial-oriented individual striving excellence and working another step forward in ensuring a stable, secured, sustainable production and profit of farmers, fishers and entrepreneurs engaged in rural and agriculture ventures.

SHITANGSHU KUMAR SUR CHOWDHURY
APRACA Chairman

Notes to Training Participants

Dear Participants,

As we move forward to a more productive and dynamic society engaged in rural and agricultural development and more specifically on finance in the region, we take pride in sharing with you capacity building initiatives and innovations to ease your work to be more effective and efficient.

This document is prepared as a teaching-learning material that combines carefully researched and back-up by findings, cases and experiences of technical experts and resource persons who share the same passion as you and your institutions in institutional development and capability building.

It is an integrated training material divided into six (6) modules which could be separated singly and or stand-alone module depending on the teaching-learning requirement. These are further complemented by exercises and workshop activities to encourage creative, analytical and technical competency skills.

- MODULE 1 Perspective of Agricultural Risk in Rural Finance
- MODULE 2 Risk Management in Rural Financial Institutions
- MODULE 3 Credit Risk Management in Rural Financial Institutions
- MODULE 4 Monitoring and Evaluating Credit Risk Management Framework
- MODULE 5 Conceptualization, Designing, and Planning Risk Management and Agricultural Insurance
- MODULE 6 Approaches, Strategies, Tools, Practices of Risk Management and Agricultural Insurance Program

A comprehensive timetable is also included to serve as guide for training coordinators/facilitators which is flexible to suit the needs of trainees and the resources available.

Take a moment to experience and learn from the material as it leads you to reflect and encourage you to work harder in providing an effective and efficient program, product(s) and service(s) related to financial risk management including agricultural insurance for sustainable rural and agricultural development for people and farming-fishing communities.

Table of Contents

List of Tables, Figures, Boxes and Charts

List of Tables

List of Figures

List of Boxes

List of Charts

Introduction

Agriculture and allied sectors play the predominant role of livelihood provision in much of Asia-Pacific (AP) regional economies. Also, it has one of the highest exposures in the world to natural hazards including typhoons, floods, droughts, earthquakes, volcanic eruptions and tsunamis. Weather-related risks, particularly hurricanes, flooding and droughts, are a frequent occurrence and affect crop yields, animal and fishery production, livelihoods, assets and the personal safety of vulnerable groups across the region, the frequency with which these disasters occur often taxes the ability of such groups to rebound quickly, increasing their risks of hunger and malnutrition. Low-cost agricultural insurance schemes are increasingly viewed as mechanisms for providing social protection to the increasing number of people affected by such risks and in helping to lessen the impacts they suffer owning to such shocks (Konuma, 2012).

However, the sector faces multiple risks emanating from internal and external factors. Risk results from the interaction of physically defined hazards with the properties of exposed systems such as sensitivity or vulnerability. Risk can also arise from the combination of an event, its likelihood of occurrence and the consequences.

Over the years, the experiences of countries especially in Asia in addressing the concerns of agriculture and fisheries due to erratic climate changes were viewed as effective in mitigation and adaptation. Not to mention, even financial institutions developed programs and enhanced their services on address these effects and help cope with the changing global financial condition and development pitfalls.

Furthermore, these experiences especially with the continuous occurrence of typhoons and climatic induced destructions helped institutions finance including research and development on managing risks for smallholder farmers/fishers and other stakeholders where applicable to be accepted, adapted, tested and disseminated in other areas experiencing the same conditions.

In risk assessment, the focus is always on individuals, social groups or economic sectors and understanding the probability of triggering the event. These interactions mean that different people are exposed to stress and threats in different ways. Risk equals the probability of (natural and physical) climate hazard multiplied by a given system vulnerability. However all risks are not quantifiable (Adger, 1999). Soussan and Arriens (2004) and Kirilenko et al. (2004) mathematically presented the relationship between risk (R), vulnerability (V) and hazard (H) based on drought as;

$R = f(V, H)$

Where

R – Likelihood of negative outcomes

H – Likelihood of exposure to hazard

V – Likelihood that people fail to cope up with the defined hazard

Like any other country in the region, several countries rely on agriculture and rural development as an important factor in boosting their national socio-economic development. However, there are several influencing factors which affect its development especially in the rural areas. These may be attributed to natural calamities and disasters caused by excessive rain, drought or other unforeseen impacts brought about climate change like pest infestation or even human induced activities. Because of these, the possibility of having increased and prevalence of risks is very high. These risks are normally affecting the productivity, profitability and sustainability of operation of agriculture. Towards the end, it is necessary to understand how these risks are managed especially those affecting the farmers, producers, traders, entrepreneurs including women and youth who are so vulnerable to the impacts of such calamities and disasters.

Furthermore, the financial risks of institutions including the key players and stakeholders in rural and agricultural development are detrimental to the continuous sociological and economic aspects not to mention the productivity, profitability and sustainability of livelihoods are affected. This is the reason why the increasing concern on the ill-effects of climate change vis-à-vis its impacts to people across the world are now given importance. Several sectors have analyzed and studied closely these impacts in order to provide appropriate measures including policies, programs and services for smallholder agriculture stakeholders.

Specifically, farming is prone to high levels of risk – emanating from weather patterns and other market related uncertainties. The vast literature available on the farm risk across the world deals with the ways and means to mitigate risks arising out of natural calamities and market volatility. However, one of the major risks for farmers in many of the less developed locations is the internal management of farms arising out of policy lags or the system inefficiency. The inability of internal systems which enable the availability of farm inputs, extension and other services are emerging as major threats farmer faces in the small and marginal farm segments.

The magnitude of these risks varies with the way it is perceived by the farmers and the available mechanisms to cope up with such risk situations in differing spatial and time contexts. Generally farmers resort to crop diversification, adoption of drought/flood resistant crops, labor employment, and other diversification into non-farm income earning activities. There are observations in this context that risk reduction strategies stabilize farm incomes, but at a lower level (World Bank, 2005). This conveys the likely impact on standard of living of farmers and farming communities. In rain-fed regions, income from agriculture is uncertain due to the monsoon failures as well as market imperfections. In the irrigated areas, the monsoon risks are not as severe as that of the rain-fed farm segments.

Internal Farm Risks

As mentioned earlier, the major risk that farmers perceive are emanating from internal (controllable) variables. This includes the non-availability of quality seed at the time of sowing, the supply constraints of fertilizers and pesticides during crop development and the lack of extension services to adopt improved farming systems. There are instance that the farmers are unable to get the quality paddy seeds so that the seed replacement ratio goes to zero or the replacement period stretches to 4 or 5 years. Similarly the fertilizer supply is inadequate that the traders charge exorbitant rates for fertilizers by which farmers finds it uneconomical to carry on with the farming. Simultaneously, the increased use of chemical fertilizers reduces land productivity and the use of organic manures reduces short term crop productivity. There are instances of heavy exploitation by input suppliers in seasons. Interaction with farmers in few villages reveals that fertilizer is sold at around 50 percent higher prices during normal crop seasons. There are instances that the prices goes up to seven times higher that of the normal prices, if the farmer is availing it on credit (barter for paddy on harvest). In other words, the exploitation at the farm level is yet a major risk for Indian farmers to tackle with.

With the limited scope of irrigation, the monsoon failure comes next to inputs in the risk priority for Indian (rain-fed) farmers. The lack of technology for accurate warning systems and also the poor addition of land under irrigation cover add to this risk element. At the same time, innovation of newer seeds and other inputs depends largely on the education (awareness) of farmers and their capacity to take the risk associated with it. It is however, true that there is no extension and farm services system exists whereby the farmers can innovate newer technologies in the farms, which adds to the risk of absorptions. Though the concept of weather based insurance schemes are convinced as means to mitigate farmer risks in rain-fed areas, hardly any conceptual framework remains for the diffusion of information and extension services to enable farmers with innovative farm practices.

Technology specific risks hold the farmers from the innovative farming practices significantly. Incompatibility between technology and investment capacity of farmers leads to improper adoption of such technologies and hence end up in loss of faith in the technology itself. The question arises therefore is can the extension system reach to a level of sophistication wherein it is feasible to customize and reconfigure the technology packs to suit the farmer requirements varying across circumstances and according to the capacity of investments. Hence, there are four scenarios of risks in the current farming systems which are classified in terms of investments to understand the scope of self-mitigation vis-à-vis external support for risk proofing.

Chart 1. Farm Risks Scenarios

❑ **Low Investment – Low risk** (Where the investment required for mitigating the risk is low that the feasibility of it among the small and marginal farmers is high)	❑ **High Investment – Law risk** (Where the investment required for mitigating the risk is high but the scope of covering risk is high. The capacity of small and marginal farmers for this is low)
❑ **Low Investment – High risk** (Where the investment required for mitigating the risk is low but the scope of risk mitigation is low that feasibility of it among the small and marginal farmers is low)	❑ **High Investment – High risk** (Where the investment required for mitigating the risk is high that the feasibility of it among the small and marginal farmers is low)

External Farm Risks

The external risk factors remain in the agriculture sector are related to price of the produce, output levels, institutional and technology-based. Crop failures arising out of erratic weather conditions, loss occurred due to pest, deceases and market failures are main concerns of the farmers. There are strategies in which risks are shared with or transferred to others. But the top risk management choice of farmers from external angles has been the crop insurance. The crop insurance scheme in India was started on a limited way in 1972. Between 1972 to 1979 and 1979 to 1985 pilot crop insurance schemes were introduced in many crop segments. During 1985 to 1999 comprehensive crop insurance schemes were established. The National Agricultural Insurance Scheme (NAIS) however, is not flexible to the regions and crops which are climatically and geographically sensitive to risk from various local specific sources.

In a nutshell, the Farmers' Risk Mitigating System like in India, is not developed enough to command the desired growth rates in agriculture through a technology led and market driven path. The integration of risk cover combining provision of inputs, extension and farm services along with technology, innovation and market linkages holds the potential for India's agriculture recovery and productivity enhancements. The uncertainty of markets and unreliable weather conditions prevents insurance agencies from extending the services uniformly across the regions and states in the country. Simultaneously, India lacks a technology policy for the agriculture sector to take the sector forward and integrate it with the national economy for growth and sustainability.

It is hence, clear that farmers are not adequately protected against various risks mainly because of the lack of proper knowledge about the different risk patterns falling across regions or the absence of mechanisms that could be deployed to avert such risks and bring the farmers on a sustainable track. It is imperative therefore that such mechanism are to be evolved at different levels (districts, state and national) for the farm sector to grow at sustainable levels annually which will pull up the hidden value chains for enhanced farmer incomes and thereby rural well-being. Interventions are required towards mitigating the critical risks of farmers. Rejuvenation of the farms call for the measurement of different types of risks persists in different farming scenarios and identifies the remedial measures from a farmer perspective for deploying suitable instruments to mitigate such risks. From the above discussion the major areas of risk which needs to be explored for its nature and intensity are;

a. Input Risk – availability, quality and price through better administration, regulation and supply management
b. Technology Risk – customization of technology to suit the risk bearing ability of farmers and provision of farm finance
c. Natural and Biological Risk – system of identifying crop suitability and farmer advisory functions.
d. Market Risk – efficient market mechanisms and farmers' access to such prices, price support in distress situations

Climate Change Adaptation and Farm Risks

Climate and natural calamities remains the main concerns for farming in many regions of the Asia-pacific. It is expected that the climate change could seriously hinder the region's efforts to address food security and livelihood security of the vast majority of the farmers. It is therefore imperative to (a) have clear understanding of the development issues and options at the frontier of agricultural adoption to climate change, (b) identify the impact and adoption strategies and practices and (c) explore and establish ways to mainstream climate change in development programs. This in a sense acts as a strategic risk preparedness approach in the farm front for its sustainability and development outcomes in the long run.

Climate change is likely to affect all elements of the hydrological cycle, causing to increased variability of precipitations, rise in the sea level, as well as the instances of extreme weather patterns like draught, cyclones and floods. This potentially will impact the water availability to crops covered under the rain fed and irrigated farming systems. Semi-arid cropping systems relying on ground water use and the paddy crop in the humid tropics are expected to be vulnerable on the climate change.

It is a fact that Asia and the pacific are home to the highest concentration of the worlds under nourished. Around 2.2 billion people, who constitute approximately 60 percent of the economically active population, remain in the agriculture sector for employment and livelihood. Climate change as a development threat in the region has been exacerbated by the acute vulnerability associated with the region's common characteristics such as scarce land and water resources, exposure to climate variability and natural calamities like typhoons, floods and drought. It is needless to say therefore that climate change could seriously hinder the region's efforts to establish food security, poverty reduction ad sustainable development.

Towards mitigating the risks associated with the climate change, it is essential that the adoption measures are to be evolved. It is expected to increase the overall flexibility of the farming systems against the shocks. The possible adopting solutions include modification of the cropping baskets, diversification and development of new crop varieties which are climate resistant, improve the modes of soil conservation and water use efficiency, introduce improved irrigation systems, develop monitoring early warning networks to farmers, introduce risk hedging instruments to transfer the risks and bring in place a policy environment for the above to be implemented on the ground.

Policy makers and farm investment planners are therefore expected to come up with agricultural investment plans, develop and apply scenarios to test resilience of various investment and financing options, perform resilience audit of existing water bodies and other irrigation infrastructures as well as re-engineer it, establish adaptive management tools and create and disseminate such knowledge among the farming communities for suitable modification in the farming operations.

Agriculture insurance and farm risk mitigation

Agriculture insurance in the Asia-Pacific region is not well-developed and widespread, particularly in the 31 (of the total 44 countries) low income to upper middle income countries. Low cost agriculture insurance schemes are increasingly viewed as mechanisms to provide social protection towards the increasing number of farmers affected by the climatic risks.

On the other hand, structured and unified agricultural insurance systems in the region range from major public sector programs like India and the Philippines, private-public partnerships in China and Republic of Korea and purely private markets in Australia and New Zealand, including non-formal private mutual and community-based interventions in Bangladesh, India and Nepal, all of which are directed to address the risks and fate of affected stakeholders in rural and agricultural development. In so doing, these countries made it a policy to incorporate agricultural insurance in the overall framework of their agricultural development.

Currently (2010) agriculture insurance is present either in a pilot form or a fully developed national program in 20 (out of the 44) countries. 14 countries in the Asia-pacific region are having no agriculture insurance schemes. It is not very encouraging that 10 small pacific island countries are not known to any agriculture insurance schemes. Agriculture insurance is available in 5 low/lower middle income countries of south Asia viz, Bangladesh, India, Nepal, Pakistan and Sri lanka. But no such schemes are available in Afghanistan, Bhutan and Maldives.

However, there has been a significant increase in the provision of agriculture insurance schemes in the region over the last half a decade. The total volume of the regional agriculture insurance premium has grown from US$ 1.6 billion in 2005 to US$ 4.0 billion in 2009 (FAO, 2012). The major contributor to this growth has been china which currently accounts for 50 percent of the total regional agriculture insurance premium.

The policy framework and the operational structure of the insurance products are highly detrimental in its promotion. For example, the public sector subsidized multiple peril crop insurance in the region have mostly performed badly. As a result many of these programs have been modified and policies were reformed towards public-private partnerships. In Bangladesh for example, the public sector crop insurance scheme has ceased operating. In China, the state insurance company (PICC) which enjoyed almost a full monopoly since mid-2000s has promoted a major expansion of private sector led agriculture crop and livestock insurance.

In India for instance the there are three policy goals implied in the National Agricultural Insurance Scheme (NAIS) – (a) social response which is to provide support to the poor farmers who stand to lose most during severe crop failures, (b) risk management aims at improving rural financial services' ability to manage commercial risk which is important for improving access to finance by farmers and (c) fiscal exposure, which targets controlling of fiscal exposure of the government in terms of average exposure as well as the peak exposure during disaster years. The scheme is a mix of voluntary and compulsory participation. The voluntarism is at the state level in terms of specific crops and areas to be covered. It becomes compulsory in selected areas of the state for farmers growing designated crops and taking loans from rural financial institutions. In the notified areas farmers who borrow from rural financial institutions has to take insurance compulsorily.

Weather index insurance (WII) was introduced in India in 2003. It has been considered as a major policy initiative to protect the Indian farmers from the natures' fury. Again as a major policy push, both the public sector and the private sectors are involved in the WII. This product has been scaled up significantly through premium subsidy support from government as an alternative to the traditional NAIS area-yield based scheme. Similarly from a policy perspective, Thailand is in its fourth year of operation – a private sector rainfall deficit index scheme for maize. It is reported that this scheme is purely voluntary and carries no premium subsidies and the main challenge is to create demand for the product and to scale it up.

From a policy angle it is observed that the public sector support to agriculture insurance is really paying dividend. Also it is established that this policy push is potential enough to take off the schemes towards its long run sustainability. The most effective and popular form of public sector support for crop insurance is the premium subsidies that are provided by the governments. 8 countries of the 14 with commercial and pilot crop insurance programs (China, Korea, (Democratic People's Republic) India, Indonesia, Japan, Pakistan, the Philippines and Korea (Republic of) provide premium subsidies. Among these group, China and Japan has subsidized crop insurance markets and the costs to the governments run in to huge amounts. The governments also subsidize the costs of crop insurance administration and operating expenses in 38 percent of the countries and provide support to the reinsurance programs.

Further to substantiate the role of insurance policy framework for the promotion of farm insurance schemes, it is observed that the highest insurance penetration rates are found in countries that have large national subsidized schemes and where crop and livestock insurance is either compulsory or compulsory for crop-credit recipients. For example Japan for cereals, China for livestock epidemics and decease cover in the first category. India is the example for the second category under the NAIS.

Further it is evident that in low income and lower middle income countries in the Asia-pacific region where there is little or no tradition of crop and livestock insurance and also where the supply of products and services is restricted, the penetration levels of insurance is low. The countries in this context are Bangladesh, Indonesia, Malaysia, Nepal, Pakistan, Thailand and Vietnam. The big challenge for policy makers in these countries is how to support and encourage private commercial insurers to develop, implement, scale up and sustain the range of products and services they offer to farmers. More vividly it is established that some of the subsidized crop insurance schemes continue to perform poorly while most of the private crop and livestock insurance programs are operating profitably with loss ratios less than 75 percent.

Challenges to small farmer risk mitigation

Small scale private livestock and occasional crop insurance initiatives are being implemented by informal or non-regulated insurance sectors in Bangladesh, India and Nepal. The salient features of these programs are (a) most of these programs are livestock micro insurance schemes linked to MFI credit. In other words these products offered by the micro insurers are credit guarantee policies where the sum insured is closely linked to the amount of loan and (b) the cover period terminates once the loan has been paid. In most of the cases it is not approved or authorized by the insurance regulatory authority in any of the countries mentioned above.

The lack of formal recognition of these micro insurance programs means that the MFIs cannot access formal loss protection from local commercial insurers and/or reinsurers and this leaves the MFIs exposed to catastrophe decease losses that would undermine the financial viability of the schemes. At a micro level (individual farmer), there is currently only one commercial typhoon index insurance scheme operating in the Asia-Pacific region – the rice farmers of Philippines. This product is recognized as having potential for application to the farmers in the Pacific Island Countries (PIC). Studies have proved that traditional indemnity based crop insurance options may be limited for farmers in the Asia-Pacific region. But there may be good scope for weather index covers that insure the crops against perils such as typhoon, flood and drought.

What is agreed in general is that governments can play a creative supporting role in promoting the agriculture insurance in the region. Particularly in start-up situations, where there is currently no agriculture insurance markets and supply accordingly, government interventions are key for its introduction and scale up. This includes establishing an enabling legal and regulatory framework, establishing weather station infrastructure, data and information networks, training and capacity building for insurers. In some situations it is also cost effective for governments to provide high layer catastrophe reinsurance protection.

Table 1. Formal and informal risk management strategies in the region

Formal risk management strategies		
	Market based	**Policy – Induced**
Ex-ante	Contract marketing Financial hedging Traditional agriculture insurance Weather index insurance Contingent funds for disaster relief	Pest/disease management Physical crop/food stocks Price guarantees/stabilization fund Input subsidies Public agriculture insurance
Ex-post	Savings Credit	Disaster assistance Social funds Cash Transfers Waiver of crop loans
Informal risk management strategies		
	Farm household level	**Community level**
Ex-ante	Savings Buffer stocks Diversification Low risk crop mixes (low returns) Production techniques	Food crop sharing Common property resource management Social Reciprocity Rotating savings/credit
Ex-post	Sale of household assets Reallocation of labor Reduced consumption Borrowing from relatives	Sale of assets Transfers from mutual support networks

Source: Jaffee, Seigel and Andrews 2008.

The point to be noted is that agriculture insurance is not a panacea and cannot replace sound risk management. It cannot prevent the loss of crop or other farm assets, it is not considered as the most appropriate option to manage risk in terms of cost-effectiveness or affordability.

For instance, in some parts of Europe and Argentina which experience high hail exposures, commercial fruit and flower farmers find it more cost effective to invest in hail netting to prevent crop damage, rather than to claim on the crop hail insurance policies. Often it happens like the insurance products are not designed to cover the full value of the damage. Similarly, it is applicable in the case of frost insurance, where it is cost effective to use frost prevention measures (like sprinkler irrigation, fire pots, wind fans, smoke generators etc.) rather than to go for frost insurance. The learning is that the choice of risk management tools needs to be rationalized before its application in the farm. Hence insurance will fail to reduce risk and to advance adaptation unless it is implemented along with risk management and disaster risk reduction measures.

Towards a comprehensive understanding of the challenges and issues involved in sustainable agriculture development and accordingly the various types of agriculture insurance markets existing in the Asia-Pacific countries as shown below (Table 2).

Table 2. Various types of agriculture insurance markets existing in the Asia-Pacific countries

Public sector model	Public-private partnership	Market driven
Bangladesh (Sadharan Bima Corporation)		Australia
		Bangladesh (NGO/MFI livestock credit insurance
Democratic People's Republic of Korea (Korea National Insurance Corporation)		
India (NAIS)	India (PPPs for livestock insurance)	India (Private weather index insurance and community-based for livestock)
	Indonesia	
	Japan	
		Malaysia
	Mongolia	
Nepal (DICGC subsidies, livestock credit guarantee protection)	Nepal (SFCL subsidized livestock-credit insurance)	Nepal (Community-based livestock insurance)
		New Zealand
	Pakistan (PPP for crop insurance, 2008)	Pakistan (livestock insurance)
Philippines (crop insurance corporation)	Republic of Korea	Philippines (private weather index insurance)
Sri Lanka (agricultural and agrarian insurance board)		Sri Lanka
		Thailand
	Vietnam	Vietnam

Instances of Move towards Sustainable Farm Risk Aversion

Few of the fully intervened systems since 1970 and 1980 for the sustainability of agriculture considering the emerging challenges and constraints are as follows:

- Bangladesh: Established the Sadharan Bima Corporation to provide Multiple Peril Crop Insurance (MPCI) since 1977 and subsequently livestock insurance in 1981.
- China: People's Insurance Company of China (PICC) formerly the monopoly of the government, commenced underwriting agriculture insurance in 1982.
- India: Comprehensive Crop Insurance Scheme (CCIS) underwritten by the general insurance corporation of India (GIC) introduced in 1985. The CCIS has replaced the NAIP in 1999 and in 2002 the responsibility of the NAIS implementation was transferred to the Agriculture Insurance Company of India Ltd. (AIC).
- Democratic People's Republic of Korea: Korea National Insurance Corporation (KNIC) National Rice and Maize Insurance Scheme since the mid-1980s.
- Sri Lanka: Agriculture Insurance Board (AIB) in 1973. This is a public sector company subsequently renamed as Agricultural and Agrarian Insurance Board (AAIB) for wider coverage.

Governments often seek to make agricultural insurance compulsory, particularly where farmers borrow from the banks. Farmers feel that compulsory insurance of crops is unattractive unless it is accompanied by premium subsidies. Otherwise, the farmer should be able to gain access to bank credit that he would not otherwise have been eligible for. Agriculture insurance is compulsory in one form or another in 17 countries in the Asia-Pacific region.

MODULE 1

Perspective of Agricultural Risk in Rural Finance

1.1 Risk in Agriculture and Changing Environment

1.1.1 Concept of Risk

Risk can be defined as a "potential deviation between the expected and the real outcomes resulting from an economic decision where, from a practical point of view, a negative outcome has greater importance" (Szekely, 2009). There is risk when there is some **"uncertainty"** – i.e., outcomes (e.g. adversity or loss) are unsure of at the time of making a decision (e.g. when the farmer decided to plant). A farmer knows at the time he decided to plant that he is exposed to some risks – i.e., that there is possibility of certain negative consequences arising from some future event (e.g. calamity) or process that he will adopt (e.g. farming system). Some farmers can manage risks better than others or when risk events indeed happen, some can cope better, meaning, more resilient than others. When the likelihood that a certain risk will result to a significant decline in the farmer's well-being, then he is considered *"vulnerable"* to such risk. The higher the likelihood that his well-being will be affected negatively the higher the degree of this "vulnerability".

