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Expert Panel Presentation II.3:

Investment, insurance and risk management for aquaculture development

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Introduction

- The Bangkok Declaration and Strategy for Aquaculture Development Beyond 2000 emphasized that the continuing development of aquaculture depends heavily on adequate investment in aquaculture.
- It identified several barriers to investment in aquaculture and suggested strategies to reduce these barriers and expand aquaculture investment.

Introduction (Cont.)

- These barriers include:
  - difficulties which aquafarmers face in obtaining finance for investment;
  - their limited access to insurance and
  - the problems they face in managing the high levels of risk and uncertainty associated with their enterprises.

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Coverage

- The full paper:
  - Highlights studies by the FAO since 2000 identifying policies to promote investment in aquaculture, to extend insurance cover, and improve risk management.
  - Reviews objectives and recommendations for promoting investment in aquaculture contained in the Bangkok Declaration and Strategy for Aquaculture Development.
  - Considers recent trends in aquaculture production and their implications for aquaculture investment.
  - Examines continuing obstacles to aquaculture investment, particularly difficulties in managing high levels of risk and uncertainty, and the limited availability of insurance cover for aquafarmers.

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Objectives for Investing in Aquaculture in the Bangkok Declaration

- Four broad objectives for aquaculture development and investment are discernable:
  - Promote sustainability.
  - Foster good management of aquaculture.
  - Ensure the efficiency of aquaculture; and
  - alleviate poverty.

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Objectives for Investing in Aquaculture in the Bangkok Declaration (Cont.)

- They are indicative of factors that should be taken into account in aquaculture policy and investment but do not provide a definitive operational guide for determining aquaculture policy.
- A number of useful specific suggestions were also made.

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Specific Recommendations for Aquaculture Investment

- Complementary public investment is required if private investment is to yield its full potential.
- Governments should subsidize/facilitate private investment in newly emerging types of aquaculture and in aquaculture in new locations.
- Public investment is needed to support rural and small-scale aquaculture in developing countries.

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Specific Recommendations for Aquaculture Investment (Cont.)

- The public sector should encourage private sector investment in projects and infrastructures yielding community-wide benefits, for example, processing plants and cold stores for aquaculture in rural areas.
- Governments should develop mechanisms to encourage environmentally and socially responsible investment in aquaculture.
- Establish credit schemes that support sustainable aquaculture, for example, micro-credit programmes.

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Specific Recommendations for Aquaculture Investment (Cont.)

- International financial institutions and assistance agencies should be made more aware of the financial needs of aquaculture and the positive contribution that aquaculture investment can make to poverty alleviation.
- To a large extent, these recommendations are also indicative of specific investment issues rather than definitive.

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Some Major Obstacles to Private Aquaculture Investment to be Considered

- Small aquafarmers find it difficult to obtain finance because of:
  - The high risk of returns from this investment.
  - The relatively high cost of transacting small loans.
  - Inadequate collateral.
- The problem is compounded because the access of aquafarmers to insurance is limited.
- High risks, lack of finance and insurance limit private investment in aquaculture.

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Barriers to Expanding Aquaculture and Emerging Investment Issues

- Before addressing the chronic issues just mentioned, let me consider an emerging issue.
- According to recent FAO findings, the growth rate of aquaculture production has started to fall, following a long period of accelerated growth.
- This decline probably reflects a falling rate of return on extra aquaculture investment, a decline in the rate of growth of aquaculture investment and growing constraints on resource availability.

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Barriers to Expanding Aquaculture and Emerging Investment Issues (Cont.)

- Why is there a slow down in the growth of aquaculture?
  - Most sites that provide the highest returns on aquaculture investment may be already utilized.
  - Because of economic growth, there is increasing competition from other industries and users for natural resources used by aquaculture, especially water.
  - Sustainability and environmental concerns are growing constraints also.

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Barriers to Expanding Aquaculture and Emerging Investment Issues (Cont.)

- What are the implications?
  - Future expansion of aquaculture production is likely to become more dependent on its intensification and less reliant on its extension.
  - Therefore, the expansion of aquaculture production will depend more heavily on scientific and technological advances. In turn this will make it more dependent on investment on R&D, and on innovations.

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Further Implications for Investment in Aquaculture

- Future investment in aquaculture will:
  - Involve capital deepening rather than widening.
  - Increasing the ratio of capital to other resources used in aquaculture.
  - Apart from greater use of man-made physical capital, increased human capital will play a vital role in determining future productivity.
  - Environmental and sustainability issues will remain important influences on aquaculture investment.
  - Risk and uncertainty will continue to hamper investment.

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Sources of Risk and Uncertainty in Aquaculture

- Aquafarmers face risks and uncertainty on the two main fronts (depicted in Fig.1):
  - For most, their yields are very uncertain.
  - For commercial farmers, prices for their produce are usually uncertain and input prices can also be uncertain.
- Aquaculture yields are subject to much uncertainty because most aquafarmers have little or no control over many variables influencing their yields e.g. water quality, weather conditions.
- Sharing of water bodies is a major influence on these risks (Fig. 2).

Figure 1: Main Sources of Risk and Uncertainty in Aquaculture

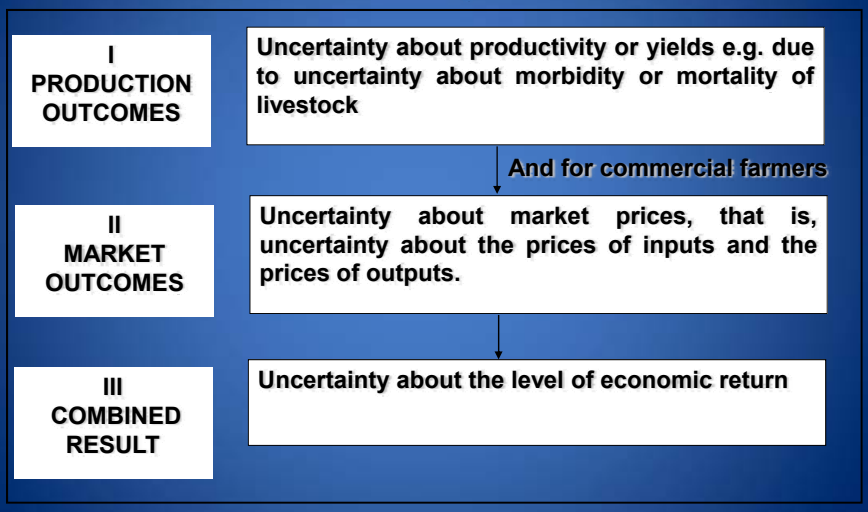

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