Some authors make conceptual differentiation between risk and uncertainty i.e., concept of risk is more associated with measures of probabilities (numerical, objective measures) while uncertainty implies that probabilities of outcomes are not known (OECD, 2009). Uncertainty connotes incomplete knowledge either due to lack of understanding and/or insufficient data. In practice, however both concepts are very much related and are used interchangeably. There is no risk without uncertainty and typically most uncertainties imply some risk.

Operationally, definitions of risk vary depending on the emphasis, examples are:

> "*Risk is uncertainty arising from the possible occurrence of given events*." (International Risk Management Institute).
>
> "*Risk is the combination of the probability of a disaster event and its negative consequences*" (UN Institute Strategy for Disaster Reduction).

In agriculture, risks arise due to uncertainty over factors determining returns to agricultural production (OECD 2009). Uncertainty in agriculture reflects the nature of most farm production systems, which is influenced by ever-changing economic and biophysical conditions. The natural lag between when production decisions are made and when returns to farming can be realized exposes agricultural enterprises to the variability, in the intervening period, of a range of factors that determine the value of production. These include weather, animal and plant health, changes in agricultural markets and a range of macroeconomic factors. Variability in these factors results in uncertainty over key determinants of farm income like output price, yield, and input costs – with implications for farmers' economic well-being and effects on the economic and technical efficiency of farm production.

1.1.2 Types and Sources of Risk in Agriculture

There are different classifications of risks – one classification is based on technical characteristics of risks while one classification can be based on sources of risk.

Typologies of risk are as follows (OECD, 2009):

(a) Systemic vs non-systemic risks. *Systemic risks* are related to events that repeat over time with a pattern of probabilities that can be analyzed in order to have a good estimate of actuarial odds. On the contrary, non-systematic risks are characterized by very short or imperfect records of their occurrence and, therefore, difficulties in estimating an objective pattern of probabilities or distribution of outcomes. An individual risk that is independent or uncorrelated with any other risk is called *idiosyncratic risk* i.e., risk that affects households individually due to factors unique to individuals such as health conditions, field specific conditions. Systemic risk on the other hand refers to vulnerability to events which affect aggregate outcomes. A typhoon or flood affects all farmers in a region or country, thus, it is a systemic risk. The term *covariant risk* is also used to refer to risk that affects all households in a locality arising from factors that prevail on all households equally such as rainfall or market conditions. *Catastrophic risk* on the other hand is associated with events that are less frequent but with high overall losses to a region or country.

(b) Sources of risk. Risks in agriculture can also be classified according to source and particular farm business activity affected. One classification of farmer-level risks is as follows:

- Production and yield risk – concerns with variations in crop yields and in livestock production due to weather conditions, diseases and pests, technological change as well as management of natural resources such as water
- Price and market risk – related to the variations in output prices and input price variability and integration in the food value chain (with respect to quality, safety, new product specifications, etc.)
- Financial risk – resulting from different methods of financing the farm business such as credit availability and interest rate changes which impact on the farmer's ability to pay bills and to have capital to continue farming
- Legal and regulatory risk – connected with impacts of changes in agricultural policies e.g. subsidies, environmental regulations, or changes in government action which ultimately have negative impact on the farmers' income
- Human resources risk – concerning the possibility that family members or employees of the farm will not be available to provide labor or management to the farm.

(c) Typology based on level of analysis. Risks in agriculture can also be classified based on the level of impact, namely:

- Micro level – *idiosyncratic risks* or risks at the individual farmer or farm household level;
- Meso level – *covariant risks* that affect groups of households or community;
- Macro level – *systemic risks* that affect a whole region or country.

Any classification of risks underlines the fact that the individual farmer may face different kinds of risks at the same time. In these conditions, the optimal choice of a strategy to deal with them requires that correlations among different risks be accounted for.

Table 3. Types and Examples of Risks in Agriculture

Type of Risk	Micro level – risks (individual farmer)	Meso level – risks (community level)	Macro level – risks (country level)
Market/price risks	Timing of harvests	Local prices	Changes in input or output prices due to change in trade policy, price support
Production risks	Plant pests and diseases; Personal hazards (illness, death)	Rainfall, landslides, floods, pest infestation	Floods, droughts, typhoons, large-scale pest/disease infestation, technology
Financial risk	Changes in income flows from other sources; Family emergencies		Access to formal credit Changes in interest rates
Institutional/Legal	Land ownership/tenure	Changes in local ordinances	Changes in national laws, policy, regulations

Source: Adopted from OECD (2009), Table 2.1, p. 17.

1.1.3 Climate Change: Implications to Agricultural Risk Management

Production and market risks remain as major risks among farmers. Despite advancements in production technologies, weather, pests and diseases continue to be challenge among farmers while unstable prices put at risk farm incomes. The situation has been exacerbated by climate change in recent years. More frequent and longer droughts, excessive rainfall and strong typhoons during the wet season have increased farm risks.

OECD (2009) reported that climate change is a reality that may have some impact on agricultural risk. Citing Inter-governmental Panel for Climate Change (IPCC) 2007 report, it noted that there is evidence that temperatures at the surface of the earth have risen globally, with important regional variations. In the last century, the level of precipitation has changed in most places: (a) significantly wetter in eastern North and South America, northern Europe and northern and Central Asia, but drier in the Sahel, southern Africa, the Mediterranean and southern Asia, (b) widespread increases in heavy precipitation events have been observed even in places where total amount has decreased. The extent of regions affected by droughts, tropical storms and hurricane frequencies vary considerably from year to year but evidence suggest substantial increases in intensity and duration since the 1970s. In a warmer future climate, there will be an increased risk of more intense, more frequent and longer lasting heat waves. Forecast models project increased summer dryness and winter wetness in most parts of the northern middle and high latitudes. Summer dryness indicates a greater risk of drought while there would be an increase in extreme rainfall intensity.

These trends, the OECD paper explained, are consistent with observed data on frequency of catastrophic events in the world. It cited the data from the United Nations International Strategy for Disaster Reduction (UNISDR) that showed dramatic increase in the occurrence of natural disasters, particularly of hydro-meteorological events during the last century.

OECD noted that these global warming and catastrophic events trends are likely to impact agricultural and livestock production or yields and their variability. Citing IPCC 2007 Report, few forecasting models have so far incorporated the impact of increased frequency of extreme events and weather variability on production. However, it noted that recent studies indicate that climate change scenarios that include increased frequency of heat stress, droughts and flooding events reduce crop yield and livestock productivity beyond the impacts due to changes in mean variables alone. Other factors apart from climate change (including technological developments) are also likely to affect agricultural productivity levels per hectare or per animal. Farmers will need to adapt to these changes in productivity levels in order to respond to a new changing environment.

An ADB report cited studies that assessed possible impact of climate change on agriculture. Among the possible impact noted by are (ADB, 2014):

- Changes in average temperature, particularly upward changes, and the timing and distribution of precipitation can affect crop yields. These can also alter the distribution pattern and population size of insect predators, and disease or fungal infection rates.
- In East Asia, changes in temperature and precipitation are foreseen to have negative impact on rice production, unknown impact on wheat and soybean but potentially positive impact on potato and sugarcane. In People's Republic of China, loss of moisture stored in the country's glaciers may reduce irrigation water downstream. A 3% loss in GDP is forecasted by 2050 due to decreased crop productivity caused by increase of 1.97 degrees (Celsius) in temperature. In Republic of Korea, climate change impact is likely to include higher temperatures and increased rainfall which could increase incidence of pests and diseases.
- In South East Asia, increased temperatures, droughts, heat waves and flooding are expected. Cambodia is projected to experience drought, saltwater inclusion, water shortages and erosion further worsening the country's vulnerability. Rice crop yield is likely to be lower because of climate extremes though milder climate changes such as increased rainfall may be beneficial opportunities to farmers. Lao's dry season could be longer, but annual precipitation also higher. Indonesia may have to contend with the prospects of flooding and drought with rice and perennial farming feeling the impact. Drought and flooding apart from more heavy rains and typhoons and greater incidence of pests and diseases may beset the Philippines. Vietnam could be affected by flooding, drought, saltwater intrusion, more heavy rains and typhoons reducing crop yields.

The severity of impact of climate change may vary from country to country – depending upon the risk exposure of the particular country and likewise vary among commodities. The implication on risk management is clear, risk managers must contend with increased probability of weather related risk events and severity of impacts to agriculture due to climate change.

1.2 Agricultural Risk Management

Managing risk means an entity (e.g. a farmer or an institution) proactively attempts to control the negative consequences of an adverse event. The adverse events may still happen but by managing risk, the farmer or an institution is better prepared to handle the effects. In organizations, **risk management** refers to the coordinated set of activities and methods to control the effects of risks that can affect its ability to achieve desired objectives. Risk management is a deliberate and proactive action to prepare the organization if ever such risk events indeed occur. An adverse event such as a natural disaster may still occur but by applying a set of strategies, the organization can avoid or absorb losses at an acceptable level.

In rural finance, sustainability of financial services hinges on effective risk management at two sub-systems (a) farmer-level risk (***"risk in agriculture"***) and at financial institution-level risk (***"risk in agricultural finance"***). How risks in agriculture are handled has impact on the credit risk of financial institutions. On the other hand, continuity or non-continuity of financial services of a financial institution has a bearing on the financial risk coping capability of the farmer.

Apart from categorization of agricultural risks according to source, there are layers of risks based on frequency of occurrence and the severity of their impact (Schaffnit-Chatterjee, 2010). Risk management starts at the farm household level – i.e., when the farmer decides which outputs to produce, how to produce it, when to produce it. The level of integration in a food supply chain also affects the degree to which the farmer is affected by price volatility. Risks associated with frequent events which do not cause large losses are managed at the farm household level. Events that are infrequent but lead to

severe damage to a large geographical area (e.g. floods, drought, typhoons, plant/animal disease outbreak) typically fall under systemic or catastrophic risks layer and handled at the macro level by governments.

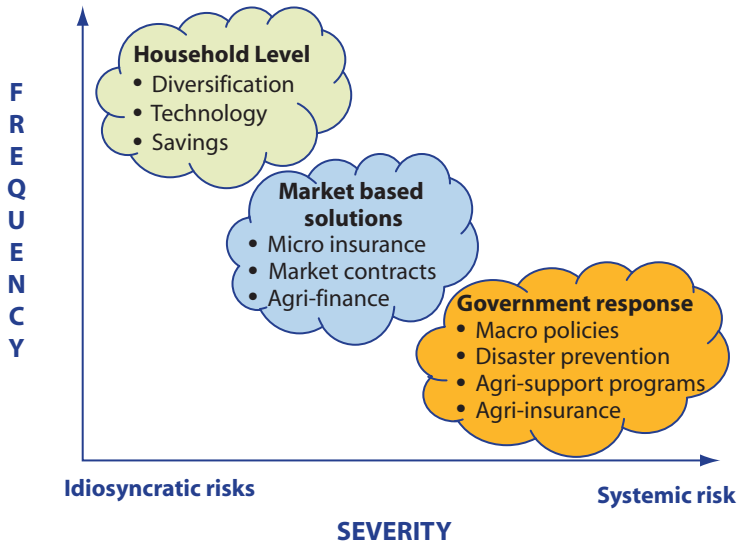
The level of interconnectedness is important and relevant to financial institutions dealing with farmers. Individual farmers may be good at dealing with idiosyncratic risks through appropriate farm management practices but are incapable to deal with catastrophic events. Different agents have different roles in managing risk in agriculture. Government's ability to provide the environment for stable prices would impact on the farmers' incomes. Absence of crop insurance puts at risk farmers in dealing with natural calamities. Absence of government's disaster preparedness programs would increase vulnerability of farmers to cope with disasters.

Risk layering considers the different roles that can be played by different parties at different levels (Figure 1). Risk can be spread out among different parties thereby reducing the burden to one party.

Different layers require differing responses (OECD, 2011):

- Normal variations **("normal risk")** in production, prices, and weather can be handled by the farmer as part of normal business activity. Under normal risk layer, the farmer is responsible to implement risk management strategies at the farm or household level. Government's role can be in technology extension, training and education.
- Infrequent, **catastrophic** events that affect many or all farmers in a wide area are usually beyond the farmers' or markets' capacity to cope, thus, needing government intervention. In between normal and catastrophic layers are covariant risks that can be handled by market-based solutions such as insurance and market contracts.

Figure 1. Risk layers and Types of Responses



Farmer Level Risk Management Strategies

In general, smallholder farmers manage risks *ex ante* (prior to occurrence of risk) or *ex post* (after the event). Among the *ex-ante* options are:

- *Risk reduction* – lessening the likelihood of occurrence of the risk;
- *Risk mitigation* – lessening the adverse impacts of risk;
- *Risk transfer* – transferring financial consequences of the risk to another party.

Examples of risk reduction strategies include adoption of appropriate technologies and farm production techniques to reduce occurrence of pests and diseases. As a risk mitigation strategy, he can diversify into other crop/livestock projects and/or other non-farm activities to minimize the adverse impact on his overall income should the risk indeed occur on his major farm project. In risk transfer, another party absorbs the consequences from the occurrence of the risk event. For example, by getting crop insurance, the insurer absorbs the financial loss of the farmer (i.e., the insurer pays the farmer the amount of crop loss from calamity). Apart from risk reduction, mitigation and transfer, an *ex ante* strategy is *risk avoidance*, i.e., eliminating the risk. However, it is a difficult strategy that can be employed by farmers as this would mean not engaging in crop/livestock production that is subject of risk. Inability to manage risks can lead to poverty trap.

Ex post strategies – are *coping* strategies to withstand effects of risk events to be able to sustain production and livelihoods after the occurrence of events. These include availing government support programs e.g. disaster relief and other safety nets, in times of natural disaster events; or a farmer has to sell household or farm assets, borrow from friends and relatives or reduce consumption to cope with the negative impact of losses from a natural disaster event. This underscores the importance of savings and asset accumulation in small farming households in improving risk coping capabilities.

Some of risk strategies employed by farmers are shown in Table 4.

Table 4. Examples of risk management strategies at farm household level

Risk	Strategy
Price Risk	**Storage** – avoiding seasonally low prices at harvest time waiting for an expected future price increase. **Marketing Contract** – entering into marketing contract with a buyer Fixed price contract – the price is fixed before delivery Minimum price contract – pre-agreed floor price during the duration of the contract. **Contract farming** – where an agribusiness firm commits farmer-producer to deliver a specific quality and quantity of final product. The producer is assured of market for the output and re-agreed price.
Production/Yield Risk	**Crop Insurance** – transferring risk to insurer which absorbs loss when the event occurs. **Crop management practices** – adoption of new technologies and practices to minimize pests and diseases infestation or to adapt to changing environment (e.g. adoption of climate change adaptation practices).
Financial Risk	**Diversification** – engaging in multi-crop and livestock to diversify farm income sources as well engaging in non-farm income generating activities to diversify household income sources. **Mutual savings/fund pool** – participating in pooled savings funds wherein each member of a group contributes an agreed amount. In case of emergency, a member can draw from the pooled fund.
Health/Personal	**Micro insurance** – avails insurance coverage for health, death and/or accident.

1.3 Importance of Agricultural Risk Management in Sustainable Rural Finance

Sound agricultural risk management is a fundamental element of sustainable agricultural and rural finance. When financial institutions extend loans, there is always a risk of borrower default. When farmers experience lower yields or lower incomes than expected, these affect their abilities to repay back loans. As a result financial institutions may either set interest rates high or restrict access to credit. This in turn constricts loan growth among small farming households.

Financial institutions normally institute strategies to address risk against borrower default. A typical strategy is to secure collateral on a loan transaction so that the lender is assured of recovering, if necessary by court action, the material value of the loan. Conventional collateral includes the mortgage of land or pledging of moveable assets. However, in most cases, rural poor households have few assets to offer as mortgage and land titles are often uncertain. Thus, small-scale farmers will most likely be left outside the mainstream of agricultural credit. This would impede loan growth in agricultural areas constraining continued sustainability of financial services in those areas. It is important then financial institutions continue to develop new alternative mechanisms to ensure larger loan outreach.

As farmers are exposed to systemic or covariant risks, banks also have to be wary of natural disaster and catastrophic events. There is possibility of large scale loan defaults within the geographic area coverage of a financial institution which may put at risk the solvency of the bank. In the Philippines, a number of small rural banks were forced to close down due to large scale loan losses from agricultural borrowers affected by successive disaster events (typhoons, floods). As crops were not insured nor the banks sought credit guarantee, the banks were forced to absorb loan losses that eroded their capital. Unable to raise the capital required by the Central Bank, the banks were put under receivership. Prior to the disaster events, these banks had Capital to Risk Asset Ratio (CAR) above the Central Bank requirement.

For sustainable agricultural finance to occur, it is important that risks are appropriately managed both at the demand side (agricultural risk management) and at the supply side (managing risks at financial institution level). How agricultural risks are responded to at the demand side, from the individual farmer-level to macro level government responses would impact on the credit risks of financial institutions. On the other hand, access to and predictability of financial services (savings and loans) at the supply side has an impact on the financial risk management at farmer-household level. The succeeding Module will discuss managing risks at the financial institution level.

MODULE 2

Risk Management in Rural Financial Institutions

2.1 Rural Finance Market Characteristics

Rural poverty, isolated markets, high covariant and seasonality of agriculture often result in higher credit risks, high transaction costs, and limited profit-taking opportunities for diversification for financial institutions. (Yaron, 1996). These characteristics differentiate rural financial markets from urban ones. How rural financial institutions respond to these challenges would spell the difference between achieving either sustainability of financial services or non-continuity of services. Continued services improve capacities of rural borrowers (majority of whom are farmers) which in turn increases demand for financial services in rural areas.

In the past, the approach adopted by governments was directed credit-often at subsidized interest. But such approach had limitations as credit programs as these programs proved to be unsustainable. Income from lending was insufficient to cover continued operations. Loan losses were huge as risks were not sufficiently addressed resulting to discontinuity of credit programs and collapse of rural financial institutions. The sole emphasis on credit disbursement to the neglect of portfolio loan quality led to un-sustainability of financial services.

Yaron (1996) cited some of the negative features of such an approach:

- Subsidized credit led to perception that rural financial institutions as governmental disbursement windows rather than solid financial institutions leading to a poor loan repayment culture among borrowers;
- At times, the agricultural credit programs resulted to production inefficiencies by targeting wrong products;
- Poor design and performance of state-owned RFIs and their access to concessional loans discouraged private, for-profit financial institutions to engage in financial intermediation.

A new approach introduced beginning 1990s viewed financial intermediation to be complemented by other government actions – such as improving infrastructures, policy and regulatory environment. Such interventions would provide the necessary conditions for agricultural activities to be viable and the attendant covariant price and marketing risks reduced. Likewise government interventions on improving farm management practices and technologies redound to reduced individual farmer-level production risks. Government interventions (e.g. agricultural insurance) may also be needed to address covariant risks associated with weather events and pest/diseases infestation.

On the other hand, improved regulatory environment for financial institutions – such as liberalizing interest rates – improved their abilities to cover their costs. The new approach called for emphasis in improving institutional capacities of rural financial institutions. The sustainability of financial services hinges on institutional capacities of the rural financial institutions – i.e., their abilities to manage their organizations well. But while the supply side policy environment is now conducive to the growth of financial institutions, they still have to contend with the demand side (agricultural clients) conditions. Principal among these conditions is how agricultural risks are handled at the farmer-household level.

Implications to Agricultural Lenders

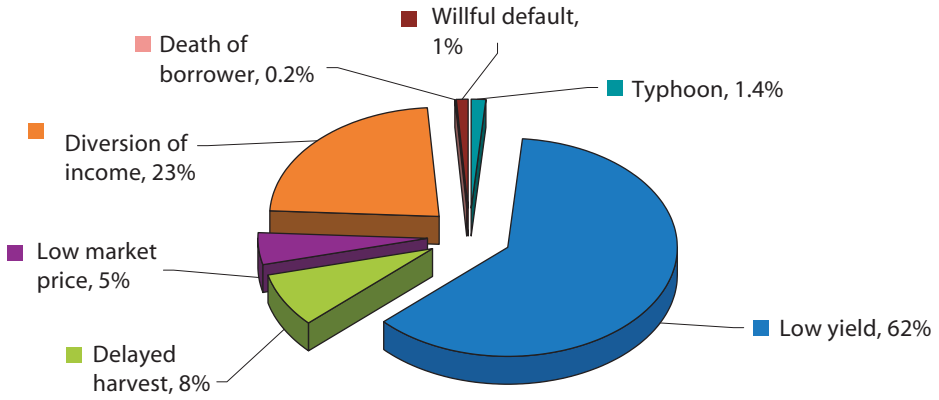
The ability of the farmer to handle risks has consequences on his capability to repay back loans and thus have implications on credit risk of the lender. Major causes of loan default can be attributed to a farmer's limited capability to manage production and market risks as well as handling personal events. It is important thus for banks to have an understanding of what risks are faced by farmer clients at the *micro level* and the *meso* and *macro level* environment these farmers operate that may impact on their ability to handle household level risks.

Box 1 below illustrates the experience of a rural bank (GM Bank of Luzon, Inc.) in the Philippines that extended non-collateralized loans to small scale farmers. To mitigate credit risk, the bank sought credit guarantee coverage from the government for the farmer loans. The causes of default reveal the underlying sources of risks that the farmers have not adequately mitigated. In this sample case, loan defaults attributable to production and yield risk constituted the highest proportion at 71 percent followed by default attributable to personal events/circumstances (e.g. diversion of income to family expenses) constituting 23 percent.

Box 1. Causes of loan default: Case of a rural bank in the Philippines

The Case of GM Bank of Luzon (Philippines)

Total Small Scale Farmer Loans	$31 million
Loan default rate	7%



Source: AGFP Data (June 30, 2015)

2.2 Risk Management Framework for Rural Financial Institutions

Globally, risk management has become increasingly important among financial institutions. The global financial crisis in 2007-2008 underscored the importance of adequate risk management. New international risk management standards have been published since that time, including the ISO 3100 Risk Management Principles and Guidelines. For banks, the Basel Accords starting 2009 were likewise initiated in response to the global financial crisis. The Basel Accords outlined a comprehensive set of reforms that would strengthen regulation, supervision and risk management of the banking sector. The Basel Accords set banking standards in adopting a risk based capital adequacy framework. The principles and standards set by ISO and Basel were based on global best practices. While these principles were intended for bigger and more complex institutions, the core principles can be applied regardless of size and complexity of financial institutions and thus, can be applied by microfinance and small-sized rural financial institutions (e.g. NGOs, credit unions, rural banks).

2.2.1 Enterprise Risk Management (ERM) Framework

Risk management is defined as a systematic process whereby an organization methodically addresses the risks attached to its activities. A *risk management framework* is a description of organizational specific set of functional activities, arrangements, definitions and processes of the organization's management system concerned with directing and controlling risk.

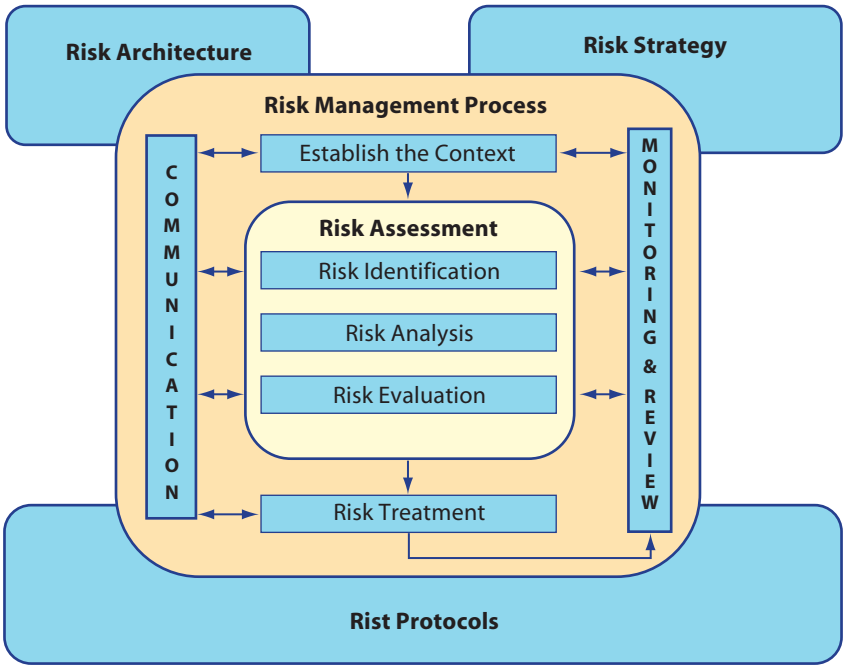
The ISO 3100 developed the so-called *Enterprise Risk Management (ERM) Framework* (AIRMIC, 2010) which had gained wide application. Under this framework (see Figure 2), a sound risk management system consists of:

(a) *Risk architecture* – specifies the roles, responsibilities, communication and reporting structure

(b) *Risk strategy* – contained in the risk management policy outlining the risk objectives, risk appetite and attitudes or philosophy towards risk

(c) *Risk protocols* – presented as risk guidelines and includes the rules and procedures as well as specifying the risk management methodologies, tools and techniques that should be used.

Figure 2. The ISO Enterprise Risk Management (ERM) Framework

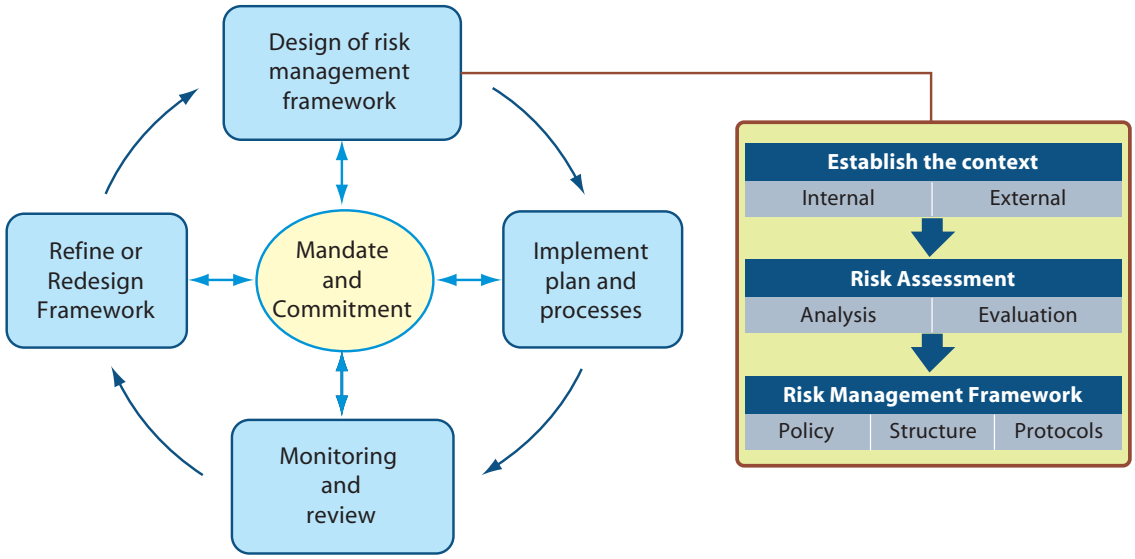


Source: AIRMIC, ALARM, IRM (2010)

The ISO 3100 describes the components of a risk management implementation framework. A simplified illustration adopted from the *Structured Approach to ERM* by AIRMIC, ALARM and IRM is shown in Figure 3. The key components are:

- Mandate and commitment from the Board and management
- Design of the risk management framework (risk management plan)
- Implementation of the strategies and the risk management processes
- Monitoring and review of the plan and processes
- Refine or redesign of the framework

Figure 3. A simplified implementation framework of the ISO-ERM



Source: Adopted by the author (R. Yedra) from AIRMIC, ALARM, IRM (2010)

In crafting the enterprise risk management framework, the key steps are:

- Establishing the Context
- Risk assessment
- Formulation of risk management framework.

Establishing the Context. The process starts with a review of the organization's mandate and goals and obtaining commitment from the Board and top management in supporting the risk management strategy. This process establishes the parameters for setting the scope of risk assessment taking into account the internal and external environment. The external context can include the (a) relevant socio-cultural, legal, political, economic conditions and competitive environment, (b) key drivers and market trends that impact on the organization's objectives, (c) perceptions and values of stakeholders. The internal context will include the (a) governance and management structure, (b) policies, objectives and strategies that are in place to be achieved, (c) capabilities (human resources, technologies, and processes), (d) information systems, (e) standards set by the organization.

Risk assessment. This involves the recognition and identification of risks, analysis and evaluation. The idea of risk changed over time. Under the old ISO definition, risk is defined as the "probability of loss". Under the ISO 3100 of 2009, risk is defined as "the effect of uncertainty on objectives" which may be negative or positive, thus, recognizing risk not only as a threat but an opportunity.

Risk is often described as an event or a change in circumstances or consequences. The risk assessment requires knowledge of the internal context of the organization and the external environment it exists as well as an understanding of the organization's strategic and operational objectives.

In the evaluation of risks, the institution must have its criteria in recognizing and prioritizing the significant risks that will be attended to. As appropriate as possible, a quantification of risks and their impacts (consequences) are determined. In case of banks and financial institutions, they are primarily concerned with possible loss consequences that impact on their capital and earnings. Each risk identified is then assessed on the organization's established criteria. Two basic criteria commonly used are:

- Likelihood – What is the probability of the event to occur?
- Severity – What are the financial consequences of the event?

A risk rating can then be applied to each risk which would be helpful in the prioritization. An output of the exercise would be a "risk rating matrix" with corresponding rating of each risk.

Risk identification should be approached in a methodological way to ensure that all significant activities within the organization have been identified and all risks that impact on these activities defined. A classification of these activities can be as follows:

- *Strategic* – concerns with long term strategic objectives of the organization, in such critical areas as capital adequacy, legal and regulatory changes, reputation and other macro-environmental changes;
- *Operational* – concerns with the day to day operations of the organization such as lending operations and deposit taking activities as well as management of information and human resources;
- *Financial* – concerns with the effective management and control of finances arising from business operations and effects of external factors on the finances of the organization
- *Compliance* – concerns with the adherence to legal and regulatory issuances particularly to supervisory bodies.

The Manager should review these risks as to: (a) the institution's potential exposure to loss; and (b) adequacy of the cash and capital to absorb these potential losses. If these risks merit attention, the management then determines how these risks can be measured and managed. A matrix of risk categories in relation to the business activities of rural financial institutions is shown in Table 5.

Table 5. Matrix of risk categories in a financial institution

Strategic	Operational	Financial
Governance risk	**Transaction risk**	**Credit risk**
Quality of oversight	Human resources	Loan Transaction risk
Governance structure	Information	Loan Portfolio risk
Reputation risk	technology	**Liquidity risk**
External business risk	**Fraud and integrity risk**	**Market risk**
Systemic risk		Interest rate risk
Catastrophes		Foreign exchange risk
Legal and Compliance Risk		Investment portfolio risk

1. **Strategic Risk** is the risk arising from the quality of governance as well as external risks such as changes in the business, regulatory and competitive environment.
    - **Governance risk** arises from the quality of the Board and top management and effectiveness of governance structure. Unlike for-profit publicly-listed commercial banks, most rural financial institutions are either governed by Trustees who don't have substantial personal financial stake in the organization such as the case of (a) not-for-profit institutions (e.g. NGOs) or (b) state-owned institutions, or governed by owners with monopolized financial stake as in the case of privately-owned but not-publicly listed institutions (e.g. family owned rural banks). Under this set-up, obtaining a good mix of board members that provide quality governance is a challenge.
    - **Reputation risk** arises from negative public perception which affects the institution's ability to sell products and services or to access capital or external loans. Bankruptcies of rural banks reported in newspapers put a negative perception of other rural banks. The general negative perception of cooperatives is a challenge to a new credit union that must be hurdled.

- **Business environment risk** refers to risks in the external business environment that have impact on the overall survival or growth of the institution. For rural financial institutions, catastrophic and disaster events pose as major risks. A single disaster event (typhoon, flood) affecting large number of farmer-borrowers at the same time pose serious threat on the solvency of a small community-based rural bank.

2. **Financial risk.** As the core business of financial institutions is financial intermediation, managing financial risk is major concern. These include: credit risk (arising from extending loans), liquidity risk (availability of cash at times needed), foreign exchange risk (particularly if it borrows foreign funds), and investment portfolio risk (arising from its fund investments).

   - **Credit risk** is the risk to the institution's earnings and capital should borrowers fail to meet terms of the loan. It includes both: (a) loan transaction risk – risk within individual loans and (b) loan portfolio risk – the risk inherent in the composition of overall loan portfolio.
   - **Liquidity risk** is the possibility of negative effects arising from inability to meet cash obligations at the time it is needed.
   - **Interest rate risk** is the risk arising from movements in interest rates. Taking deposits and external loans) with different maturities and interest rates and using them to finance loans expose the institution to interest rate risk.

3. **Operational risk** is present on a daily basis during the processing of transactions resulting to unexpected losses. Operational risk is a function of internal control, operating processes, management information system and employee integrity. Transaction risk on lending operations is of particular concern for Microfinance Institutions and rural financial institutions as they deal with many very small loan transactions on a daily basis that have to be tracked.

   Basel II defines operational risk as "the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events." (Basel, 2001). Legal or compliance risk is included, but strategic, reputational and systemic risks are not included for the purpose of minimum regulatory operational risk capital charge. The definition focuses on the causes of operational risk. There are seven operational risk event types as per Basel II (see Table 6).

4. **Compliance risk** arises out of violations of or non-conformance with laws, rules and regulations. Non-compliance may cost the institution penalties and sanctions, or closure directives from regulatory bodies. The expression "compliance risk" is defined by Basel Committee (Basel, 2008) as "the risk of legal or regulatory sanctions, material financial loss, or loss to reputation a bank may suffer as a result of its failure to comply with laws, regulations, rules, related self-regulatory organization standards, and codes of conduct applicable to its banking activities". For regulated institutions, rules and regulations are well spelled out that financial institutions must comply. With the strengthening of supervision over financial institutions including non-banks (e.g. non-bank MFIs), compliance risk is becoming more important. Further, prudential laws and regulations are not the only the legal requirements that financial institutions must be conscious of such as: accounting and auditing requirements, standards on ethical business conduct, money laundering laws, tax laws and other laws (e.g. labor, health and safety, etc.). Compliance risks both occur at strategic and operational levels, thus, it is better to treat it as a separate category of risk.

Risk Treatment. Risk treatment involves developing options for addressing identified risk and preparing and implementing chosen strategies. Depending upon the risk, the options are:

- **Avoid** – deciding not to proceed with the activity and choosing an alternative activity that meets business objectives, or choosing an alternative less risky approach or process. An example is deciding not to engage in agricultural lending in a particular geographic area considered to be of high risk or deciding not to engage in non-collateralized agricultural loans.

Table 6. Operational risks in financial institutions

Event Type	Definition	Category	Examples
Internal Fraud	Losses due to acts of a type to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/discrimination events, w/c involves at least one internal party	Unauthorized activity Theft and fraud	Unreported transactions Unauthorized transactions Credit fraud, Forgery Theft, robbery, embezzlement Bribery/kickbacks, extortion
External Fraud	Losses due to acts of a type to defraud, misappropriate property or circumvent the law, by a third party (external)	Theft and fraud Systems security	Theft/robbery Forgery Check kiting Hacking damage Theft of information
Employment practices and workplace safety	Losses arising from acts inconsistent with employment, safety or health laws or agreements, from personal injury claims	Employee relations Safe environment	Compensation, termination issues Organized labor activity Employee health and safety Workers compensation
Clients, products and business practices	Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients or from the nature or design of a product	Suitability, disclosure, fiduciary Improper business practices Product flaws Selection and Exposure	Suitability/disclosure issues Misuse of confidential information Lender liability Antitrust, unlicensed activity, Money laundering Model errors (e.g. credit scoring) Failure to investigate client per guidelines Exceeding loan exposure limits
Damage to physical assets	Losses arising from damage or loss to physical assets from natural disasters or other events	Disasters and other events	Natural disaster losses Human losses
Business disruption and system failures	Losses arising from disruption of business or system failures	Systems	Computer software and hardware Telecommunications/power outages/disruptions
Execution, delivery and process management	Losses arising from failed transaction processes or process management, from relations with trade counterparties and vendors	Transaction capture, execution and management Monitoring and reporting Loan documentation Vendors and suppliers	Data entry/accounting error Missed deadlines or responsibility Reference data maintenance Failed mandatory reporting Inaccurate reports Missing or incomplete legal documents Outsourcing Vendor disputes

Source: Stephanou 2004.

- **Reduce** – implementing a strategy intended to reduce the consequence of the risk to an acceptable level. An example is to conduct thorough credit background investigation to reduce risk of approving non-creditworthy borrowers or use of credit scoring tool to reduce the risks of subjective judgement errors of loan staff.
- **Share or Transfer** – implementing a strategy that shares or transfers the financial consequences of a risk to another party or parties, such as obtaining crop insurance or credit guarantee for agricultural loans.
- **Accept** – making a decision that the risk exposure is at acceptable level. The risk, however, shall be closely monitored.

Selection of the most appropriate risk treatment approach should be developed in consultation with management and staff directly involved in the risk management. Any treatment should provide effective internal control. For each priority risk, the risk treatment plan should detail the following:

1. **Describe the strategy –** outline the approach to address the risk. Relationships or interdependencies with other risks should also be highlighted.
2. **Define responsibilities** – assign who is the "risk owner" i.e., the unit or person accountable for monitoring and reporting on progress of the implementation of the strategy.
3. **Specify targets and measures** – indicate desired results or standards. Objectives must be translated into targets with clear indicators.

Monitoring and Review System. A monitoring system must be in place to periodically check implementation of planned risk management strategies and their results. The results should be reported internally and externally as appropriate. The monitoring results should be an input to the review and continuous improvement of the risk management framework. Responsibilities for monitoring and review should be clearly defined. A separate section will discuss in detail the monitoring and review system.

2.2.2 Strategic Risk Management

Strategic risk management (SRM) is an emerging practice as a focused discipline. SRM evolved as an integral part of Enterprise Risk Management (ERM) while some organizations have evolved it as a focused discipline outside of the formal ERM practice. As an integral part of ERM, strategic risk management pertains to managing "strategic risks" – i.e., threats that pose to a company's ability to set and execute its overall strategy. But as a discipline, strategic risk management is defined as a "business discipline that drives deliberation and action regarding uncertainties and untapped opportunities that affect an organization's strategy and strategic execution" (RIMS, 2011).

In this RIMS definition, how is strategic risk management (SRM) different?

- While SWOT is usually used in both strategic planning and strategic risk planning, the emphasis in SWOT analysis in strategic risk management is the explicit identification and prioritization of risks as this relates to overall strategy;
- In ERM, the focus is more on *current* events (present) or short time horizon, while in SRM, the focus is on potential *future* events (longer time horizon) and based on *trends*.
- SRM focus on uncertainty from a relevance and importance perspective in achieving strategic objectives. The methods are forward looking in time horizon, integrate change management for effective response to changing conditions, and strongly linked to planning, allocation and management of capital and funding needs.

However, a more common practice among banks and financial institutions is treating SRM as an integral component of ERM – with ERM as the overall integrative risk management framework of the institution. As a management process, SRM is defined as "process of identifying, assessing, managing risks and uncertainties, affected by external events and scenarios, that could inhibit an organization's ability to achieve its strategy and strategic objectives with the ultimate goal of protecting the shareholder's and stakeholder's value" (Frigo, 2011). It is a continual process that must be integrated in strategy setting, strategy execution and strategy management.

"***Strategy***" means the approach, method or course of action that can be taken by a financial institution to achieve a particular strategic goal or objective. A "strategic goal or objective" is concerned with the organization's overall purpose and development, and relates to how its vision could be achieved. For example, an organization may decide to attain targeted growth through strategic merger or acquisition, or geographic expansion. A "business strategy" is usually concerned with how an institution can gain competitive business advantage, e.g. which products or services the institution should offer to customers, or which markets the institution should operate in.

SRM is primarily concerned with how a financial institution relates to the external environment it operates in and the choices it makes to the changes in the environment and on the way it allocates capital and resources to create the competitive advantage it will have over others. The ultimate responsibility of SRM resides on the governing body (Board or top executive officers) while management is responsible for the execution of the SRM framework.

One approach in Strategic Risk Management (SRM) is described in the Policy Manual issued by *Hongkong Management Authority* (HMA, 2007). It outlined the SRM process consisting of following key elements: (a) strategic planning, (b) people alignment i.e., culture of acceptance is present when changes are necessary and skills are present to implement strategies; (c) implementation and monitoring; (d) performance evaluation and feedback; and (e) other supporting processes – e.g. management information system, management of capital and funding needs, human resources management and development.

- *Strategic planning* – process whereby the overall direction of the organization, wherein risks posed by their strategic plan are identified and analyzed, and considers whether it has the capacity to withstand and respond to potential risks, and strategies are formulated and planned;
- *Alignment and change management* – assessing whether the strategies are aligned with internal processes and competencies of people and if not changes can be managed;
- *Implementation and monitoring* – having a system of control and monitoring implementation of the SRM framework, such that strategic issues are reported in a timely manner with assessment of strategic implications and for taking remedial actions (e.g. shift in strategies). Stress tests are conducted on the strategies to help identify changes in the environment that could alter the original assumptions made in the strategic plan;
- *Performance evaluation and feedback* – comparison of actual performance vs targets. The evaluation system must have clear indicators and techniques or methods of evaluating outcomes. The evaluation system must also provide information to make timely adjustments on implemented strategies.

A key element in SRM is identification and analysis of risks as in ERM. In SRM, though, there is no common definition yet of "strategic risks" among regulators. But common themes are emerging. Among the definitions of *strategic risks* are (McConnel, 2015):

- "*External risks to the viability of a banking institution arising from unexpected adverse changes in the business environment with respect to the economy, political landscape, regulation, technology, social mores, and actions of competitors. These risks can manifest in the form of reduced revenues (reduced demand for products and services), higher costs or cost inflexibility*." (Australian Prudential Regulation Authority, 2007)
- "*Risks arising from a bank's inability to implement appropriate business plans and strategies make decisions, allocate resources, or adapt to changes in the business environment.*" (Office of the Superintendent of Financial Institutions, Canada, 2010)
- "*Current and prospective impact on earnings or capital arising from adverse business decisions, improper implementation of decisions, or lack of responsiveness to industry changes. Strategic risk is a function of compatibility of an organization's strategic goals, the business strategies to reach those goals, the resources applied deployed against those goals and the quality of implementation*." (US Federal Reserve of the Comptroller of the Currency, 2010).
- "*Current or prospective impact on a financial institution's earnings, capital, reputation or standing arising from changes in the environment the institution operates in and from adverse strategic decisions, improper implementation of decisions, or lack of responsiveness to industry, economic or technological change*." (HMA, 2007).

McConnel (2015) summarizes strategic risk concerns on two themes: (a) Strategic positioning risks – potential impact of strategic direction decisions and (b) Strategic execution – risks associated with ineffective implementation of strategy or inability to respond to external changes in the environment. For rural financial institutions, strategic positioning could be in terms of: (a) geographic focus, (b) market focus, (c) core products and services in relation to other 'competitors'.

Risk assessment would focus on the impact of strategic decisions as to (a) cost implications and impact on capital and earnings, and (b) assessment of the viability of strategy execution – in terms of alignment with internal competencies, structure, processes and culture, ability to respond to future changes in the environment, and ability to provide the management support systems (MIS, capital, funding, etc.).

MODULE 3

Credit Risk Management in Rural Financial Institutions[1]

3.1 Credit Risk Management System

Components of Sound Credit Risk Management System

As the core business of rural financial institutions is extending loans, credit risk is a major concern. Lending operation is the predominant source of revenue of these institutions thus also posing the greatest risk to the institution's financial soundness. The success or failure in controlling loan losses determines the survival and growth of the institution. Credit risk management thus is of prime importance to financial institutions.

Credit risk management encompasses all activities that affect credit operations from identification and initiation of loans, measurement, monitoring and controlling risks to ensure that all personnel in charge of managing credit risks clearly understand that the loan exposures are within established limits, in accordance with the set business strategies and that expected earnings compensate for the risks taken.

A basic credit risk management framework has the following elements:

1. Well defined policies and procedures to identify, measure, monitor, report and control credit risk;
2. Organizational structure that separates the responsibilities of those taking risks and managing risks, and with an independent review unit for review and audit functions;
3. An effective management information system so that information will flow from operations to top management;
4. A mechanism for a continuous review of systems, policies and procedures most likely to change over time.

Based on principles recommended by the Basel Committee, the following sections discuss the basic guidelines in effecting a sound Credit Risk Management (CRM) system. Components of a sound CRM are:

- Establishing appropriate credit risk environment
- Operating under a sound credit granting process
- Maintaining an appropriate credit administration, measurement and monitoring process
- Ensuring adequate controls over credit risk.

Credit Risk Environment and Management Structure

Appropriate credit risk environment refers to policies and commitment obtained from the Board and top management and an appropriate organizational structure in implementing the CRM. The responsibilities of the Board and top management are:

- Board – approval and periodic review (at least annually) the credit risk strategy and risk policies. The strategy should reflect the tolerance of the institution and the level of profitability the bank/institution expects to achieve in incurring various credit risk.

[1] Principles discussed in this Module draw from *Guidelines on Sound Credit Risk Management* issued by the Philippine Central Bank (BSP, 2014) and from *Basel Principles for the Management of Credit Risk* (Basel, 2000).

- Top management – directing the implementation of the risk strategy approved by the Board and developing policies and procedures for identifying, measuring, monitoring and controlling credit risk. Such should address credit risk in all the institution's activities and at both individual credit and portfolio levels.

Depending upon the complexity and scope of operations, the risk management structure can have three functional lines to properly segment accountabilities to ensure that nobody is assigned conflicting responsibilities. The three functional lines are:

- *Front office* – those in charge of credit origination, evaluation and monitoring of credit exposures
- *Back office* – those in charge of administrative support to lending operations such as review of loan documentation, credit disbursement, recording, maintenance of credit files and repository of management information reports
- *Middle office* – those performing risk management and control functions such as recommending policies, periodic monitoring and review of risk exposure and compliance on set standards.

The front office serves as the *"first line of defense"* that has the clear responsibility for risk in terms of identifying risks and reporting any changes in risk profile of clients. The *"second line of defense"* is the middle office ("Risk Management Group") which has the responsibilities of recommending policies, overseeing and reporting risk exposure and ensuring approvals are within limits. The *"third line of defense"* is the "Audit Group" which conducts independent check to ensure adherence of all concerned management and staff to established policies and procedures.

Credit Granting Process

There must be (a) clearly established process of approving credits (new loans, renewals, refinancing), (b) policy on overall credit limits at individual loans and at aggregate levels; and (c) well defined credit granting criteria providing clear indications of target market/market segments. A separate section will discuss some guidelines in effecting a sound credit granting process.

Appropriate credit administration, measurement and monitoring process

The financial institution must have an appropriate structure and procedures to carry out efficiently and effectively the following functions: (a) credit documentation, (b) disbursement, (c) billing and repayment, (d) maintenance of credit files. The financial institutions are encouraged to develop and utilize an internal rating system of managing credit risk using appropriate tools or instruments such as credit scoring. They must have a system of monitoring the overall composition and quality of credit portfolio as well as monitoring the condition of individual credits. They must have information system and analytical techniques that can measure credit risk inherent in its lending activities, and can provide adequate information on the composition of the credit portfolio including identification of any concentration of risk.

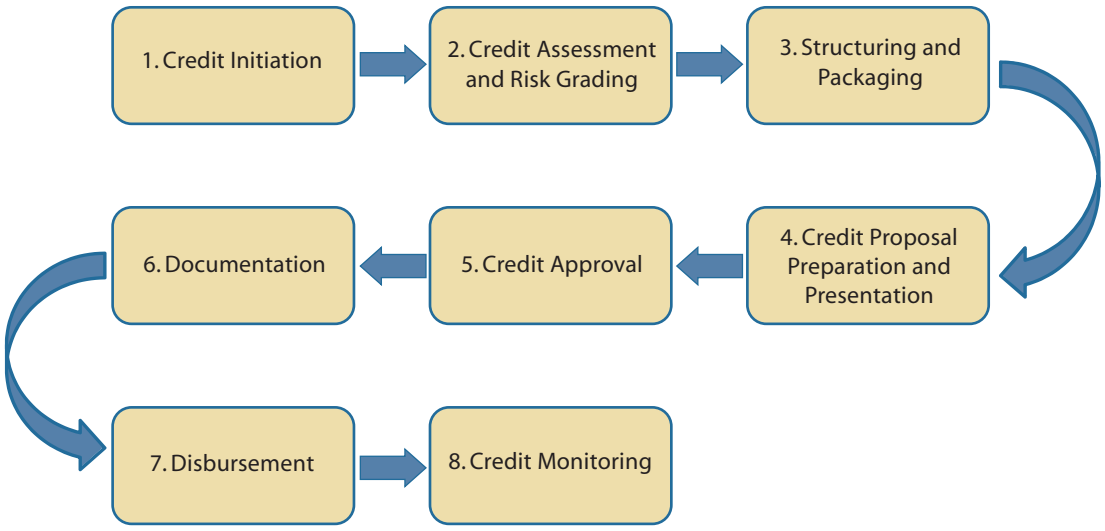
Ensuring adequate controls over credit risk

The financial institution must have: (a) a system of independent, on-going assessment of credit risk management processes, results of which are reported to the Board and top management; (b) system of internal controls on the credit granting function such that exceptions or non-compliance are immediately known and reported in a timely manner for appropriate corrective action; (c) a system for early remedial action on deteriorating credits and managing problem accounts.

3.2 Credit Granting Process[2]

Crafting a credit risk management strategy starts with an analysis of the institution's credit granting process to identify possible risks associated with any policy, procedure or system. The credit granting process is illustrated in Figure 4. Some guidelines on each stage of the credit granting process are described in Table 7. Credit evaluation methods and operational risks that are linked with credit granting process are also discussed in succeeding sub-sections.

Figure 4. Credit granting process



Operational risks arising from credit granting process

Lending to micro and small scale farmer-households poses operational risks associated with credit granting process. This is due to a number of operational constraints such as: (a) highly decentralized operations, (b) numerous accounts handled by loan staff, (c) preference of loan clients for fast and convenient loan processing done on site (e.g. "doorstep banking"); and (d) geographic location of clients which are usually beset with poor road and communication infrastructures. Examples of operational risks in rural microfinance and small scale farmer lending are:

- *Fraud risk*. Fraud is the intentional misrepresentation of information by individuals within the organization and/or by third party (e.g. loan client). Decentralized operations necessitate strong internal control system absence of which increases fraud risk. Use of "loan agents" (e.g. use of local persons such as village officials to pre-screen loan applicants) may also increase fraud risk (e.g. such local agents asking for kickbacks, loan commission).
- *Employee Safety Risk*. As loan staff has to conduct face-to-face interviews at the client's residence, personal safety risk of employees has to be attended to. The risk is higher in cases when loan staff has to disburse loans on-site.
- *Transaction Capture Risk*. Due to numerous accounts which have to be recorded daily, there are possibilities of human errors and/or delays in data entry. The corresponding loan tracking reports that reach management may then be inaccurate or problems detected too late for appropriate corrective action.

[2] Discussion on the section on *Credit Granting Process* draws from (RBFI, 2014).

Table 7. Some guidelines on credit granting process

Process	Description	Guidelines
Credit Initiation	Involves the identification of clients and initiation of loan applications	Define target market segment(s) Define portfolio mix and loan exposure levels Define loan product per target market
Credit investigation	Checking background of applicant as to character and creditworthiness	Must have clear system and procedures in obtaining information
Credit evaluation and risk rating	Evaluation of applicant as per **5 *Cs of credit*** (character, condition, capital, capacity, collateral) and risk rating	Must have an internal risk rating system; Assessment of production/yield risks and risk reduction strategies (guarantee, insurance); Use of appropriate evaluation tool (e.g. credit scoring)
Credit structuring and package	Design of appropriate loan structure and package (loan purpose, tenor, terms, etc.)	Must have clear credit policies for guidance of loan staff
Loan documentation	Completion of loan documents	Must have clear document review process
Credit approval	Process of loan approvals	Must have clear delegation of approving authorities with any breach immediately reported to risk management group
Credit disbursement	System of loan releases	Must have appropriate and safe system of loan disbursement (e.g. on-site, staggered releases, thru ATM accounts etc.)
Credit monitoring	Monitoring of borrowers	Primary responsibility lies on loan staff. In microfinance, weekly on-site meetings must be coupled with random home visits. For agri-clients, home visits can be timed as per farm schedule. The institution shall itself abreast of external developments (government programs, natural disasters, markets) that impact on farming activities.

3.3 Agricultural Loan Client Characteristics

3.3.1 Market Research and Loan Product Development[3]

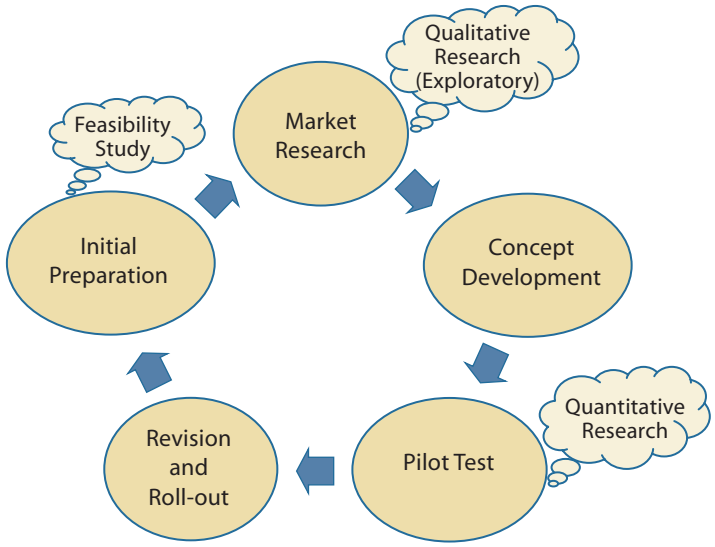
A basic principle in effecting a sound credit granting process is having a well-defined target market for the institution's financial products and services. Determining and understanding the target market characteristics is important to managers in designing appropriate loan packages and formulating credit risk mitigating strategies.

A target market is defined as a specific group of customers with similar needs that institution aims to provide its financial services. Selecting target market is part of the process of market segmentation, i.e., dividing the overall market into key customer subsets that have similar characteristics and needs. In rural areas, for instance, characteristics and financing needs of farm households differ from micro-entrepreneurs. Micro-entrepreneurs likewise differ from small business owners. And within the category of farmers, characteristics vary from one commodity to another.

[3] Discussion in this section draws from (Matul,*et al* 2005).

One of major challenges in rural finance is in developing new innovative loan products that can cater to rural agricultural households. Market research can provide accurate information to managers in designing loan products and lower the risk associated with such loans particularly in cases when the financial institution is entering a new market or the institution wishes to launch a new product. Market research is linked to product development process (Figure 5).

Figure 5. Product development process



Source: Matul, *et al* (2005), page 2.

Market research goes hand-in-hand with product development. At the initial preparation stage, a feasibility study is undertaken to assess a sense of potential demand for the financial services in the target area coverage. An initial market survey is conducted to ascertain: (a) sufficiency of demand in the target areas; (b) household characteristics and the risks they face; (c) needs for financial services and attitudes towards them; (d) competition from other financial services providers. This will determine the potential market size and preliminary market segments.

A qualitative research then is undertaken among the chosen initial market segments. The purpose is to explore market needs and preferences. This tackles similar issues as in the initial market survey but probes deeper into the household needs and preferences. The qualitative research is usually done through focus group discussions. The results provide information in crafting an appropriate design or introducing modifications in existing product to suit the new target market segment. When a concept has been designed, this can then "pre-tested" to a sample target groups. The purpose is to get reactions and comments on the design.

A quantitative research is then conducted to ascertain data needed for financial projections (final feasibility assessment). The quantitative survey will provide information (socio-demographic characteristics and credit behavior) on the market segments. The findings of the research then can provide accurate information needed in firming up financial projections (potential and qualified market size).

3.3.2 Agricultural Loan Clients' Characteristics: Implications to Credit Risk Management

Best practices on microfinance are well known. Microfinance practices have been successful in reducing the high cost and risks associated with granting small loans to low income clients for income generating activities, usually trading or services. The most common credit risk reducing strategies are:

- *Simplified credit granting process*. Loan products are standardized and lending procedures streamlined. Few information on borrowers are asked and usually can be verified at local communities. Loan appraisal is based on household cash flow to determine capacity for loan repayment.
- *Other risk reducing strategies*. These include: (a) requirement of experience in micro enterprise as part of loan criteria (i.e., financing of existing projects only); (b) weekly or monthly amortization; (c) use of collateral substitutes such as pledge of household assets, co-makers, or third party guarantee; and (d) graduation of clients to larger follow up loans instilling good credit discipline.

However, there are unique features of the small farming sector that may limit the application of the microfinance best practices. Apart from the production and yield risks in farming which had been extensively discussed in the previous sections, there are other client characteristics that agricultural lenders have to contend with.

Among these characteristics are (Hollinger, 2011):

- ***Political sensitivity of agriculture.*** Essential pre-conditions for viable agricultural lending are the existence of sound policies for the agricultural sector and a favorable, market-oriented rural business environment. Food production and food security, however, are highly politically sensitive issues and often dominate agricultural development policies. Thus terms of trade are often distorted to keep the price of basic food products low for urban consumers and this has a negative effect on the profitability of farmers, which discourages financial institutions from serving them. Moreover, as experience from the directed agricultural credit approach has shown such as enforcing low interest rates for small farmer borrowers or promoting loan default waivers, does not compensate for the low profitability of farming.
- ***Nature of farm lending activities.*** Agricultural loans are larger and require much longer repayment periods than most microcredit loans. The length of agricultural production cycles means that loan repayments are restricted to large, lumpy instalments, so loan supervision costs tend to be high should there be strict loan monitoring. The seasonality also puts a pressure on liquidity management as there are peak periods of cash requirements and lean periods of cash receipts. Farm households typically have complex inter-relationship between production and consumption expenditures and revenue contributing to the difficulty of loan appraisal.
- ***High transaction costs of lending in agricultural areas.*** Agricultural areas are characterized by low population density and inadequate infrastructure. The fact that potential clients of rural financial institutions are widely dispersed makes the provision of financial services to them very costly. Consequently financial institutions which decide to work in rural areas may initially concentrate their operations in more favorable regions or focus on clusters of profitable business activities.
- ***Loan collateral limitations.*** Small farm households possess few valuable assets that they can pledge as collateral for agricultural loans and this lack of collateral poses specific problems for lenders. For instance, the usefulness of farm land as collateral is limited by problems with ownership titles, uncertain legal procedures associated with foreclosure and weak land markets. Movable assets such as equipment and livestock are regarded as even more risky forms of security, particularly if they are not covered by insurance. As a result, lenders value rural assets very conservatively and they may require a collateral value that is much higher than the loan value. This reduces the effective demand for agricultural loans by small farmers.
- **Information problems.** Small farm households rarely keep records of transactions thus any information obtained from interviews which require skilled and experienced staff. Information

on credit history is likewise generally absent as in most cases there are no credit bureaus yet that collect and store information on borrowers.

- **Individuality of farmer clients.** The heterogeneity of agricultural production conditions and the unique combination of farm and non-farm economic activities of each farm household, calls for a thorough, highly individual approach to loan appraisal. This implies need for employing location-specific and farming system-specific loan appraisal techniques, loan product design and loan disbursement and repayment schedules. This also makes it more difficult to devise appropriate credit scoring tools for small farmer clients.
- **Farmers' sensitivity to transaction costs.** Small farmers are particularly sensitive to high client transaction costs such as travelling to bank offices. Particularly during peak periods in the agricultural season, for example during planting and at harvest time, farmers face a heavy workload, which makes it difficult for them to spend time and money on visiting the offices of financial institutions. Agricultural lenders may need to offer door-step banking services and visit clients at their homes or in their fields. Consequently, this leads to higher administrative costs and personal safety risks on loan staff.
- **Mixed consumption and farm business cashflows.** Small scale farm households typically manage their cash flows as a single economic unit. Thus, loan proceeds and farm income meant for loan payment are sometimes are diverted to answer for consumption or family emergencies. Consequently this leads to higher probability of loan default.

3.4 Credit Risk Management Practices

The unique characteristics of rural agricultural borrowers imply the need for strategies to address credit risk quite different from conventional microfinance and small business lending. Table 8 summarizes agricultural loan clients' characteristics and responses that can be adopted by financial institutions. Succeeding sub-sections discuss some of the credit risk management practices to address the unique characteristics of agricultural loan clients.

Table 8. Loan client characteristics and risk management strategies by rural financial institutions

Characteristic	Risk Management Responses
Covariant production risk	Crop Insurance, Credit Guarantee Loan portfolio diversification Spatial (geographic area) diversification
Market Risk	Inclusion of market contracts/firm market in loan criteria/appraisal Inclusion of value chain analysis in appraisal
Individual production risk	Linkage with farm extension service providers
Lack of collateral	Collateral substitutes: credit guarantee, pledge of assets
Information problems	Thorough credit investigation; Use of local groups/informants
Seasonality of transactions	Loan portfolio diversification
Individuality of farmers	Cashflow based lending Flexible loan products and tailor-fit loan packages
Sensitivity to costs	Simplify credit granting process "Door-step" banking Lend through groups
Political sensitivity of agriculture	Keep abreast of government policy/program Exit contingency strategies in tie-up programs with government

Source: Author (R. Yedra, 2015)

Credit Evaluation Practices

Credit evaluation poses a challenge to financial institutions engaged in lending to micro and small scale agricultural producers. Credit evaluation methodology is particularly important in agricultural lending since the borrowers often lack assets that can be put up as collateral. Further, apart from the smallness of loans, the risk characteristics vary across different types of farmers. Three methodologies employed in agricultural finance are:

- **Cashflow based analysis** – credit analysis is based on the assessment of capacity of the borrower to repay the loan which in turn is based on the analysis of household cash flow. The approach is highly decentralized, i.e., loan officers make the evaluation and reviewed by branch level credit committees. It is also highly personalized and depends on the expertise (obtained through experience) of loan personnel. In agricultural microfinance, apart from the household cash flow, a farm plan and budget is required from borrowers. The farm plan details the cash requirements (for production inputs) of the farm, schedule of farm activities (land preparation to harvesting) and projected sales of produce.
- **Credit scoring** – credit scoring models are normally used in measuring credit risk for loans that are similar in loan purpose and risk characteristics. Credit scoring applies statistical models to measurable characteristics of borrowers at individual transaction level. The tool supposedly captures the credit behavior and other characteristics of the borrowers that can predict the likelihood of repayment. Credit scoring models are usually used in consumer credit (e.g. credit cards). For agricultural loans, credit scoring has been used since the 1980s in developed countries but only lately in developing countries. An example of a scoring tool is one that uses agronomic variables to calculate the required working capital and repayment capacity potential. For instance, the agronomic data for a rice crop loan may include: variety of crop, irrigation system, production inputs, pest control practice, weed control, type of soil. The use of scoring tool makes the assessment more objective and less prone to subjective judgment of loan staff.
- **Expert based approach** – under this method, an additional layer in credit decision is added to the credit risk management team – the technical experts. The experts establish the production patterns, price risks, climate risks which can then guide loan staff in assessing individual loan applications. They also validate or make credit reviews of loan appraisals made by the loan staff. The approach strengthens the technical aspect of the credit evaluation process.

Innovative Loan products

Critical to addressing the unique characteristics of agricultural loan clients is the design of the appropriate loan products or loan facilities. In recent years, there are a number of new approaches that have been initiated across the globe. Some of these are discussed below.

- **Agricultural Microfinance**. This approach adopts the cashflow lending scheme of conventional microfinance. Assessment of the capacity to pay is based on the household's cashflow wherein the household unit is treated a single economic unit. All inflows (from farm and non-farm sources) and outflows (farm related, non-farm related, family expenses) are considered in determining amount and structure of the loan. There are varieties of the design of agricultural microfinance loan products as the specific loan product has to adapt to locally-specific and commodity-specific conditions. In the Philippines, some of the features of agricultural microfinance practices (ACPC, 2015) are:
  - Matching the structure and package of the loan with the main crop production cycle – e.g. loan releases are based on farm plan and budget to deter possible loan diversion;

  - Organizing borrowers into small groups – the farmer borrowers are encouraged to form into cluster groups (who are not made co-liable with each other) to serve as support mechanism in addressing common farming needs and concerns (e.g. linking with buyers, input suppliers, farm extension services, etc). The farmers prefer individual liability for their loans.
  - Encouraging farmers to diversify income or lending only to farmers with diversified income sources – this is to ensure that the borrower has other sources of income for loan repayment in case the major farm activity fails.
  - Developing and monitoring a farm plan and budget – the borrowers are required to prepare a farm plan and budget indicating the production inputs required and planting/ harvesting schedule. The borrowers are assisted in preparing such farm plans either by the farm technician (either provided by the microfinance institution itself or by government/ non-government agency linked by the financial institution).
  - Linking farmers with input suppliers and buyers – farmers are linked to suppliers that can provide quality and better prices and/or to market buyers. They are also encouraged to go into contract growing or contract farming.

- **Value Chain Finance.** Under this approach, the lender reduces the risk in individual farmer loans by using the strength of a viable supply chain. Among the schemes are:
  - **Warehouse receipt finance** – lender extends loan to farmer producers on the strength of goods stored in a warehouse. In case of default, the lender seizes the goods and sells them. The loan purpose can be flexible – it can be used by farmer to finance existing farm activities, expand into other activities or other purposes. The advantage to the farmer is he can delay selling his produce to await for better prices and still remain liquid (due to the loan). In rural Africa (e.g. Ghana), some microfinance institutions were successful in warehouse receipt financing with high repayment rates and increased prices that benefitted farmers (USAID, 2000).
  - **Purchase order financing –** lender extends loan to farmer producers on the strength of a marketing contract. The buyer commits to buy from the farmers a specified volume, time and place for the delivery of produce. The lender may have an agreement with the buyer to guarantee payment of loans by producers which it shall deduct from the value of delivered products.
- **Agricultural Credit Cards.** Credit cards are popular with urban middle class in developing countries but not in rural areas. In few countries though, credit cards have been introduced to finance seasonal cashflow needs. In India, the NABARD implemented the *Kisan* credit cards. Limits are based on the landholding and cropping patterns covering a period of one year of production needs (UNCTAD, 2004). The credit is payable in 12 months and cardholders are covered against accidental death and permanent disability.

Portfolio Risk Management. Typical techniques in handling agricultural loan portfolio risk that are employed by rural financial institutions in developing countries are (Wenner, 2010):

- portfolio diversification,
- limiting agricultural loan portfolio, and/or
- "excessive" loan provisioning.

Diversifying agricultural loan portfolio by geographic area, commodity and type of farm household can help the institution to spread out the risks. This is a typical strategy of bigger institutions with wide geographic coverage.

The other portfolio strategy is to limit the loan exposure to agriculture in the institution's total portfolio. The smaller the share of agricultural loan portfolio, the lesser vulnerable it is to systemic external shocks

on agriculture. But this option tends to limit agricultural lending and skews loan growth in favor of non-agricultural borrowers.

The third technique is "excessive loan-loss provisioning" or providing higher than normal loan-loss provisioning for agricultural loans. According to Wenner (2010), some leading financial institutions in Latin America provide 121 to 260% loan-loss provisioning for agricultural loans. But this also constrains agricultural loan growth and ability of the lender to make profit. Thus, for agricultural lending to flourish, it is important that risk-transfer mechanisms for lenders (i.e., credit guarantee and/or agricultural insurance) are available as risk treatment options.

3.5 Developing Credit Risk Management Framework

A Credit Risk Management (CRM) framework is a component of the over-all Enterprise Risk Management (ERM) framework of a financial institution. The ISO recommended guidelines in developing an ERM framework can also be adopted in developing a CRM framework. As discussed earlier, the steps are:

- Establishing the Context
- Risk assessment
- Formulation of risk management framework.

The term *"framework"* in risk management means a set of components that supports and sustains risk management in the organization. It differs from "risk management plan" which describes how the organization intends to operationalize the risk management strategy. The plan describes the "how" aspects of the strategy, i.e., identifying activities with timelines, defining procedures, assigning responsibilities and identifying resources needed. The "framework" serves as a guide to all concerned in the organization, prescribing the principles that would guide action and decisions. As a guide, it can also be modified while being implemented.

The term "framework" reflects the changing perspective in strategic management. Traditional strategic planning – which the term *"plan"* is associated with – connotes charting a course from Point A to Point B in some years (usually medium term) in the future under certain assumptions of conditions that may happen in the future. But some scenarios are hardly predictable in exact terms (high uncertainties), particularly systemic risks. Thus, institutions are now suggested to come up with "management frameworks" which guide them how to swiftly act and adapt to any changes in internal and external environments but still remain aligned with the institution's purpose and strategic intent. A "management framework" thus is still a "plan" but rather than having emphasis on activities or specific courses of action, the emphasis is to guide actors in an organization how to act no matter what happens (e.g. even at worst scenarios least expected). Specific planned courses of action are adjusted or refined during implementation and not necessarily waiting at the end-of-planning cycle period. The framework is proactive yet flexible enough to adapt to changes within the organization or external environment.

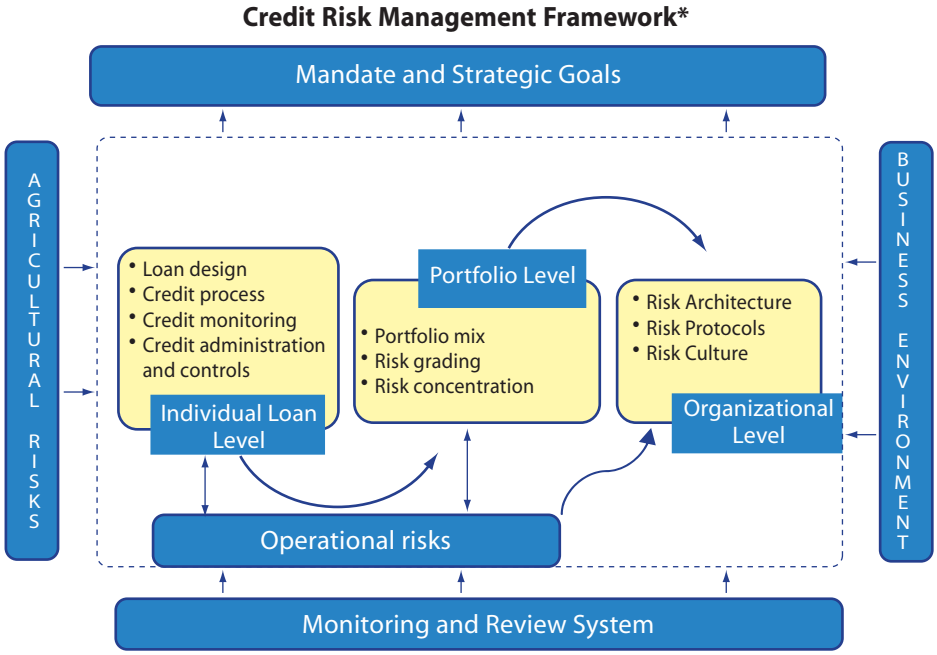
A Systems Approach in Credit Risk Management (CRM)

Given the multi-dimensionality of credit risk and interplay of factors within and outside the organization, a systems approach can be adopted in developing a CRM Framework. A CRM conceptual framework by this author adopting a systems approach is illustrated in Figure 6.

This framework considers three levels of analysis, which are as follows:

- *Individual loan level* – concerns with addressing risks arising from granting individual accounts. The key concerns are: appropriateness of loan design (how it fits target market) and loan package (structure, mode of release, terms), credit granting process (evaluation methodology, collateral substitutes), credit administration and controls.

Figure 6. A systems approach in developing a CRM framework



** Source:* R. Yedra (2015)

- *Portfolio level* – concerns with maintaining quality of portfolio at risk level acceptable to the institution such as portfolio mix, risk concentration;
- *Organizational level* – concerns with providing conducive environment for effective credit risk management within the organization – commitment from Board and top management, risk management structure, rules and standards and risk culture.

Agricultural risks impact on individual clients' capacity to repay thus farm-household level risks must be considered in designing loan product, tailor-fitting credit processes and deciding particular loan portfolio management strategies. Systemic or covariant risks (e.g. weather events) affect the overall agricultural loan portfolio and thus, the institution must have both risk reducing (e.g. portfolio diversification) and/or risk transfer strategies (e.g. availment of agricultural guarantee and/or insurance) to lessen its vulnerability to the negative consequences of such external events.

Operational risks interact with credit administration such as risks arising from the loan transactions (fraud, etc.) and in recording (e.g. data entry errors) and thus must also analyzed and addressed by the institution. The credit risk management system must contribute towards achieving the organizational mandate and strategic goals. Thus, credit risk management must have both strategic and operational integration in the institution.

Credit Risk Management Plan Format

A credit risk management plan may vary in format to suit the size and complexity of the financial institution. However, incorporating the basic principles of sound credit risk management, a simplified outline of a credit risk management plan that can be adapted by rural financial institutions is illustrated in the Table 7. The table also indicates the relevant inputs (e.g. planning activities and information) that may be needed in the particular concern area of the plan.

The basic contents are:

- Objectives – general statement on the desired results of the institution's credit risk management;
- Strategy – defines the how risks are addressed and targets on such actions;
- Management structure – defines the roles and responsibilities of people within the institution on risk management and control;
- Risk protocols – define the policies, rules and standards, communication processes and procedures;
- Monitoring and review system – defines the management information system and monitoring and review system.

In setting targets in CRM, two terms are used: (a) key risk indicators, and (b) risk appetite. These are explained below.

Key Risk Indicators

In CRM, key indicators are important. What cannot be measured cannot be monitored. And what cannot be monitored cannot be managed. It is important therefore to clearly define risk indicators, i.e., the metrics that can provide insights to managers on the institution's risk position. Some key risk indicators used in CRM are explained in Table 9.

Some authors make a conceptual distinction between *Key Performance Indicators (KPIs)* and *Key Risk Indicators (KRIs)*, with KPIs as responsible for evaluating what happened while KRIs as responsible for what can possibly happen. KRI gives an early warning signal to management on what event or activity that is happening that would most likely lead to negative consequences (e.g. losses). KPIs on the other hand give signals on what went wrong that led to actual results. KPIs therefore are useful in *evaluating* performance while KRIs are useful in *monitoring* events and activities that would affect performance. In practice, as monitoring and evaluation are intertwined, institutions use a mix of KPIs and KRIs in its risk monitoring system and lump them as KRIs.

Risk Appetite

Risk appetite refers to the amount of risk that an institution is willing to take in pursuit of a return. It is a decision of an institution taking into account. It's a decision of the institution taking into account its risk capacity (maximum risk that the institution can bear without getting insolvent) and risk tolerance (acceptable level of risk). Financial institutions must articulate its risk appetite and adequately fund their managed risk (i.e., provide adequate capital to cover potential loss) to ensure that they are insulated from shocks against its future earnings.

Risk appetite serves two purposes: (a) it sets limits or thresholds that are then monitored, and (b) serves as resource allocation tool. *Limits* are maximum level of risk exposure acceptable while *thresholds* are the levels of exposure that can still be exceeded – but with appropriate approvals. When a threshold is exceeded, it would trigger a corresponding response – i.e., additional capital and/or expenditure on the risk control. As a resource allocation tool, it helps determine the degree of control that needs to be applied to a particular risk. Risk appetite can be defined in two ways: (a) quantitative – clearly defined measures of risk, e.g. default rate or (b) qualitative – for risks that cannot be measured in quantitative terms, e.g. damage on reputation.

Table 9. Sample outline of a Credit Risk Management (CRM) Plan

Outline	Description	Inputs
A. Objective	Statement of CRM policy objective in view of the organization's strategic objectives and consistent with its risk appetite and overall corporate strategy.	Review of organizational mission/mandate and strategic goals and objectives
B. Strategy	Defines the following: • Target market segments and types of credit exposures • Portfolio mix that reflects acceptable level of diversification and concentration • Risk appetite per type of credits. Outlines strategies on the priority risks per relevant operational area: • *Credit Process* – loan design, loan origination, evaluation, documentation, disbursement, monitoring • *Information System* – loan tracking, record keeping, reporting • *Accounting System* – financial recording, Each prioritized concern area must have specific targets and indicators and courses of action with time-lines	*Market research* – findings on qualitative and quantitative market research that have implications on loan design and packaging. *Risk Assessment* – Identification, Analysis and Evaluation *Loan Performance Review* – Assessment of results of lending operations vis-à-vis targets and as they impact on financial health and soundness, compliance to regulations. *Environmental assessment* – findings on the relevant market conditions that impact on the institution and to clients.
C. Management Structure	Defines the roles, responsibilities and accountabilities of various units involved in CRM, namely: • Board, Top Management • Front, Middle and Back Offices • Internal audit	Process flow and internal control analysis – assessing efficiency of credit process and effectiveness of internal control
D. Risk Protocols	Statements of policies, rules and standards that would guide all concerned management and staff involved in credit risk management. The set of rules should cover: • Credit granting policies and processes • Credit classification and loss provisioning • Policies on problem accounts, restructuring, writing off	Risk assessment results Rules and regulations of supervisory bodies Industry standards/best practices
E. Monitoring and Review System	Describes how the performance can be measured and reviewed and how activities are monitored. This includes the management information system and reporting system.	Objectives and standards Management structure and process flow Mandatory report requirements of regulatory bodies

Source: R. Yedra (2015)

Table 9-a Key Risk Indicators in Credit Risk Management

Aspect Measured	Risk Indicator	What is being measured
Capital adequacy	Capital to Risk Asset Ratio = Capital/Risk Assets	Adequacy of capital to cover risk weighted assets. Risk weighted assets is a measure of amount of assets adjusted for risk, computed by multiplying the risk weight with the particular class of asset. The risk weight ranges from zero (risk-free assets such as cash, government bonds) up to 1.5 for very high risk loans.
	Coverage ratio = loss coverage/total impaired loans	Indicator of institution's ability to absorb possible loan losses. It measures the extent by which non-performing loans are covered by loan-loss provision.
		Thresholds on capital adequacy are normally set by regulating or supervising bodies (e.g. Central Bank). In case of non-supervised institutions, the generally accepted standards of the particular industry (e.g. microfinance, credit unions) can serve as benchmark thresholds
Asset Quality	Non-performing loan ratio = Non-performing loans/total loans	Percentage of loan receivables that are in default or close to being in default to total loan receivables. Regulatory bodies normally define the standards for classifying non-performing loans or "impaired" loans (loans for which it is probable that contractual payments will not be made). While countries and institutions vary in classifying a non-performing loan, a generally accepted definition is when payments of interest and/or principal are past due by 90 days or more.
	Past due ratio = amount of past due/total loans	Percentage of unpaid amount due on total loan receivables. This ratio is generally used for loans with lumpsum payments upon maturity such as agricultural production loans. Loans past due by 90 days or more are normally included in the computation.
	Portfolio at risk (PAR) = delinquent accounts/total loans	Percentage of unpaid balances of delinquent accounts on total loan receivables. The total amount of remaining balance of delinquent accounts is used in the computation. This ratio is usually used in microfinance in which loans are usually amortized in weekly or monthly intervals. In microfinance, PAR 30 days is normally used as 30 days delinquent accounts are already considered close to being in default.
Risk Exposure	Loan portfolio risk exposure as to:	Provides an understanding on the risk exposure composition of the loan portfolio. Loans are classified as to level of risk exposure.
	Probability of Default (PD)	Indicates the loan's likelihood of default.
	Exposure at Default (EAD)	Indicates total amount of exposure of the institution can expect if loan goes into default.
	Loss Given Default (LGD)	Indicates the proportion of the total exposure at default (EAD) that cannot be recovered (net loss). Recoverable exposure depends on the quality of collateral or reliability of collateral substitute (e.g. credit guarantee).
	Expected Loss (EL)	Measures value of loss that can be expected given the probability of default, total exposure and loss given default.

Table 9-b Other Key Risk Indicators in Credit Risk Management

Aspect Measured	Risk Indicator	What is being measured
Portfolio composition	Proportion per loan category	Presents in a matrix form, the proportion of loans within a portfolio classified as per established risk grading system. Depending on the risk appetite of the institution, thresholds are established as to the percentages of loans per rating grade, particularly on substandard loans.
	Migration rate	Measures the changes in rating (upwards or downwards) of loans as compared to previous period. For instance, it can be computed as percent of loans that migrated from higher grade ("pass" loans) to lower grades ("substandard","default") loans within a particular type of loan facility or within the entire loan portfolio. This gives signals whether there is deterioration or improvement in loan quality in the portfolio. The financial institution regularly reviews migration rate patterns and its existing risk grading system, and set thresholds on proportions of loans per risk grades and migration rate.
Portfolio Diversification	Concentration ratio	Measures proportion of particular loan accounts or group of accounts over total loans. It indicates the degree by which the risk exposure is spread out or concentrated across individuals (or parties), sectors, loan products, or geographical areas. Risk can arise from uneven distribution of exposures. The financial institution sets thresholds on concentration risk.

MODULE 4

Monitoring and Evaluation of Credit Risk Management Framework

4.1 Developing a Sound Monitoring and Evaluation System[4]

Financial institutions must have a system of monitoring how effectively and efficiency it administers its credit risk bearing portfolios. It needs to develop and implement comprehensive procedures and information system to monitor the condition of individual credits and credit portfolios. These procedures should define the criteria for identifying and reporting potential problem credits to ensure corrective actions are taken and appropriate classification and provisioning are taken.

Adequate management information and reporting system must be in place to identify and measure inherent credit risk in all activities to ensure overall effectiveness of credit risk management process. The information should enable the Board and all levels of management to perform their oversight roles in managing the risk. The Institution must provide sufficient controls to ensure integrity of the management information system. Reports should be periodically reviewed to ensure adequacy of scope and reliability and accuracy of information generated.

The management information system should effectively monitor the condition and quality of individual loans and *groups of credit* across the various loan portfolios. "*Group of credit*" is composed of individual accounts that have been grouped together based on some shared characteristics. Grouping can be based on the types of loan facilities, e.g. agricultural production loans in one group, marketing loans in another group, and microfinance loans as another group. Groupings can also be based on geographical clusters.

A good credit monitoring system incorporates the following basic principles:

- Provide measures to ensure that the Board and management are kept informed of the condition of the loan accounts, prudential and internal limits are not breached, portfolios are stress tested, and potential problem credits are identified;
- Personnel assigned to monitor on an on-going basis the credit quality shall ensure that it is communicated to units assigned to provide credit risk ratings;
- The institution must have a system to ensure borrowers are post-validated to check if loans are actually used for intended purpose;
- Individual and aggregate exposure must be monitored as to prudential and internally set limits on a regular basis;
- The institution must have a system of monitoring asset quality indicators and trends in loan growth to identify weaknesses in the portfolio.

[4] Discussion on this section (*Developing a Sound Monitoring and Evaluation System*) draws from BSP (2014).

Credit Review System

The financial institution should implement an independent and objective credit review process to determine if loans are granted according to set policies, assess overall quality of the loan portfolio, including appropriateness of loan classification and loan provisioning, determine trends and identify problems (e.g. concentration of credit risk, deficiencies in loan administration and monitoring processes). The review can be done through appropriate sampling methodology such that a representative picture of all loan accounts is determined. The review should be done regularly, at least annually, for all accounts and more frequently for substantial exposures and classified accounts (substandard loans). The results of the review should be promptly reported to the Board and appropriate Committees for appropriate action.

Credit Risk Grading System

An important tool in monitoring the quality of individual credits as well as total portfolio is the use of internal credit risk rating system that can be used to differentiate the degree of risk in the different loan exposures of the institution. This will allow the determination of overall risk characteristics of the portfolio, concentrations of risk, problem credits, and adequacy of loan loss reserves. The financial institution shall classify loans based on its credit risk rating system.

All loan exposures should be rated for risk. Risk grades are assigned to individual loans in the portfolio and performed at regular intervals under management supervision. The risk grading system shall encompass an adequate number of ratings. The criteria for each rating must be clearly defined, reflecting a blend of both qualitative and quantitative factors. Using data from loan monitoring and assessment of prevailing market conditions, loan officers assign risk ratings to loans under their portfolios. The ratings should have two dimensions: (a) borrower dimension-based on the probability of loan default (risk of borrower default) and (b) facility – loss severity taking into account the security cover of the loan.

The borrower risk rating focuses on inherent credit quality of each borrower (e.g. credit history, experience in the project, income, etc.) while the facility dimension focuses on the risk factors pertaining to the loan facility (e.g. quality of collateral or availability of insurance, guarantee, etc.). For agricultural loan facility, each type of crop/commodity has a set of risk factors (e.g. variety used, irrigated vs non-irrigated, etc.) which can be inputted in the design of rating system pertaining to the loan facility.

Rating histories on individual accounts shall be maintained which include the rating, date of rating, methodology and key data used to derive the ratings. Identity of the borrowers and loan facilities that defaulted, timing and circumstances of default must be recorded on file. Data on realized default rates associated with rating grades and risk ratings can be used in assessing the predictive power (thus effectiveness) of the risk rating system developed. The rating system must be periodically validated to ensure continued reliability of the adopted model. Validation confirms whether the established rating system approximately quantifies measures of risk and identifies factors that discriminate risk.

In case of microfinance institutions where almost all loans are non-collateralized, the risk grading classification is simplified and primarily based on history of loan delinquencies. Table 10 shows the simplified risk grading system of CARD Rural Bank in the Philippines. The bank has served 1.5 million loan clients and disbursed $194 million in loans and operating in 485 branch offices with 2,679 employees. As of July 2015, total outstanding loans stood at $108 million from 604,288 borrowers with repayment rate of 99 percent.

Table 10. A simplified credit risk grading matrix (CARD Bank, Philippines)

General Risk	Risk Classification	Basis of classification
High Grade	High Grade Standard	Accounts with high probability of collection, i.e., no delinquency Accounts with probability of collection but with history of delinquency
Potential Risk	Past due but not impaired	Accounts that have past due amortization not more than 90 days. A sub-classification is made as to age of past due, i.e., less than 30 days, 30 to 60 days, 61 to 90 days.
High Risk	Impaired	Receivables that have been past due for more than 90 days.

Source: CARD 2013 Annual Report

Box 2. Developing a Risk Rating System for Community Development Financial Institutions (CDFIs)

Two important factors should be remembered in developing a risk rating system: (a) there is no single system that is "correct"'; (b) one rating system may differ from one institution to another. The important element is that an institution must develop a system that works in their particular organization to monitor the risk levels within a loan portfolio.

The recommended steps are:

- Step 1. Develop a segmentation methodology. In most CDFIs, the general categories are "performing" and "non-performing" loans or "pass" and "classified" loans.
- Step 2. Subdivide the two general categories into granular grades. The number of grades may be different from institution to institution. The loan officer will rate each criterion and then use the assigned weights to determine the final risk grade. The institution's credit culture will dictate the use of general or specific risk grade definitions. The granular risk grades allow the CDFI to monitor trends at in depth level.
- Step 3. Review the system annually and implement changes as needed. Although rating system should remain consistent, adjustments may be needed. For example, *Craft 3* system had originally 7 risk grades. Over time, majority of the "pass loans" fell into grade 4 and very few fell into grades 1-3. It changed into 4 risk grades which it felt better represented its loan portfolio. On the other hand, Pathway Lending previously had 9 risk grades but modified it into 4 risk grades as it realizes that the new system would be easier to manage and more representative of the risk within its portfolio.

Source: Nails, D. (2012). *Risk Rating Systems for Small Business Community Development Financial Institutions*.

Stress Testing. When appropriate, a financial institution should conduct stress testing and scenario analysis of its credit portfolio to assess the impact of market shocks, changes in economic conditions or other systemic risks that would impact on its earnings and solvency. For a small bank with limited geographic coverage, weather events may pose serious loss implications. A typhoon may cause large scale damage to a great number of farmers that may affect a sizeable portion of the bank's loan portfolio. A stress testing would better prepare the bank how to handle worst case scenarios. The financial institution must develop contingency plan for scenarios and outcomes that involve credit risk in excess of the institution's established risk tolerances. The plan may include increased monitoring, limiting portfolio growth, or exit strategies for key portfolio segments.

Monitoring Credit Risk Performance. Monitoring credit risk performance is critical to a financial institution as the quality of individual loans and aggregate loan portfolio has impact on its profitability and solvency. Among the key questions in monitoring credit risk performance are:

- What are the delinquency levels of loan portfolio? How are default levels? Are they within tolerable levels?

- What loan products (or loan facilities), credit concentrations, geographic areas, or branches or business units are performing well? Which are performing poorly?
- How many new loans are being originated? What are their risk grades? Are these within the planned portfolio mix of loans?
- What are the trends in *loan migration* (i.e., loans that move to one level of risk grade to another)?
- Are loan receivables, delinquencies, defaults, loan-loss provisions at levels expected? Are they within threshold or tolerable levels?

Management Reporting. The quality of decision making is influenced by the quality of information fed to decision-makers. Depending upon the complexity and size of the financial institution, information content and flow may vary from institution to institution. Some elements of a good management reporting that can be applied by microfinance and small size-rural financial institutions are as follows (GTZ, 2000):

- Operating managers need timely and detailed reports that provide information on loan outreach (number and type of loan originations) and loan performance (repayments, delinquencies) vs targets and feedbacks on non-compliance or bottlenecks in processes and procedures;
- Senior managers need information on consolidated operational results on key indicators under their accountabilities and trend analysis of such results. Reports must reflect exceptions to operational targets and standards so they can quickly focus on the particular areas that need attention;
- Board and top management need information on consolidated results on key performance indicators at the strategic and whole organization-level and analysis of such results. Major concerns are those that would impact on the overall financial condition, profitability, capital adequacy and compliance to regulatory bodies. Internal audit reports should reach the board and top management as this would provide information on the accuracy of reports from management. External audits and evaluation reports on specific concerns that pose high risks to the institution should reach the Board and top management.

The key in reporting is not the quantity of information but the quality of information. Board and management must decide on what information they need, how frequent and how detail they want it. Reporting must be streamlined so that users of the information are not overwhelmed. The reports should be simple enough that can easily be understood and adequate enough to capture core information needed in performing assigned roles and responsibilities.

4.2 Evaluation of Credit Risk Management Framework

An effective risk management must have strategic and operational integration in the institution. Evaluating the effectiveness of a risk management framework is concerned with determining how well the planned strategy, processes and actions have enabled the organization achieve its organizational objectives. Determining the effectiveness of the risk management framework is a judgment resulting whether the core components of the framework are functioning effectively and thus contribute to the achievement of strategic and operational objectives.

Each of the core components of the risk management (internal environment, risk analysis and response, risk protocols, risk management structure, information and monitoring systems) is evaluated as to its effectiveness in meeting organizational goals and objectives. The steps in evaluation can be as follows (IMA, 2011; COSO, 2004):

- **Review business environment.** A review/re-assessment of the business environment is undertaken to determine if there were substantial changes that occurred during the period under review compared to the time when the risk management plan was crafted. A review of risk objectives viz-a-viz the organizational strategic goals and operational objectives is then undertaken to assess the consistency and continued relevance of set objectives.

- **Assess the outcomes against set targets.** An assessment of actual results against set targets and standards is undertaken. The evaluation will use data gathered from the monitoring system. The key result indicators serve as the metrics in ascertaining achievement of desired objectives while leading indicators serve as metrics in assessing contributory factors. Leading indicators are metrics of activities or processes. When thresholds are breached, in depth probing on the causes or factors that affected the results should be done.

- **Evaluate effectiveness of people, processes and activities.** Effectiveness and efficiency of particular processes and activities in the risk management plan are probed. The assessment also includes the evaluation of outcomes (positive or negative) of critical actions or non-action. It also determines specific processes and activities done within set standards and protocols and which protocols were breached. Effectiveness and efficiency of people (board, management, staff) in the performance of their respective functions are also assessed to determine gaps in competencies and desired attitudes (e.g. motivation, commitment).

Evaluation as On-going Process

Planning, monitoring and evaluation are an integrative cyclical process in credit risk management. The three stages should not be treated as a sequential linear process. Evaluation is treated as an on-going process. There is constant feedback, learning and improving. Evaluation doesn't have to wait at the prescribed end-periods (e.g. year-end annual reviews) but can be done at any time during implementation of the risk management framework. Outputs of the evaluation can then be immediately fed back to management for adjustments or refinements in the risk management plan. The cyclical process of doing, learning and improving leads to a more responsive risk management.

Some principles to consider in evaluation are (UNDP, 2006):

- Independence – the person or unit assigned to evaluate must have independence, i.e., management must not impose restrictions as content and recommendations;
- Intentional – the evaluation must have clear rationale (why should it be done? What decisions will be made based on the evaluation results?;
- Impartial – the evaluation must not have any bias;
- Timely and useful – evaluations are intended to guide decision-making and thus should be timely and useful to decision-makers.

Depending upon the specific concern to be reviewed or evaluated, the review can be done (a) externally or (b) internally. Below are key review functions in risk management.

- **Internal Audit.** By linking internal audit functions in risk management, financial institutions can be provided with periodic evaluation of internal processes. This would help in assessing effectiveness and efficiency of existing procedures and controls in mitigating risks. It provides assurance that risk control processes are in place and functioning as designed. The internal audit must be independent and free from interference from those in charge of lending operations management and reports to the governing body (e.g. Board). This way it can exercise impartial and independent reviews.

- **Self-assessment.** Self-assessments are normally done on qualitative assessments (e.g. assessment of effectiveness of governance, management systems and processes). Basel accords have a set of recommended self-assessment checklist for banks that regulators require to be accomplished. The accomplished checklists are then verified during examination audit by the regulator. For non-regulated institutions, self-assessment tools are useful as they can gauge whether or not the organization applies sound practices in governance and risk management.

- **Compliance audit**. This can be done internally by the internal audit unit or by separate unit. The focus of the review is to determine whether the regulated institution complies with applicable laws, rules and regulations.

- **Information Technology (IT) audit.** This evaluates the controls, accuracy and integrity of information technology system. This should evaluate the risks inherent in IT systems and applications throughout the institution and its service providers.

- **External audit.** Independent external auditors are hired to conduct thorough financial audit and attestation of internal controls on financial reporting and may include other agreed upon special audit concerns. External audits provide the Board and management assurance about the effectiveness of internal controls, integrity of financial reporting, and an objective view of the institution's activities.

Drawing Lessons from Experience

While results of evaluation serve as inputs in refining its credit risk management, it may be helpful to organizations to know other experiences on credit risk management. Institutions can draw lessons from good and bad experiences. In the US, for instance, agricultural markets deteriorated severely in 1980s that led to closures of significant number among the 1,500 agricultural banks. Those that survived were practicing strong credit risk management framework long before the crisis while those that collapsed generally have weak risk management.

Among the mistakes were (Hatz, 2015):

- Over-reliance on collateral values with little concern on cash flow analysis in granting loans;
- Poor or incomplete documentation as borrowers were long-time clients or were accustomed to borrowing with minimal documentation;
- Risk tolerance levels are not clear to operating units coupled with aggressive customer marketing;
- Loans were structured primarily to maintain customer relationships and not based on information on the farm business.

Institutions can likewise draw lessons from best practices. Below are identified key success factors contributing to effective risk management in financial institutions based on studies:

(1) Commitment and support from top management, communication, information technology, organizational culture, trust, structure, and training of people in CRM (Ranong and Phuenngam, 2009);

(2) Adoption of principles of Basel II and ISO-ERM frameworks, supportive regulatory body in incorporating changes in risk profiles, top management's leadership role during downturn period (Pilkova, 2010);

(3) Strong credit risk culture within the organization, senior management support to the credit process, clear line of management accountability for credit risk results, clear sense of

professionalism in identification of risk and rating, clear and well communicated credit policies, presence of well defined loan risk rating and compliance system, effective policy controls and proper checks and balances in the management of risk (Basu, 1995);

(4) Appropriate governance and management structure, rigorous operating rhythm (continuous risk review and approvals), well defined risk classification, clear risk appetite and strategy, relevant metrics and strong internal control processes (Bayali, 2009).

In conclusion, there are generic principles of a sound credit risk management (e.g. ERM and Basel accord basic principles) that financial institutions must adopt regardless of type, complexity and size of the financial institution. However there are specific methodologies, processes, systems for particular type and size of institution e.g. appropriate practices for rural and agricultural finance institutions. The appropriateness of such credit risk management (CRM) practices however depends on the particular environmental context (market conditions in agriculture, vulnerability to systemic risks, etc.). Thus while rural and agricultural finance institutions can learn appropriate methodologies, processes and systems from the experiences of similar institutions (good and bad practices), it is the integrative cycle of doing, reviewing and refining that will bring the most responsive and relevant CRM framework in its own institutional context.

MODULE 5

Conceptualization, Designing, and Planning Risk Management and Agricultural Insurance: Programs, Processes, Products and Services

5.1 Conceptualization of Risk

Management of a farm enterprise basically has the same underlying objective as any other business. It aims at improving the benefits to the farmer or group of farmers. This is generally done by following two approaches.

First, farmers focus on reducing farm expenses by optimizing the use of own resources. Secondly, they focus on minimizing production and financial risks, which may be caused by climatic stresses, pest and disease attacks, or price fluctuations.

One of the most valuable resources of a farm is the fertility of its soil, as it ensures the long-term productivity of the farm. While proper diversification of crops and animal products will improve the market opportunities and help to reduce production and financial risks. The farmer, as the manager of the farm enterprise, is at the centre of all farm activities.

He/she is the overall decision-maker who determines the farm development goals and how well the farm will perform. He/she makes decisions on what to produce and where, how much to produce, what methods of production; where to sell and how, etc. However, in order to take the right decisions, he/she needs to do a proper assessment of the farms resources and potential, expenses, outputs, potential risks and the resulting profit from the farm activities. This will be followed by proper planning, organizing and monitoring of the farm activities in a continuous and cyclical process. The farmer, therefore, continuously needs to plan the activities in the farm as well as be financially literate enough to do the basic cost and benefit calculations and also to arrive at decisions which will keep him/her off from the internal risks.

Some of these can be gained by attending trainings, meetings and discussions with other farmers. It further requires him/her to be proactive to try and test new practices, varieties and breeds in order to continuously improve the farm.

5.2 Limitations to farm planning and designing of farm practices

Low incomes from farms – farming is generally done with the primary objective to generate enough food for household consumption. Any surplus is then sold to the market. The obtained money helps farmers to access products and services that the farm cannot produce-cloth, household and school items, etc. Family-based farms tend to be rather small and growing limited options of crops. Most farmers are not able to meet all their basic requirements from the farms. This is because they are normally affected by the same production and marketing risks.

Low saving potential – farm planning and designing is required when the activity is taken up on a long term and with a reasonable scale. Most farmers are small and do not have the capacity to make savings that can enable them to invest in long term improvement of production conditions. The income from production is rather spent on household needs related to food, education, health care, and social commitments. This leaves little or no money for re-investment back into farm activities.

Collective decision making – many societies think and work collectively or follow some of the good farmers in the neighborhood. They make farming decisions together deciding what, when, and where to grow, and by whom. Through this interaction they learn from each other and develop trust. The side effect is though that such collective decision making limits the independence, and thus interest, of a particular farmer in implementation of planning and innovations for improvement.

Land ownership/tenure system – in many cases farmers do not own the land on which they produce crops or grow animals. Thus, instead of investing into long-term improvement of land productivity, they tend to overexploit these surfaces, causing substantial damages related to overgrazing and soil mining. Moreover, farmers in this case cannot use such lands to access credit for loans or to use the land for activities with long term benefits like tree planting.

Land fragmentation or scarcity – it is especially a problem in densely populated areas with little arable land. Under such conditions, farmers may not be able to produce enough to make a reasonable living from field crops. Highly intensive and potentially more profitable enterprises like vegetable production, poultry keeping, honey production, etc. may be limited due to lack of experience, knowledge and money to invest.

High Labor costs – the increase in the number of school-going children, rural-urban migration and epidemic have lead to widespread scarcity of labor available in most rural areas. This is especially critical in crops like rice, coffee, etc. where there is high labor requirement either during planting or harvesting. This implies that labor costs have risen to a level which may not be profitable anymore for a typical farm. Although the above challenges may slightly differ between small and big farms, their effects to proper farm management remain the same.

This makes it essential to identify the key tools for proper management of a farm enterprise. It emphasizes the need for proper analysis of the farm situation in terms of resources available, which form the basis for improvement of the farm into a productive and profitable short- and long-term risk managed enterprise.

5.3 Characteristics of a farm planning and strategy

Agriculture, while satisfying the basic food requirements needs to aim at successfully managing natural resources to satisfy its sustainability by maintaining the quality of the environment and conserving resources. It thus requires combining economic, ecological and social goals at the same time in a planned and scientific way.

1. **Ecological goal:** To improve nature and survival of other organisms
2. **Social goal:** To gain cost advantage for others to access the food produce
3. **Economic goal:** To improve the productivity and output levels for farmer benefits

The Ecological Goal

This goal basically relates to maintenance of quantity and quality of natural resources. Farming should be sustainable environmentally, whereby the soil, water, air, plants and animals are protected and enhanced. Farmers pay special attention to the fertility of the soil, the maintenance of a wide diversity of plants and animals.

Planning for ecological goals

- Prevention of loss and destruction of soil due to erosion and compaction.
- Increasing the humus content of the soil.
- Recycling farm-own materials and minimizing use of external inputs.

- Promotion of natural diversity of organisms – being a criterion of a balanced natural ecosystem.
- Prevention of pollution of soil, water and air.
- Animal husbandry that considers natural behavior of farm animals.
- Use of renewable energy, wherever possible.

The major strategies to achieve these goals are:

- Maintain wide crop rotations, practice
- Do Intercropping and cover cropping, plant hedgerows and establish agro-forestry systems.
- Avoid the use of excess synthetic fertilizers and pesticides

The Social Goal

Farming aims to improve the social benefits to the farmer, his/her family and the community in general.

Planning for social goals

- Establish reasonably good working conditions for all.
- Ensure a nutrition basket for the family with healthy foods.
- Ensure sufficient production for subsistence and income.
- Encourage fair and conducive working conditions for hired workers.
- Encourage learning and application of local knowledge/best practices.

From a social perspective, at the household level fair participation in farm activities of all family members and proper sharing of the benefits from the farm activities is ideal. On community level, knowledge and experiences sharing, and collaboration can establish higher benefits.

5.4 Budget and Resource Planning

An effective planning and strategy for the risk reduction goals needs a reasonable amount of financial literacy among the farmers. The costs associated with the planned activities and any other resources needed like labor, or machines should be identified. It should be indicated whether these materials needed will be purchased, shared or hired. If a detailed plan is needed (e.g. for borrowing money), then you should seek assistance from an adviser for a more detailed business plan.

Precision farming is the ideal option for a risk free operation. For example, if a farmer needs to invest in his farm he should be clear of the amount of investment required, what will the increase in output (productivity) levels and accordingly how to channelize the resources, what sort of insurance products should be applied and where and how to sell his produce.

5.5 Finance and Community Development Policy Framework

5.5.1 Policy making and development

Policy development is a very tasking job for any development worker especially when it comes to the welfare and development of people and their communities. It is commonly observed that community policies are normally formulated because of the need to systematize or redirect an issue or concern affecting the lives of the people. Not to mention, a pressing issue that created conflict or triggered instability of community development. Because of this, a process is required to set direction for people, community officials, and stakeholders to follow in order to have better development.

5.5.2 Knowing Policies in Financial Management and Agricultural Development

Policy documents must be written in one of three standard formats: a policy statement, a position paper or a resolution. Prior to developing a new proposal, members should examine existing policies to determine whether a new policy document is needed, whether it conflicts with existing documents, and whether it is an issue of broad concern to civil engineers. The purpose of the document and the intended length of its life will determine which of the three formats should be followed:

- A *policy statement* is a broad overview of policy on a topic of continuing concern to specific area of development or within a legitimate profession.
- A *position paper* is a more specific examination of a subset of a specific issue.
- A *resolution* is a short term or interim position of the Society. It is intended to respond to an immediate concern or a specific event for a time frame of no longer than one year.

5.5.3 Framework of Policy Formulation and Development

Policy makers are usually in action to work for the development of people and communities. They usually require a comprehensive understanding of the issue or concern affecting people and communities. Because of this, research is an essential component before any policy(ies) are formulated and developed to improve the condition or state of the people.

Normally, local policies are formulated by a group of individuals, called the local council who has the knowledge about the condition of the people. Policy development occurs at the community, state, national and international levels. Policies formulated at the state and national level impact policies at the community level. Local decision-makers are facing questions about the impact of "devolution." The kind of policy decisions made by communities on these issues will impact the well-being of families, children, and youth now and in the future.

Levels of Policy Formulation and Development

1. Individual – person in the community
2. Family – core of community development
3. Community – focus of development
4. Society – area of concern in development
5. Nation – orchestrators of development
6. World – link of development

Components of the Framework

1. Policy Statement – this should be a broad statement why the policy has been developed, and what will be achieved from it.
2. Objectives – this section should be in bullet point format; examples:
   a. To provide a consistent approach to …
   b. To ensure that the environmental management meets its legal obligation required by…
   c. To create a richer employee resource
   d. To enable better utilization and transfer of skills and knowledge from experienced employees
   e. To improve morale among community members enabling them to participate
3. Scope – this is not essential heading but can be used for instances where the proposed policy should be read in conjunction with another; example – this policy applies to all members of the community. This policy should be read in conjunction with the local government planning and programming policy.

5.5.4 Understanding the policy process to influence change in risk management

Policy Development Process

1. Setting of the objective – why do you need a new policy
2. Identification and initiation – there is a pressing issue that needs and requires a policy to be done. A committee is identified to lead and responsible in carrying out through subsequent stages of policy development.
3. Research and analysis – once an issue has been identified and approved, research and analysis phase starts. This is done by the assigned community member or institution staff. To begin, there will be an investigation of whether or not existing policies are adequate to address the issue, or if new policies should be developed. Depending on the complexity of the issue.
4. Consultation Process – once the draft policy has been developed, the consultation process will begin with relevant committees and stakeholders. This is done in any of the following modes
   a. Posted on strategic location to solicit reaction and sent to concerned policy developer
   b. Presented to the community during general assembly; the policy is discussed, reviewed and analyzed
   c. Presented to committees or working groups for further discussion and analysis before presentation to the community members or institution
5. Policy Development – following the consultation process, the draft policy will be further refined as needed in order to develop an 'approval-ready' policy. Depending on the complexity of the issue, the consultation and policy development processes may be repeated several times.
6. Approval – once the 'approval-ready' policy has been developed, the policy will be:
   a. Posted for stakeholders approval
   b. Presented to community general assembly for approval
   c. Presented to committees and working groups for final approval
7. Dissemination and communication – after a policy has passed all approval levels, the policy content is disseminated to the audiences identified. The appropriate communication vehicle for this is best determined by the audience.
8. Maintenance – all policies developed are maintained by the committee on legislation and policy development until further amended and reviewed by the community members after several years of implementation and monitoring and evaluation.
9. Evaluation – on-going review and evaluation is an integral part of the quality assurance process and completes the policy development cycle. Policies will be revised as necessary as the program continues to operate. The Committee Chair will be responsible for policy evaluation.
10. Review and renewal – all policies will be reviewed on an annual basis. The Chair of the Committee In-Charge will be responsible to set a policy review and renew date. If a policy is not subject to change, it will be approved for another one-year period. Policies requiring amendment will be subjected to the beginning of the research and analysis phase.

5.5.5 Policy and Procedures Development and Review Processes

Identify scope and stakeholders

The *policy owner* identifies the *scope* and *key stakeholders*. An email distribution list of key stakeholders should be prepared at this stage of the process. The responsibility for maintaining the list of stakeholders rests with the policy owner.

Research and analyze

Relationship to community or institution legislation (ordinance preparation)

It is important that the community or institution's statutes and regulations be checked prior to policy development/review to ensure consistency and prevent duplication. Community policies must not cover the same matter as statutes or regulations. If it is considered that there is a need to review or repeal a piece of community legislation, this must be referred to the community board or stakeholders.

In some cases it may be desirable or necessary to have community policy dealing with areas of external (government) legislation in order to amplify and interpret the application of external legislation to the community context.

New policy and/or procedures

The research process for a new policy and/or procedures is initiated by the *policy owner* and may include environmental scanning and comparative analysis of relevant internal and external organizations, as well as investigation and analysis of:

- relevant government policy and legislation, and national codes;
- community legislation (ordinance preparation);
- existing policies
- gaps
- need to revise or rescind
- consistency
- possible constraints on implementing the policy at lower organizational levels, particularly at off-shore-campuses with different legislative frameworks;
- previous records of relevant bodies;
- other relevant data.

Review of policy and/or procedures

The research process for review is also initiated by the *policy owner* and includes investigating:

- whether the policy and/or procedures is still consistent with best practice, strategic directions of the community or institutions, and changes in national codes or government policy and legislation;
- whether the policy meets stakeholders' needs;
- constraints on implementing the policy at lower organizational levels, particularly with different legislative frameworks;
- the level of compliance with the existing policy and/or procedures;
- whether any related policies need to be revised or rescinded.

Draft policy and/or procedures

Based on research and analysis, a draft of the new, amended or revised policy and procedures is prepared by the *policy owner*. If consequential revision is required to related policies or procedures, these drafts must also be prepared.

Consult key stakeholders

The *policy owner* discusses the drafts and any recommendation to rescind with the *key stakeholder*s. Consultation may include formal meetings, phone conversation or email.

The policy owner must also consult with the relevant community committee in-charge to ensure that the draft is consistent with and complies with relevant legislation.

Amend or revise

After the consultation process, further amendments or revisions may be required. If further revision is recommended, a revised draft is prepared and a new round of consultation with the *key stakeholder*s is initiated by the *policy owner*. This cycle is repeated until no further amendments/revisions are recommended by the key stakeholders.

Consider for policy endorsement and procedure approval

When the *key stakeholders* are satisfied with the draft/s, the *policy owner* submits the draft/s to the *penultimate body* for endorsement of policy and approval of procedures, together with any recommendations for rescission of existing policy.

When the penultimate body is satisfied, the penultimate body submits the draft/s and any recommendation to rescind an existing policy to the *ultimate body* for approval.

In the case of policies and procedures *under review*, if the policy owner considers that no revision is required, a recommendation is made to the penultimate body that the existing policy and procedures stand and be next reviewed according to the review schedule. A recommendation to this effect is submitted to the ultimate body.

Notify policy owner

For both new policies and procedures and those under review, the *penultimate body* advises the *policy owner* if further amendments and/or revisions are required. The policy owner then re-initiates the process of revision and consultation with the *key stakeholder*s.

When no further amendments and/or revisions are recommended to procedures, the penultimate body advises the policy owner.

Consider for policy approval

If the *ultimate body* is satisfied with the endorsed draft/s, the draft is approved as policy.

For policies *under review*, any recommendation from the penultimate body that no revision is required must be approved by the ultimate body. For *existing policies*, any recommendation to rescind must also be approved by the ultimate body.

Notify policy owner

If the *ultimate body* considers that further amendment and/or revision is required, the policy is referred back to both the *penultimate body* and the *policy owner*.

The *policy owner* then re-initiates the process of revision and consultation with the *key stakeholder*s.

If no further amendments and/or revisions are recommended, the *ultimate body* advises the *policy owner*.

Submit policy and procedures

The *policy owner* or designated position submits the policy and procedures to the Policy Bank via the web-based submission templates. The Policy form will not be published unless:

- all defined fields are complete;
- Procedures form has also been completed and submitted.

5.5.6 Development of New Policy and Procedures

Identify need for new policy and/or procedures

The need for new policy and/or procedures may be identified by:

- an *ultimate* (approval) *body*;
- a *penultimate* (endorsement) *body;* or
- a *stakeholder (owners and users of policies)*.

The triggers for a new policy and/or procedures may include:

- changes to the external operating environment;
- changes to government policy or legislation;
- review of the strategic directions of the community or institution;
- new initiatives within or across academic or management areas;
- need for consistency across areas of service delivery.

5.5.7 Review of Existing Policy and Procedures

Policies and procedures of the institution must be reviewed on a regular basis. The review cycle may vary depending on the policy type and its scope, but three years would be typical, and there must be no more than five years between policy reviews. Procedures are likely to be reviewed more frequently. Review dates should be set to allow adequate time for revision and approvals processes.

Minor editorial updates that do *not* affect the title or substance of the policy (purpose, scope, policy statement) do not need to go through the formal approval process.

These include correction of typographical errors or changes to:

- stakeholders
- policy owner
- contact person/maintainer
- key words and definitions

Notify policy maintainer review due

The *policy maintainer* is the position/role nominated to be the maintainer of the policy and its associated procedures. He is also the contact person for queries about the policy. The maintainer will be notified automatically on the scheduled review date.

5.5.8 Sectoral Implications of Policies

Agriculture and Fisheries

Policies in agriculture and fisheries usually focus on the effective and efficient production and processing management systems and marketing. They support the farmers and fisherfolk welfare to increase production and income and improve their quality of life. The production of quality products and delivery of services are the primary concern of policy makers of the sector.

Inputs		**Outputs**	**Goals**
People			Production and
		Products	Processing
	Concerns are	Processes	Management
		Services	Systems and
Communities			Marketing

Science and Technology

Science and technology policies are more focused on systems operation and management. The utilization and application of modern science are based on extensive research and development activities. As a result, technologies (product, process, and services) improve delivery of services through information and communications technology, electronics and engineering. Policies developed are more defined especially when these affects certain groups of people who use the outputs to the maximum.

Inputs		**Outputs**	**Goals**
People			Effectiveness
		Systems	Efficiency in
	Concerns are	Structures	Operations and
		Procedures/Guidelines	Use of
Communities			Protocols

Education, Culture, Arts and Sports

Education is one of the basic needs of an individual. Collectively, this will change the perspective, views, and goal of people who aspire to have their lives improve and better community to live in. Educational policies are after the total well-being of individual learners as well as the mentors who provide the necessary guidance and direction. These are supported by educational facilities, programs, and activities including curriculum. Undoubtedly, educational institutions when they implement policies, they emphasize on the cognitive, locomotor, and emotional skills in order that the students/learners are balanced individuals and become good citizens of their nation. Molding is the key strategy to educational policy development.

Inputs		**Outputs**	**Goals**
People			Effectiveness
		Systems	Efficiency in
	Concerns are	Structures	Operations
		Procedures/Guidelines	Curriculum
Communities			Development
			ECAS Programs and
			Activities

Health and Nutrition

Health policies and programs are focused on the health welfare of the people and their communities. Usually, they address specific concerns that are affecting the health conditions or of special interest that needs to be acted immediately. Examples are outbreak of diseases, conditions for the health welfare of women, children or elderly (W-C-E) including the programs and services.

Inputs		**Outputs**	**Goals**
People		Food and Nutrition	Effectiveness
		Health and Sanitation	Efficiency in
	Concerns are	Systems and Structures	Public Health
		Procedures/Guidelines	Operations and
Communities		Programs and Services	W-C-E Health
			Programs and
			Services

Environment and Natural Resources

Environmental polcies are focused on the protection, conservation, management and development of natural resources from the forest to marinewaters. Usually, these policies address specific groups of people like indigenous people, upland dwellers, and coastal villages who are mostly affected by natural calamities, destructions and even peace and order situation.

Inputs		**Outputs**	**Goals**
People		Terrestial/Spatial	Effectiveness
		Brackishwaters and	Efficiency in
	Concerns are	Coastal and Marinewaters	Ecological
		Procedures/Guidelines	Operations and
Communities		Programs and Services	Management

Trade, Industry and Commerce

Policies in trade, industry and commerce are all towards consumer and custormer satisfaction. These are complemented by specific concerns on export-import management, strict compliance on quality standards and assurance including product and consumer protection.

Inputs		**Outputs**	**Goals**
People		Business Operation	Effectiveness
		and Management	Efficiency in
	Concerns are	Structure and Systems	Consumer and
		Procedures/Guidelines	Customer
Communities		Programs and Services	Satisfaction
			Quality
			Assurance and
			Standards

5.6 Risk Communication

Policy making often is based on the real life situations and constraints faced. The best outcome of policy instruments are it will ease the risk and enable a healthy farming environment. Mainstreaming the risks through a budgetary process is the ultimate benefit farming community can expect for. Hence the risk communication is vital in the process of policy making as well as its changes (amendments) from time to time with the changing climate and market conditions.

Risk communication deals with the dissemination and circulation of risks encountered by individuals, groups or institutions that affect the smooth operation of institutions' and or individuals' daily lives/ routines from the stand point of work, business, and activities.

It is an important aspect in development due to the actors including those that are affected and the resource requirements. Usually, institutions provide a comprehensive reminder of risks perceived to be affecting its operation and also its clientele. Based on this, the programs, products and services are developed and provided.

In agriculture, research and development institutions provide technologies to enhance and improve productivity and profitability of farmers and fishers. On the other hand, financial institutions complement these technologies by providing financial assistance through credit/loan services. These are communicated through broad or mass media including printed materials to minimize risks and to promote better production, processing and marketing activities.

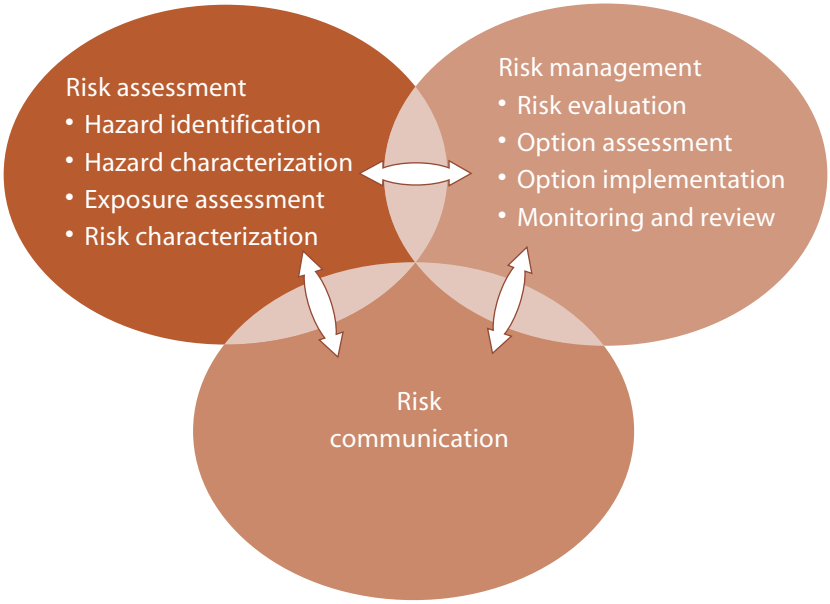
All risks encountered and experienced by institutions, groups and people in rural and agricultural development pass a process of identification, evaluation, analysis and formulation.

The risk analysis structure that is accepted internationally as the model for setting food safety standards consists of three components: risk assessment, risk management and risk communication (FAO, 1997). Each component is separate, with unique functions and responsibilities, but, as shown in Figure 1, the three components also overlap and share common areas. The FAO/WHO Expert Consultation on Risk Management and agriculture emphasized that it was important to separate risk assessment from risk management to ensure both that the assessment process would be independent and free from undue pressure, and that decisions would be based on science rather than myth or political factors (FAO, 1997).

However, it was also emphasized that the process should be open and transparent, indicating a role for effective risk communication. Although it has been determined that risk communication is a factor in the risk analysis process, the entry point for involvement and the level of participation by the major stakeholders in the communication process remain controversial.

New paradigms of risk communication involving early entry of participatory strategies seem particularly applicable today in a context of movement towards democratization and public consent (Slovic, 2000). Recognizing the importance of incorporating this opportunity for public participation into the food safety regulatory decision-making process, the Canadian Food Inspection Agency stated in one of its reports: "Engaging citizens is not merely a fashionable concept for public policy-makers: participatory democratic values have emerged and shaped the way risk communication is done" (Chartier and Gabler, 2001).

Chart 2. Structure of risk analysis



General considerations for effective risk communication

Background information

- Understand the scientific basis for the risk and attendant uncertainties.
- Understand the public perception of the risk through such means as risk surveys, interviews and focus groups.
- Find out what type of risk information people want.
- Be sensitive to related issues that may be more important to people than the risk itself.
- Expect different people to perceive the risk differently.

Preparation/Assembly

- Avoid comparisons between familiar risks and new risks, as this attitude may seem flippant and insincere unless presented properly.
- Recognize and respond to the emotional aspects of risk perceptions. Speak with sympathy and never use logic alone to convince an audience that may be emotionally affected.
- Express risk in several different ways, making sure not to evade the risk question.
- Explain the uncertainty factors used in risk assessment and standard setting.
- Maintain openness, flexibility and recognition of public responsibilities in all communication activities.
- Build awareness of possible benefits that may be associated with a risk.

Dissemination/Distribution

- Accept and involve the public as a legitimate partner by describing risk/benefit information and control measures in an understandable way.
- Share the public's concern; do not dismiss it as illegitimate or unimportant. Be prepared to give as much emphasis to these concerns as to the risk statistics themselves.
- Be honest, frank and open in discussing all issues.
- If explaining statistics derived from risk assessment, explain the risk assessment process before presenting the numbers.
- Coordinate and collaborate with other credible sources.
- Meet media demands.

Review/Evaluation

- Evaluate the effectiveness of risk messages and communication channels.
- Emphasize action to monitor, manage and reduce risk.
- Plan carefully and evaluate efforts.

5.7 Embedding the culture of risk in agriculture policies

Culture plays an important factor in the lives of people, institutions and countries. It is either a limiting and contributory factor to development. When it comes to developing policies, culture is embedded as the driver in policy formulation and development.

Specifically, culture especially traditional practices including indigenous knowledge in agricultural activities, it is considered as the driver where people define the direction for productivity and profitability. However, when it comes to encountering and managing risks, it becomes a necessity to incorporate to seek improvement and planned activities.

This is the very reason why, culturally-based policies are important when viewing or implanting them from the stand point of clientele. The same concern is necessary when it comes to dealing with preparing financial programs, products and services. Based on this, culture takes the driver seat to ensure that clientele and financial institution customers particularly banks are served to the fullest.

The way customers and clientele respond especially during disasters and destruction is a good indication to tailor fit policies, products and services of appropriate technologies and finance. This is needed to be incorporated in financial policy making particularly risk related initiatives.

Policies play the pivotal role in risk mitigation in the farm economies. This requires the fixation of priorities for the farm sectors like increasing the competitiveness of the sector, establishing growth

targets for the economy and fixing the employment potential of the sector through effective policy making and its evolution over time. A budgetary mainstreaming of various risks can establish sustainable policy base for the farm economies to grow and maintain the performance. The following are the steps in that direction.

Business Risk Policies

This enables the farm operators to produce and market their farm output more competitively by covering the market risks and climate challenges. The outcomes of such policies are like the following which can be measurable and monitored.

Box 3. Outcomes of policies in business operations

Expected Results	Performance Indicators
Producers' income losses are reduced	The current year producers' net market income plus Business Risk Management program payments as a percent of the previous five-year average
Producers' income losses are reduced	Percentage of producers considering the Business Risk Management suite of programs as an effective tool to manage risks
Producers' income losses are reduced	Percentage of producers who are satisfied with the delivery of Business Risk Management programs

Agricultural Stability Fund

An agriculture stability fund is required as a policy instrument which can establish the stable farm output levels by reducing the farmer risks. The following systems and outcomes can be

Agri-stability provides support when producers experience large margin declines. A producer may be able to receive an Agri-stability payment when their current year program margin falls below a percentage of their historical reference margin. Agri-stability is cost-shared 60:40 by federal, and provincial or territorial governments.

Box 4. Outcomes of policies in agricultural stability fund

Expected Results	Performance Indicators
Short-term impacts of large income losses are mitigated	Program participants' farm market revenues as a percentage of total farm market revenues for the program year
Short-term impacts of large income losses are mitigated	Percentage of producers with gross farm revenue of a particular amount for the program year
Short-term impacts of large income losses are mitigated	Percentage of producers triggering payments where production margins plus Agri-stability payments are a percent of the reference margin

Agricultural investment

Agri-invest help producers manage income declines, and provide support for investments to mitigate risks or improve market income. Producers' Agri-invest accounts build as they make annual deposits based on a percentage of their Allowable Net Sales and receive matching contributions from federal, and provincial or territorial governments. Agri-invest cost can be shared 60:40 by federal, and provincial or territorial governments.

Box 5. Outcome of policies in agricultural investment

Expected Results	Performance Indicators
Producers have the flexibility in managing financial risks	Percentage of producers with gross farm revenue less than a particular level participating in Agri-invest for the Program Year
Producers have the flexibility in managing financial risks	Percentage of Agri-invest producers triggering Agri-stability payments and making withdrawals from their Agri-invest saving accounts for the Program Year

5.8 Agriculture Policy and Uncertainty

The most effective and desirable policy intervention by government in farm risk mitigation has been the agriculture insurance. The costs of administering the crop insurance are on the other hand very high in big countries. Simultaneously the benefits arising out of such costly insurance policies are also not sure as there is no effective monitoring and evaluation mechanisms are available.

The second option of policy intervention in agriculture risk management has been the subsidization of the credit given to the framers, who cannot access bank loans. To the extent that loans become loans available to farm families, even for home consumption.

5.8.1 Influence of policies on farm risk management

OECD studies show that risks in agriculture are interconnected, sometimes compounding, sometimes offsetting each other. For example, if the prices of inputs (e.g. fertilizer) and outputs (e.g. agricultural commodities) move in the same direction the impact on net returns is reduced. Production risks can be partially offset by price movements, as when crop yields are low but prices are high. It is the net risk effect on income that matters, and income variability can be significantly reduced thanks to these interconnections.

Risk management should not concentrate on any one risk factor or any one solution. Diversification is nearly always a good strategy to reduce risk, and that also holds for reducing the risk of policy failure. A broad approach is needed that recognizes how different sources of risk, different strategies and different actors, public and private interact. A look at some examples of unsuccessful policy approaches illustrates how governments must recognize the interconnectedness of agricultural risks and focus on a holistic approach to risk management in agriculture.

If there are policies in place that are linked to production and price risks, farmers will not see any need to develop their own strategies, nor will private sector, market instruments develop in the absence of demand. Government payments, as well as production and price-linked policies, affect farmers' risk exposure, but they also change farmers' risk management behavior.

For example, Minimum intervention prices for cereals in the European Union induce farmers (in the United Kingdom and Spain) to concentrate on crops with high returns, thereby reducing diversification. These policies are only effective in reducing the variability of returns when the intervention price is low enough; beyond that level there may be no reduction in income variability. The same crowding-out effect is found for insurance subsidies provided in Spain and Canada: production tends to concentrate on insurable commodities. Income payments that are linked to the evolution of prices or returns also induce more risky farming behavior. For instance, Canada's Agri-stability is found to reduce the demand for insurance and increase specialization. Highly decoupled payments, such as the Single Farm Payment in the European Union, are found to have a very small crowding-out effect. Similar results are found for Canada's Agri-invest program. These policies do not affect income variability very much but they do provide a stable stream of income that facilitates saving and borrowing as needed.

Governments have often assumed that the answer to farming risk lies in stabilizing prices. In fact, by doing this they may actually increase the variability of income and have the opposite effect. For farmers in many OECD countries years of low prices are also years of better yields. Statistical analysis shows that this correlation matters because it reduces income variability. Price stabilization undermines this natural risk reduction link. Price policies may actually induce more risky behavior on the part of farmers because the guaranteed price lets them specialize in products or methods that are not well adapted to their particular circumstances. The higher the intervention price, the larger the probability of the net effect being an increase in income variability for some farmers. Price interventions will isolate farmers from underlying market fundamentals such as high prices that signal a negative supply shock or low prices that signal over-supply. Governments end up carrying the entire burden of risk management at high cost to consumers and taxpayers because their actions have crowded out the efforts of farmers themselves and the private sector.

5.9 Understanding of the risks in policy framework

5.9.1 Normal risk

Within the normal risk layer, farmers are responsible for managing their own business risk. The set of risk management strategies is decided at the farm or household level, particularly for frequent "normal" small risks in production, prices and weather. This is because farmers know best about their individual risk environment and how much risk they are willing to carry. Diversification is a key element in risk management in all sectors, including agriculture. It is not an old fashioned or outdated risk management strategy. Diversifying on and off farm is likely to be an efficient risk management strategy, particularly if farmers are well informed about all their possible choices. Of course, farmers need to trade-off the gains in terms of reduced variability of returns with losses from reduced scale economies. The best combination of tools will be specific to each farm.

Governments may need to play a role within the normal risk layer by encouraging farmers to develop their own risk management strategies. Training programs on how to use risk management techniques including good farming practices, the role of diversification and the use of futures and insurance can improve farmers' ability to assess and manage their risk using a variety of market and on farm tools. Income tax and social security provisions can be adjusted to the needs of farmers. For example, paying taxes on average taxable income across a few years can help farmers to cope with incomes that are quite variable from year to year. Tax incentives for saving may also encourage farmers to smooth income flows from year to year.

5.9.2 Marketable risk

Some types or levels of risk can be dealt with using market instruments. Some large, export-oriented farmers, cooperatives and downstream industries make direct use of futures contracts in order to hedge

their price risk. Many more farmers benefit indirectly from the price discovery mechanisms that these markets offer. Production and marketing contracts between farmers and the downstream industry or cooperatives is another important and increasingly sophisticated risk management tool. There is a role for government in making sure that the legal system properly underpins the development of these contracts, allowing enough flexibility and security of transactions. Governments can also help in training farmers and their organizations so that they are better able to use these instruments themselves.

Where there is sufficient convergence of interests, farmers can act collectively (e.g. the so-called levy organizations in New Zealand and Australia) to generate services necessary for risk management and implement collective risk management strategies. Integration of producer and industry organizations in the risk policy process like the Product Boards in The Netherlands can contribute to policy efficiency, knowledge of risk management tools and techniques, and a clearer division of responsibilities between government and private business for risk management.

5.9.3 Catastrophic risk

Governments have an important role to play in managing catastrophic risks. These are defined as large but rare events that cause very significant damage over a wide area and to many producers, to the extent that neither individual producers nor available market instruments are able to cope. When a disastrous event such as extreme weather or a disease outbreak occurs, the government will come under social, media and political pressure to take action. A set of procedures and a clear delineation of responsibilities between government and producers, defined as part of a contingency plan, are needed to manage such pressures and for the good governance of disasters. They should include explicit triggering criteria and a definition of the types and levels of assistance. Getting the balance right between rules decided in advance and discretionary decisions made after the event is important.

Otherwise, hasty recourse to ad hoc decisions will undermine the contingency plans. Governments also need to avoid creating moral hazard, for example that farmers fail to take certain precautions because experience has taught them that whatever happens the government will step in. Pre-determined frameworks and plans exist in different forms for outbreaks of plant and animal diseases in all OECD countries and could also be developed for natural disasters.

That said, the definition of the boundaries between risks is a major governance challenge. The boundaries between the three risk layers depend on the specific risk profile and the institutional and policy framework that prevails in individual countries and regions. OECD studies of Australia, Canada, the Netherlands, New Zealand and Spain found that boundaries are seldom well-defined in government rules, and policies often encroach on the normal and marketable risk layers. In general, policy reforms on risk management should focus on making the available systems more efficient rather than creating new institutions. They should build on existing information and institutional arrangements, and enforcing access to information. The risk management system has to be understood as a long term investment in a clear arrangement that defines the responsibilities of farmers, government and markets, and allows the evolution and development of appropriate solutions in different risk layers.

MODULE 6

Approaches, Strategies, Tools and Practices of Risk Management and Agricultural Insurance

6.1 Prioritization for risk assessment

Agriculture risks generally are multi-faceted and therefore the instruments designed to cater to such risk proofing needs to have careful approaches and strategies to survive in the risk scenarios. A large number of issues can be generated through the issue identification process. It is therefore essential to determine their priority to decide if you should, or should not, be undertaking any direct management actions to ensure that the risks are appropriately proofed.

This indirectly means the approach of prioritization. The most robust prioritization processes are based on risk assessment principles because these directly assess the likelihood of not achieving acceptable performance against each relevant management objective. Because risk includes uncertainty, these assessments can be completed with little or no quantitative data. We deal daily with risk and uncertainty, but generally we don't realize it. Risk assessment principles enable making the most informed decision with whatever information is available.

To determine the priorities, the approach is to ask:

- What is the 'risk' that the current agriculture management system will not meet its agreed objectives for each of the identified issues?
- Where the current or anticipated future performance is not considered acceptable, direct management actions would need to be applied.

If an issue is associated with more than one objective (economic and/or social sustainability), the performance for each of these should be assessed separately as the risks may differ. If a number of issues have high or unacceptable 'risk' ratings, additional prioritization that considers their relative importance to community outcomes may be needed to determine which of these issues should be addressed, or in what order.

The key actions in this context of risk management has been

- Individually assess the specific risk or relative priority for each identified issue.
- Obtain stakeholder feedback on risk outcomes.
- Examine any relationships or interactions among issues and their associated objectives.
- Decide which issues will or will not be directly managed by the management plan.
- Determine which of the issues should be dealt with first and/or the relative level of resources that should be applied.

6.2 Prioritization Tools

There are a number of different methods available for use which can be separated into a number of categories. Informal vote and simple risk ranking approach can operate with minimal levels of data and higher levels of direct stakeholder involvement. There remain more formal qualitative risk assessment

tools, which require more information and a greater technical capacity of those involved in the informal assessments.

Two common versions are the CxL based methods (for qualitative analysis of ecological, social and economic components), and the SICA based method (for qualitative ecological analysis). If more data and technical capacity are available, semi-quantitative methods such as PSA that examine the inherent vulnerability of a species may be useful. Even fully quantitative risk methods can be used by those with sufficient data and access to specialists in simulation modeling and their use.

To assist comparison of priorities among issues that may have similar individual risk scores or levels, simple informal vote ranking methods are especially useful where the comparison of priorities is among different social or economic issues. More complicated multi-criteria analyses can be used to separate among high risk issues where there is sufficient information and agreement about the criteria to use.

Different consultation methods can be used to assess the risks for different types of issues and objectives. The type of audience can also affect what may be the best method. Furthermore the different methods can sometimes best be used in combination to obtain the most effective input from different stakeholder groups and therefore the most robust and accepted priorities. For the highly technical analyses that involve complicated methods, only a small number of individuals effectively participate (but a broader group can be observers). Therefore, the best consultation mechanism can vary from the use of a single expert to obtaining input from the entire community. The following points needs to be given emphasis while choosing the tools.

- Is the issue of a technical or scientific nature or community value-based? The more technical, greater weight may need to be placed on expert opinion. For community value-based issues, stakeholder input will generally be the most important.
- How much relevant information is available? With less available information, less sophisticated methods are probably more appropriate.
- What is the capacity and technical knowledge of the stakeholders who will be involved? Lower capacity will mean less technical tools to be used.
- What is/are the best combination(s) of risk tools and consultation method(s) given the resources and information available?

The following matrix would provide an outline of the tools to be used for farm risk assessment and agriculture insurance.

Table 11. Prioritization tools used in analyzing risks

Tool	Selection criteria					
	Ease	Cost	Capacity	Know	Participation	Time
Non-formal risk categories (Prel.Hazard Analysis)	Easy	L	L-M	L	H	S
Consequence X Likelihood (Qualitative risk analysis)	moderate	L-M	L-M	L	M	S
Productivity susceptibility assessment (PSA)	Fairly hard	M	M	M	L	M
Quantitative risk assessments	Fairly hard	M	M	M	L	L

Legend: M – Medium, S – Short, L – Long, H – High

6.3 Objectives of standard procedures and policies

After identifying which of the issues (of an ecological, social, economic or institutional nature) requires specific management intervention, the next step is to clearly determine what management outcomes are to be achieved. This requires the generation of standard operation procedures and clear policies accordingly measuring the operational outcomes in tune to the objectives for each of the priority issues.

An operational objective is the translation of the relevant social values, high level objectives, policy statements and standing legislation etc. (identified in the scoping phase) into a form that has a direct and practical interpretation for the management of the sector/sub sector. They need to be outcome-based.

6.4 Field sampling methodology, design and data sheets

The sampling designs for the data gathering on risks of various (multiple) natures need to be stratified random. This is because of the fact that in large universe, it is often become statically difficult to arrive at reasonable sample size because of the multiple natures of risks each one of the members facing in real life.

Hence, detailed stratification of the groups of risk across minute categories will enable the classification of risks. The more the classification of risks, then it is the easiest and most effective mechanism to select the samples. In other words, the best sampling strategy is to homogenize the heterogeneous groups under each risk cover and then minimize the samples that represent the universe.

Based on the groups and categories of risks and its patterns the data formats can be designed for canvassing the minute information at the field level.

Table 12. Groups and categories of risks and its patterns

Field data component	Operational Objective
Economic effects of industry participants	Identify the options available to keep the income/revenue levels go up (detailed points to be listed based on location specific details)
Employment effects	Optimization options to be evolved for competitiveness as well as livelihood sustenance
Lifestyle benefits and cost advantage	Ensure the means to gain competitive advantage through cost advantage so that the insurance program will be sustainable on large scale.

6.5 Data Collection and Analysis

The data needs to be collected in a standard format with quantitative and qualitative variables. The quantification of qualitative variables will be more advantageous to determine the ratio of risk and accordingly design the risk cover tools and coverage decisions in a strategic frame of certainty.

The data analysis needs to bring out the major risk components in terms of

a. Prevailing policies and needed legislations
b. Management plans for the insurance products
c. Management effectiveness (with and without). this in a way argues for a policy environment against complaining of its absence.
d. Mode of compliance
e. Monitoring and evaluation
f. Reporting and communicating to the stakeholders

6.6 Data Quality and management

It is needless to say that the quality of data collected and its mode of collection determine the usefulness of such information on its ground applications.

How to ensure the quality of the data gathered?

There remain different approaches to do it

1. The stakeholder does the data collection. This will be reasonable given the fact that the outcomes will have direct bearing on their welfare so that they will resort to the right information and its enlisting with care and accuracy.
2. Insurance agencies undertake the data collection directly using their own resources so that it will give the right kind of knowledge and inputs for the products to be evolved.
3. A mix of the two will be ideal as it can be participatory and transparent to meet the interest of both the ends for longer run collaboration in the risk business and risk mitigation for both the parties. Perhaps this can stimulate the risk communication and create the platform for policy advocacy. In a sense this potentially can bring in stake holder collaboration in risk management.

6.7 Reporting

The reporting needs to be made with the various stakeholders in mind. The three major consumers of the report are the government (for policy), the insurance companies (for products) and the farmers (for their crop baskets).

It is to fulfill the needs of these three pillars in the risk framework. Accordingly the report needs to identify the risk variables, its nature and structure, the type of products and strategies to cover it up and what sort of policy environment is suitable and what is the current gap in this virtuous framework. Let's try to evolve such a format. Let anyone among you initiate and we do it.

6.8 Agricultural Insurance Concept and Perspectives

Agriculture insurance in many of the cases is a concept which protects the farmers from natural calamities and at times from market failures. It therefore has been conceptualized as the protectors of farmers from external risks.

This risk cover often is perceived as the duty of the state and therefore it needs to be subsidized to make the risk cover mechanism effective and to expand the coverage. The essence of insurance is risk sharing. This can be done in two ways. One is through risk spreading and other is through risk pooling. Risk spreading involves persons with possibly different risk attitudes sharing the same risk (for example in a crop-sharing agreement). In standard insurance models, which isolate risk spreading from risk pooling, an individual shares a given risk with an insurance company; the individual assumed to be risk averse, whereas the insurance company is assumed to be risk neutral. Risk pooling refers to a situation where persons with different risks place their risks in a common pool, which they all share; for example insurance is provided collectively to a group consisting of members who may face different probability distributions of loss. Pooling benefits of insurance are then attributed to a potential reduction in the variance of the total loss, which in turn results in a premium reduction; the law of large numbers is usually invoked to justify the existence of such benefits.

6.9 Framework of operationalizing insurance

The basic framework is to provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests and diseases. To encourage the farmers to adopt progressive farming practices, high value inputs and improved technology in agriculture.

The Salient features (based on Indian context) are:

- Scheme is available to all farmers – loanee and non – loanee both – irrespective of their size of holding.
- Compulsory for loanee farmers and optional for non-loanee farmers.
- Limit for sum assured is the thresholds yield of the crop in the specified area.
- Cover all crops for which a reasonable past yield data is available.
- Premium rates are fixed at 3.5 percent for bajra and oilseeds and 2.5 percent for other kharif crops, 1.5 percent for wheat and 2 percent for other rabi crops.
- In case of small and marginal farmers 50 percent of premium charges are born by the government.
- Separate agency namely agricultural insurance company of India (AIC) has been established for implementation of NAIS with the help of rural financial institutions, state governments and farmers. Due to the high claim/premium ratio there is need to refine the program to enhance its economic viability, so that the scheme will sustain over time to serve large section of the farmers to insure their risk and hence productivity and also enhance competitiveness of Indian agriculture by regional specialization. In recent years some new methods in crop insurance have been come up with innovative actuarial technologies

6.10 Agriculture Insurance Strategies and Tools

Advanced strategies and tools have currently been applied in the agriculture insurance space. The recent innovations in global financial markets create opportunities for crop insurers to manage their correlated risk and expand their ability to help rural households.

As correlated risks at local/agro climatic region level become independent risk at the global level.

1. The use of global futures markets by intermediaries who can offer a form of price insurance
2. Index insurance contracts to shift regional catastrophic calamities into global markets.

Two types of equity instruments are available to securities insurance risk. Exchange traded indexes (e.g., the CAT contract on Chicago Board of Trade (CBOT)) and risk-linked securities (e.g, Catastrophic or CAT bonds). These instruments provide a mechanism of risk transfer from a primary insurer to a large group of investors/speculators as in the same way as reinsurance.

The Property Claim Service (PCS) is an US agency that provides estimates of catastrophic property damage in each region for each quarter. This data used to trade and settle PCS CAT options. There are nine indices (one national, five regional and three states) that are based on the catastrophic loss in each specific region/nation. Thus, purchasing a call option at some specified loss level protect when losses exceed the predefined loss level in that particular period of time. So it will act as reinsurance against a catastrophe of large scale (Skees et al. 2003).

In the same way CAT bonds are risk-linked securities, mainly used to provide reinsurance protection for primary insurances. CAT bonds like debt bonds provide capital contingent upon the occurrence of a specific event. The premiums generate interest payments for the bond investors. In exchange for assuming the risk, those purchasing CAT bonds receive a relatively high rate of return if there is no

catastrophic event. However, they may lose some or all of their investment or earning on their investment if a catastrophe occurs. Since catastrophes are independent of general economic and hence stock market trend, there is an opportunity for fund managers to diversify their risk by investing in catastrophic bond.

6.11 Factors influencing effective and efficient agricultural insurance

Ideally the crop insurance needs to act as a future farming safety net. Experience from a wide range of countries has shown that there are host of factors attributed to the efficiency and effectiveness of the crop insurance.

1. Irrespective of the levels of development, in the initial stages government support (subsidies) has added significantly to the expansion of crop insurance coverage.
2. The policies pertaining to agriculture insurance has significantly added to the coverage of farm insurance. For instance, in US the use of crop insurance by US farmers has grown sharply, increasing from 45 million insured acres in 1981 to 262 million in 2011. Several factors explain greater use of crop insurance by farmers. But today's insurance program structure began with the Federal Crop Insurance Act of 1980, which required crop insurance to be sold and serviced by the private sector.
3. With private sector compensation based on the volume of premium sold, companies and agents had a strong incentive to bring crop insurance to producers. Increases in premium subsidies and government payment of insurance company delivery costs made crop insurance increasingly affordable over time, boosting participation and coverage levels.
4. The subsidy rate was increased slightly by the Federal Crop Insurance Act of 1994. Temporary economic loss assistance in the late 1990s provided a premium discount, which continued until a permanent increase was provided in the Agricultural Risk Protection Act of 2002 (ARPA). ARPA raised subsidies, particularly at the higher coverage levels, with the 75 percent coverage level subsidy more than doubling. The 2008 Farm Bill did not change subsidy rates for individual insurance plans but increased subsidy rates for enterprise and whole farm units to 77 percent for a policy with 75 percent coverage on an enterprise unit.
5. Other factors also contributed to higher demand for coverage. The Federal Crop Insurance Reform Act of 1994 required producers to have crop insurance to be eligible for farm program benefits. While short lived, this requirement introduced many producers to crop insurance. Reductions in the level of protection provided by farm programs and requirements to have crop insurance in order to be eligible for the receipt of ad hoc disaster payments encouraged participation and higher coverage levels.

6.12 Current trends and practices in agriculture insurance management

Self-sustainable approaches and practices are being used of late in the agriculture insurance sector towards making it viable for the insurance providers as well as beneficial for the farmers.

- Farm programs have evolved from very market intervening programs to those that let market forces operate more fully.
- With producers shouldering greater responsibility to manage risks. In line with this evolution, the crop insurance program has a number of appealing features. A producer must consciously elect to manage risks, can design a program to fit individual farm risks, and must share in the program cost, reducing public costs and aiding accountability.
- The private sector delivers the crop insurance program as part of a public and private partnership, providing producer choice, and promoting competition in service quality and efficiency and effectiveness in delivery.

- Through the private sector, producer losses are adjusted and indemnities paid promptly. Thus many program provisions can be quickly changed to correct program parameters and reduce costs and inefficiencies.
- Crop insurance also allows many producers to secure credit, as an insurance policy serves as collateral, and aids forward marketing by providing resources to meet delivery obligations in the event of a production loss.

6.13 Documentation of agriculture risk and insurance program

Currently, government agencies, lenders, and insurance companies are requiring better and more accurate records. Not only output per acre, income and expenses, but also weather records are becoming increasingly necessary.

6.13.1 Documentation process method

The following critical areas are documented to ascertain the effectiveness of the agriculture insurance programs. These documents can be analyzed from time to time as a means to estimate the effectiveness of the program and enable suitable policy changes in the program module.

Financial

A detailed check register will enable you or your accountant to produce several financial records. With additional information you or your accountant can produce a balance sheet and performance ratios than will enable expert analysis of your business.

A cash flow is a record of all income and expenses listed by category. For example; you may have a category for each form of income such as corn, soybeans, hay, and livestock sold. You may also have categories for each expense such as fertilizer, chemicals, labor, and mortgages. A cash flow is like a moving picture because you will record all income and expenses in the applicable categories on a monthly basis. A record of your cash flow for a year will enable you to decide when additional cash is needed and when certain bills will be due enabling you to better plan for the future.

A balance sheet is a snap shoot of your business on a given day. These are usually completed at the end of your fiscal year to make consistent comparisons of your business. The information from a balance sheet can be then used to calculate specific ratios for financial analysis.

Production

Keeping records of you annual production is critical to analyze what worked and what did not. If you planted some crops using the no till method, you can analyze if the production was the same as previous years or not. Combining these records with the cash flow records will enable you to see that if you used no till and had a lower yield but lower expenses offset that yield, you were more profitable.

Production records should be kept for each field. In some cases where there are extremely large fields, keeping records by parts of fields will tell you where more fertilizer may be needed. Many of the newer harvesters may be equipped to provide this information. For crops that are not mechanically harvested, another form of record keeping should be developed. Find a method that works for you and keep track of production of each crop.

Weather

Records of the weather can be obtained from several sources. There may be web sites you can find that will provide temperature and precipitation records for an area. With the many micro climates in a given

region or state these may not be accurate enough. How many times have you experienced rain on a part of your farm and not another? This may be especially true of hail.

As we all know, the best production methods and hybrids can fail do to weather conditions. Keeping daily records of precipitation and high and low temperatures is easy to accomplish and you can have a fairly accurate weather station for as little as $25 to $30 depending on your level of sophistication. A high/low thermometer, rain gauge, something to record them on, and about ten minutes a day is all that is needed. Having these records for your farm can speed up your claim process and provide the documentation to determine the reason for and when the crop failure occurred.

Another reason for weather records is for crop insurance. If you experience a hail storm, you will need to contact your insurance sales person and begin the claim process. If your area experiences a drought, documenting the lack of rain will assist in the claim process. A claim of prevented planting may have to be filed even in a year of drought. If you experienced too much rain in the spring during planting time, then a drought in the summer, the adjustor may question or deny the claim. Accurate weather records will enable you to prove your claim.

REFERENCES

ACPC-PCFC. (2015). *Documentation of Practices of Rural Financial Institutions Participating in the ACPC-PCFC Agricultural Microfinance Program.* Manila (Philippines): Unpublished.

ADB. (2014). *Technologies To Support Climate Change Adaptation.* Asian Development Bank (ADB). Available at: http://www.adb.org/sites/default/files/publication/149400/technologies-climate-change-adaptation.pdf.

AIRMIC, R.I. (2010). *A Structured Approach to Enterprise Risk Management.* London: Association of Insurance and Risk Managers (AIRMIC), Public Risk Management Association (RM), Institure of Risk Management (IRM). Available at: https://www.theirm.org/media/886062/ISO3100_doc.pdf.

Basel. (2008). *Implementation of the Compliance Principles.* Bank for International Settlements (Basel Committee on Banking Supervision). Available at http://www.bis.org/publ/bcbs142.pdf.

Basel. (2001). *Consultative Document Operational Risk.* Bank for International Settlements (Basel Committee on Banking Supervision). Available at https://www.bis.org/publ/bcbsca07.pdf.

Basel. (2000). *Principles for the Management of Credit Risk.* Basel Committee on Banking Supervision. Avaiable at http://www.bis.org/publ/bcbs75.pdf.

Bayali, H. *et al* (2009). Working in the Context of Today's Crisis, Managing Risks and Challenges. *Case Studies: Risk Management and Governance – A Framework for Microfinance* (pp. 6-7). International Finance Corporation (IFC).

BSP. (2014). *Guidelines on Sound Credit Risk Management (BSP Circular No. 855 Series of 2014).* Bangko Sentral ng Pilipinas. Avaiable at http://www.bsp.gov.ph.

CARD. (2013). *Annual Report.* Center for Agrciulture and Rural Development (CARD).

COSO. (2004). Enterprise Risk Management-Integrated Framework Executive Summary. Committee of Sponsoring Organizations of the Treadway Commission (COSO). Pp 2-4. Available at: http://www.coso.org/documents/COSO_ERM_ExecutiveSummary.pdf.

Frigo, M. a. (2011). *What is Strategic Risk Management*? Strategic Management (April 2011). Available at http://www.markfrigo.org/What_is_Strategic_Risk_Management_-_Strategic_Finance_-_April_2011.pdf.

GTZ. (2000). *A Risk Management Framework for Microfinance Instiuttions.* Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ). Available at http://www.ruralfinance.org.

Hatz, N. (2015). Successfully Managing Agricultural Credit Risks. *Community Banking Connections*. Available at https://www.communitybankingconnections.org/articles/2015/q1/successfully-managing-agricultural-credit-risk.

HMA. (2007). *Supervisory Policy Manual: Strategic Risk Management.* Hongkong Monetary Authority (HMA). Available at: http://www.hkma.gov.hk/eng.

Hollinger, F. (2011). *Agricultural Finance: Trends, Issues and Challenges.* Bonn, Germany: Deutsche Gesellschaft fürInternationale Zusammenarbeit (GIZ). Available at http://www.ruralfinance.org.

IMA. (2011). Enterprise Risk Management Framework: Elements and Integration. E-copy available at http://www.imanet.org/docs/default-source/research/sma/erm_frameworks-elements-and-integration.pdf?sfvrsn=2.

Matul, M. *et al.* (2005). Entering New Markets: How Market Research Can Inform Product Development. *Microfinance Center (MFC) Spotlight Note 13*, 1-4. Available at http://www.ruralfinance.org.

Mc Connel, P. (2015). Strategic Risk Management – A Tale of Two Strategies. *Macquarie University Applied Finance Centre (MAFC), Research Paper No. 38*. Available at www.mafc.mq.edu.au.

Nails, D. (2012). Risk Rating Systems for Small Business Community Development Financial Instiututions. *Technical Assistance Memo*. Available at http://ofn.org.

OECD. (2009). *Managing Risk in Agriculture: A Holistic Approach.* Organizaiton for Economic Cooperation and Development (OECD). Pp 14-17. Available at: http://www.oecd.org/agriculture/agricultural-policies/45558582.pdf.

OECD. (2011). *Risk Management in Agriculture: What Role for Governments?* OECD. Available at: http://www.oecd.org/agriculture/agricultural-policies/49003833.pdf.

Pilkova, A. (2010). Key Success Factors for the Commercial Bank Risk Management Under Downturn Market. *Comenius University Bratislava*. Budapest, Hungary. Available at: http://g-casa.com/conferences/budapest/papers/Pilkova.pdf.

RBFI. (2014). Strengthening of Credit Risk Management. *Lecture Handouts.* Rural Bankers Research and Development Foundation, Inc. (RBFI): Unpublished.

RIMS. (2011). *Why Strategic Risk Management?* Risk and Insurance Management Society (RIMS). Available at: https://www.rims.org/resources.

Schaffnit-Chatterjee, C. (2010). Risk Management in Agriculture: Towards Market Solutions in the EU. *Trend Research*, pp. 4-8. Deutsche Bank Research. Available at: https://www.dbresearch.com.

Stephanou. (2004). Measuring and Managing Operational Risk Under Basel II. *World Bank Risk Mangement Conference.* Colombia: World Bank.

Szekely, C. and P. Palinkas. (2009). Agricultural Risk Management in the European Union and USA. *Studies in Agricultural Economics No. 109*, 55-72. Available at: http://ageconsearch.umn.edu.

UNCTAD. (2004). *Financing Commodity-Based Trade and Development: Innovative Agricultural Financing Mechanisms.* United Nations Conference on Trade and Development (UNCTAD). Available at http://unctad.org/en/Docs/c1em24d2_en.pdf.

UNDP. (2006). *Evaluation Policy of UNDP.* United Nations for Development Program (UNDP). Downloaded at: http://web.undp.org/evaluation/handbook/ch5-2.html.

USAID. (2000). Warehouse Receipts-Financing Agricultural Producers. *Innovations in Microfinance Technical Note No. 5*. E-copy available at: http://pdf.usaid.gov/pdf_docs/Pnacq697.pdf.

Wenner, M. (2010). Innovations in Rural and Agricultural Finance: Credit Risk Management in Financing Agriculture. *2020 Vision Focus Brief*. Available at: http://ebrary.ifpri.org.

Yaron, J. (1996). Rural Finance: Issues, Design and Best Practices. *Rural Well-being: From Vision to Action, 4th Annual World Conference on Sustainable Development* (pp. 426-432). World Bank.

ANNEXES

TRAINING EVALUATION

Post and Pre-test
(to be administered before the start of and upon completion of the training modules)

Direction: This evaluation is prepared to determine the level of understanding and experience of the trainee/participant on financial risk management and agricultural insurance for rural people and communities. Kindly mark (/) the item that best identify your level of understanding. It will be used to enhance and strategize the implementation of the training course for maximum learning experience. All responses will be analyzed and discussed. THANK YOU FOR YOUR TIME!

*Legends: Agree **(A)**, Strongly Agree **(SA)**, Disagree **(DA)**, Strongly Disagree **(SDA)** and No Idea **(NI)***

Particulars	A	SA	DA	SDA	NI
The Asia-Pacific is the next "Big Thing" in global agriculture and finance development					
Climatic conditions do not necessarily affect rural and agricultural development					
Crop production is better than livestock and fishery production in terms of insurance support services					
There are five types of risks encountered by financial institutions					
Clientele are the most important factor in rural and agricultural development					
Clientele are the most important factor in financial management					
Risks are usually affecting the financial operation of institutions and clientele					
Natural calamities and destructions are usually hard to evaluate for financial analysis					
Flooding is the number one cause of crop failures					
Agricultural insurance is the better than life insurance					
Government plays an important role in policy formulation and development					
Majority of the financial institutions do not believe on a sound agricultural insurance product and services for its clientele					
Microfinance institutions are reluctant in providing credit and loans to poor and marginalized people and communities					
Bangladesh is the next "BIG THING" in sustainable financial revolution in South Asia					
Irrigation is the number one problem in Cambodia					
India's experience in weather index-based insurance could be utilized and applied in all Asian countries					
Pakistan women farmers requires more financial support services than any other women in the region					
The Philippine experience on agricultural insurance and guarantee system is getting commendation for Asian financial revolution and reforms					
Bhutan is similar to Nepal's rural and agricultural condition					

Particulars	A	SA	DA	SDA	NI
Poor planning process is the most common problem of financial institutions					
Climate change is affecting the development of most southeast Asian countries rural and agricultural development					
Farmers are always reluctant to take risks in availing credit/loans					
Asian agriculture defines the state of food security and sustainability globally					
Thailand has a strong agricultural based experiences from production to marketing					
Lack of infrastructure and facilities affects the implementation of agricultural insurance products and support services to farmers					
The major competition of formal financial institutions is the prevalence of informal lenders					
Changing weather conditions affects farmers agricultural production decisions to borrow or avail of financial support services					
Changing weather conditions limits financial institutions to provide time and appropriate financial products and services to key players and stakeholders in rural and agriculture					
Monitoring and evaluation process is an essential component of a sound financial management					
Research defines the analytical and strategic stage in addressing risks encountered by the financial institutions and its clientele					
Technological services complement financial services to clientele					
As a risk management officer your role is to ensure that risks are properly addressed through sound recommendations and appropriate actions					
Farmers are bankable					
All poor people are bankable					
Marginalized communities are the hardest to delivery services in agriculture and finance					
Indonesia as an agricultural development is affected yearly by rainfall					
China is in the process of financial reforms and development					
Pest and disease infestation cause agricultural loss the worst					
Agricultural insurance is required by all farmers in the region and globally					
Technology transfer aid in rural and agricultural development					
Political situation defines the state of development of a country					
Labor and health risks are not part of the rural and agriculture sectors					
Health microfinance is an emerging sector that must be addressed to support rural and agricultural development					
Time is an important factor in development					
Asia is not the next "BIG THING" in global financial revolution and development					

EXERCISES

Exercise 1. RISK ANALYSIS

Direction: Each trainee will be given a sheet of paper or Meta card to write on to answer what is being asked for. After 5 to 10 minutes, process the answers by requesting one participant to integrate, categorize and consolidate common/similar responses. Later on, present these as a group session to solicit more insights and additional inputs before giving the final synthesis and concluding statement.

Questions

- What is a risk?
- What is a financial risk?
- What is an agricultural risk?
- What are the characteristics of these risks?
- How to address these risks?
- Who should take the lead in addressing these risks?
- What are the roles and responsibilities of clientele, financial officers and institutions?

Possible Responses to be processed for further discussion

Risk Types and Hazard

- **Natural Disaster**
  - Floods
  - Drought
  - Cyclones
  - Typhoons
  - Hurricanes
  - Earthquake
- **Policy and Political Risks**
  - Regulatory change
  - Political upheaval
  - Disruption of market
- **Management and Operational Risks**
  - Poor monitoring and evaluation
  - Planning error
  - Poor quality control
  - Leadership issues and concerns
- **Logistics and Infrastructure Risks**
  - Transportation
  - Energy cost
  - Irrigation
  - Post-harvest facilities
  - Farm-to-market roads
  - Fishing Ports
- **Labor and Health Risks**
  - Lack of labor
  - Illness
  - Accidents and Injuries
  - Death

- **Market and Price Risks**
  - Change in demand of product
  - Fluctuating prices
  - Low price
  - Limited supply
- **Biological Risks**
  - Pest
  - Disease
  - Pesticide and chemical Contamination
  - Fish kill and salinity

Exercise 2. RISK ASSESSMENT

Direction: Group the trainees into 4 teams comprising 5 members each. Assign one team to discuss and answer the different questions based on their understanding and experiences. Given enough time of at least 10 to 15 minutes to process; request one member from each team to present their group output. Finally, solicit further insights and additional inputs before giving the final synthesis and concluding statement.

- **Objective setting**
  - What is the main objective of the microfinance institution from agricultural lending for poor rural people?
  - How do you set the risk management objectives of the organization?
  - What is the current goal of the organization?
  - What is the long term goal of the organization?

- **Risk Identification, Risk Assessment and Risk Response**
  - What is the risk that the microfinance institutions are facing? For example, credit risk, liquidity risk etc.
  - What cause such a risk?
  - How do you assess the risk of the organization?
  - How do you prioritize the important of those risks type?
  - What are the factors that need to consider for assessing organization risk?
  - How do you response the risk identified by the organization?
  - What are the strategies you've used in order to manage risk?

- **Question about risk communication and risk monitoring**
  - How do you communicate risk of the organization to employees?
  - Do the employees know the organization's risk factors?
  - What is the role of employees in term of organization risk management?
  - How often do you monitor the organization's risk factors?
  - How do you access risk data base?

- **Access to finance of farmers**
  - How do farmers normally finance input costs?
  - What type of financing? What are the terms?
  - What time of year is financing needed?
  - What types of collateral do they normally provide?
  - Have there been experiences with rescheduling or default? If so, when and why?

Exercise 3. RISK DETERMINATION AND CATEGORIZATION (Matrix on Risk and Areas Affected)

Direction. The exercise will be done individually between 5 to 10 minutes. Tick the different risk types/ hazards vis-à-vis the different zones where these are experienced and addressed by the financial institutions and their clientele.

Risk Types/Hazards	Hill Areas	Wet Lands	Flooded Plains	Drought Areas	Coastal Areas	Others, please specify
1. Weather Risks						
Periodic deficit rainfall						
Excess rainfall						
Temperature variability						
Strong wind						
Hail storms/rains						
Others, please specify						
2. Biological Risks						
Pests						
Diseases						
Contaminations						
Others, please specify						
3. Market Risks						
Change of demand of products						
Low pricing						
Excessive supply resulting to wastage and spoilage of products						
Others, please specify						
4. Labor and Health Risks						
Lack of labor						
Illness and or injury						
Death						
Others, please specify						
5. Logistics and Infrastructure Risks						
Transportation						
Energy cost						
Irrigation						
Farm Machinery Malfunction						
Others, please specify						
6. Management and Operational risks						
Planning error						
Poor quality control						
Lack/inadequate M&E						
Others, please specify						
7. Policy and Political Risks						
Regulatory change						
Political upheaval						
Disruption of market						
Others, please specify						
8. Natural Disaster						
Flood						
Drought						
Cyclone/Hurricane						
Earthquake						
Others, please specify						

Exercise 4. CREATING A VIABLE AND FEASIBLE RISK MANAGEMENT STRATEGIES AND PRACTICES TO IMPROVE AN EFFECTIVE AND EFFICIENT M&E SYSTEM IN MANAGING RISKS

Directions. Group the trainees into 4 teams comprising 5 members each. Assign one team to discuss and answer the different questions based on their understanding and experiences. Given enough time of at least 10 to 15 minutes to process; request one member from each team to present their group output. Finally, solicit further insights and additional inputs before giving the final synthesis and concluding statement.

Questions:

- What are the characteristics of a workable (viable and feasible) and appropriate risk management system? What needs to be done? Who determines these characteristics?
- What are the features and required factors in developing risk management programs, products and services?
- What are the characteristics of an effective and efficient risk management Monitoring and Evaluation System? Who determines these characteristics?
- What are the ways in improving M&E system in enhancing and strengthening financial institutions' operation? Who are the key players/actors to do the operation?

Possible Responses

What are the characteristics of a workable (viable and feasible) and appropriate risk management system? What needs to be done? Who determines these characteristics?

- **Characteristics/Process**
  - know VMOG
  - Identify risks
  - Measure
  - Review methods, processes in mitigating risks
  - define roles and responsibilities
  - Need for a MIS
- **Actors**
  - Board
  - Heads of department
- **Build an organization culture**
  - Promotion and Campaign
  - Development
  - Capability Building and Institutional Development
  - Management Information System (MIS) improvement

What are the features and required factors in developing risk management programs, products and services?

- Gender Sensitivity, Women involvement and participation
- Competitive scenarios – appropriate utilization and application of programs, products, and services including outreach, replication and pilot testing
- Social-Political-Economic-Ecological aspects to development (stability, security and sustainability of cultural influences including demographics, infrastructures, resources and logistic support plus the profile of people (stakeholders) and characterization of communities)

What are the characteristics of an effective and efficient risk management Monitoring and Evaluation System? Who determines these characteristics?

- **Characteristics**
  - Set objective
  - Define system parameters, and requirements
  - People to run, use and apply the system including their K-I-C
  - Involve the users of the system
- **Determinants**
  - Stakeholders
  - Policy makers
  - Officers – business owners
  - Other users

What are the ways in improving M&E system in enhancing and strengthening financial institutions' operation? Who are the key players/actors to do the operation?

- **Consideration – 3 line defence**
  - Management level
  - Business and strategic level
  - Clientele level
- **Ways**
  - Instituting and maintaining an organizational culture appropriate for all stakeholders and key players
  - Effective and efficient governance
  - Understanding and working on a manageable risks appetite at all levels of implementation
  - Utilization and application of an effective, organized and systematic information and communication technology tools and methods
  - Sustainable planning of activities either quarterly, semi-annually or annually
  - Effective reporting and efficient monitoring and evaluation system

Exercise 5. DATA REQUIRED IN ADDRESSING RISKS ENCOUNTERED BY CLIENTELE

- Identify what are the data needed by the institutions to assist clientele in managing risks
- This is a group work that must be facilitated and presented for drawing other ideas, insights, views and perspectives

TRAINING TIMETABLE

Training on Financial Risk Management and Agricultural Insurance for Rural People and Communities
(Date to be determined)
(Venue to be identified and scheduled)

SUGGESTED SCHEDULE OF ACTIVITIES

Date	Activity	Details
Day 0	Arrival of Participants Registration and Training Briefing-orientation (given upon check-in)	
Day 1 8:30 am	Opening Program • Opening and Welcome Remarks • Introduction of Participants • Presentation of the Rationale and Objectives of the Training-Workshop • Photo Session	To be handled by the Training Management Team
9:30 am	Levelling of Training Expectations and Activities • Group Activity • Training Process and Visualization	To be handled by the Lead Training Program Coordinator
9:45 am	**TEA/COFFEE BREAK**	
10:00 am	**INTRODUCTION** • Regional Situation of Rural and Agricultural Development in Asia and the Pacific • Policies, rules and regulations related to risk management and agricultural insurance • Challenges and Future direction towards sustainable agricultural development and financial access	To be presented by the invited Resource Speaker
11:30 am	**Institutional or Country Presentations (1 and 2)** • Participant 1 • Participant 2	The participants will have 5 to 8 minutes presentation and 2 minutes Question & Answer
12:00 nn-1:30 pm	**LUNCH BREAK**	
1:31 pm	**Activity 1** – *Understanding Risks (identification, consolidation and prioritization)*	To be handled by the Training Program Coordinator and or Facilitator
2:00 pm	**Module 1** *Perspective of Risk Management in Rural Finance* • Risk in Agriculture and Changing Environment • Importance of Risk Management in Sustainable Rural Finance	To be handled by the invited Resource Speaker
3:30 pm	**TEA/COFFEE BREAK**	
3:31 pm	**Institutional or Country Presentations (3, 4 and 5)** • Participant 3 • Participant 4 • Participant 5	The participants will have 5 to 8 minutes presentation and 2 minutes Question & Answer

Date	Activity	Details
4:15 pm	**Activity 2** – *Financial Risk Management Framework Enhancement and Strengthening*	To be handled by the Training Program Coordinator and or Facilitator
5:00 pm	Presentation and Open Discussion	
6:30 pm onwards	**WELCOME DINNER**	
Day 2		
8:00 am	**Wrap of Day 1 Activities**	
8:30 am	**Module 2** *Understanding Risk Management* • Risk Management in Rural Finance • Strategic Risk Management Framework for Rural Finance Institutions	To be handled by the invited Resource Speaker
10:00 am	**TEA/COFFEE BREAK**	
10:16 am	**Institutional or Country Presentations (6, 7, 8, and 9)** • Participant 6 • Participant 7 • Participant 8 • Participant 9	The participants will have 5 to 8 minutes presentation and 2 minutes Question & Answer
11:30 am	Open Discussion	
12:00 nn-1:30 pm	**LUNCH BREAK**	
1:31 pm	**Activity 3** – *Capturing Strategies, Practices and Tools in Risk Management at the Institutional and Clientele Levels*	To be handled by the Training Program Coordinator and or Facilitator
2:00 pm *(Tea/Coffee Break will be done within the time period)*	**Module 3** *Credit Risk Management* • Credit Risk Management Cycle • Understanding Rural Credit Market Characteristics • Credit Risk Management Practices in Rural Finance • Developing Credit Risk Management Plan	To be handled by the invited Resource Speaker
4:30 pm	**Institutional or Country Presentations (10, 11, 12 and 13)** • Participant 10 • Participant 11 • Participant 12 • Participant 13	The participants will have 5 to 8 minutes presentation and 2 minutes Question & Answer
5:15 pm	Open Discussion	
Day 3 6:00 am	**FIELD VISIT TO RURAL COMMUNITIES** This activity is suggested to be incorporated in the whole training program to encourage appreciation and immediate acquisition of knowledge related to the application of strategies and approaches in financial risk management and agricultural insurance	This must be coordinated in advance prior to the conduct of the training program

Date	Activity	Details
Day 4		
8:00 am	**Wrap of Day 2 Activities**	
8:30 am	**Module 4** *Implementing, Monitoring and Evaluating Risk Management Plan* • Developing a Monitoring and Evaluation System on Risk Management • Evaluating Risk Management Strategy	To be handled by the invited Resource Speaker
10:00 am	**TEA/COFFEE BREAK**	
10:15 am	**Activity 4** – *Formulating a Workable Monitoring and Evaluation System and Program*	To be handled by the Training Program Coordinator and or Facilitator
11:45 am	Presentation of Activity Outputs and Open Discussion	Groups will present their outputs to solicit ideas and suggestions for improvement
12:00 nn-1:30 pm	**LUNCH BREAK**	
1:31 pm	**Institutional or Country Presentations (14, 15, 16, and 17)** • Participant 14 • Participant 15 • Participant 16 • Participant 17	The participants will have 5 to 8 minutes presentation and 2 minutes Question & Answer
2:10 pm	Open Discussion	
2:30 pm *(Tea/Coffee Break will be done within the time period)*	**Module 5** *Conceptualization, Designing, and Planning Risk Management and Agricultural Insurance* • Designing the Plan and Program ❍ Setting Risk Reduction Goals • Factors Influencing Effective and Efficient Plan and Program • Characteristics of Effective Risk Management Strategies • Risk Communication & Policy Making ❍ Risk Communication Concept, Process and Approaches ❍ Embedding a Culture of Risk in Policy Making ❍ Policy Making and Uncertainty ❍ Understanding the Policy Process to Influence Change ❍ Influences of Policy Process in Risk Management	To be handled by the invited Resource Speaker
4:45 pm	**Institutional or Country Presentation (18, 19, 20 and 21)** • Participant 18 • Participant 19 • Participant 20 • Participant 21	The participants will have 5 to 8 minutes presentation and 2 minutes Question & Answer
5:30 pm	Open Discussion	

Date	Activity	Details
Day 5		
8:00 am	**Wrap up of Day 4 Activities**	
8:30 am	**Module 6** *Approaches, Strategies, Tools, Practices of Risk Management and Agricultural Insurance Program* • Process of implementation ❍ Site Prioritization for Risk Assessment ❍ Pre-screening tools – site prioritization tools • Field Sampling & Validation Procedures ❍ Objectives of Standard Operating Procedure and General Policies ❍ Field Sampling Design and Field Data Sheets ❍ Sampling Methodologies ❍ Collection and Analysis Procedure ❍ Data Quality Analysis and Management • Reporting and Report Preparation	To be handled by the invited Resource Speaker
9:30 am	**Activity 5** – *Development and Formulation of Strategic Plans and Activities*	To be handled by the Training Program Coordinator and or Facilitator
10:00	Presentation of activity outputs and open discussion	
10:30 am	**TEA/COFFEE BREAK**	
10:45 am	• Agricultural Insurance Planning and Programming ❍ Concept and Perspective ❍ Framework of Operationalizing Agricultural Insurance ❍ Agricultural Insurance Strategies and Tools ❍ Factors of Instituting Effective and Efficient Agricultural Insurance Program ❍ Practices and experiences	To be handled by the invited Resource Speaker
11:30 am	**Institutional or Country Presentations (22, 23 and 24)** • Participant 22 • Participant 23 • Participant 24	The participants will have 5 to 8 minutes presentation and 2 minutes Question & Answer
12:00 nn-1:30 pm	**LUNCH BREAK**	
1:31 pm	• Documentation of Risk Management and Agricultural Insurance Plan, Programs and Activities ❍ Documentation Process Methodology	To be handled by the invited Resource Speaker
1:31 pm	• Analysis of Documents for Risk Management and Agricultural Insurance for Policy Formulation and Development including development	To be handled by the invited Resource Speaker
2:30 pm	Open Discussion	

Date	Activity	Details
3:00 pm	**TEA/COFFEE BREAK**	
3:15 pm	Synthesis and Commitment Formulation	To be handled by the Training Program Coordinator and or Facilitator
4:00 pm	Closing Ceremonies • Closing Remarks • Closing Message • Vote of Thanks	To be handled by the Training Management Team
Day 6	Departure of Participants	

Reminders: *(to be prepared by the Training Management Team to be included/distributed as part of the training materials)*

- The Training Management Team encourages active involvement and full participation of the trainees/participants in the different activities.
- Trainees/participants should share and exchange ideas, knowledge and experiences from other institutions or countries. Full engagement and acquisition of information is highly appreciated.
- Field visit and cultural immersion are organized for the trainees/participants. It is suggested that all should observe and interact with the local rural farmers for maximum appreciation and learning.
- Generally, the training meals and snacks are pre-arranged based on dietary requirements/requests. Special meal requests are prepared in advance which are properly coordinated with the hotel. There is a designated table for individuals requiring special meals.

ASIA-PACIFIC RURAL AND AGRICULTURAL CREDIT ASSOCIATION (APRACA)
Room A303, Bank for Agriculture and Agricultural Cooperatives (BAAC)
469 Nakhonsawan Road, Dusit, Bangkok 10300, Thailand

Tel: (+662) 282-0693, 282-1365
Fax: (+662) 280-1524
E-mail: apraca@apraca.org
Website: www.apraca.org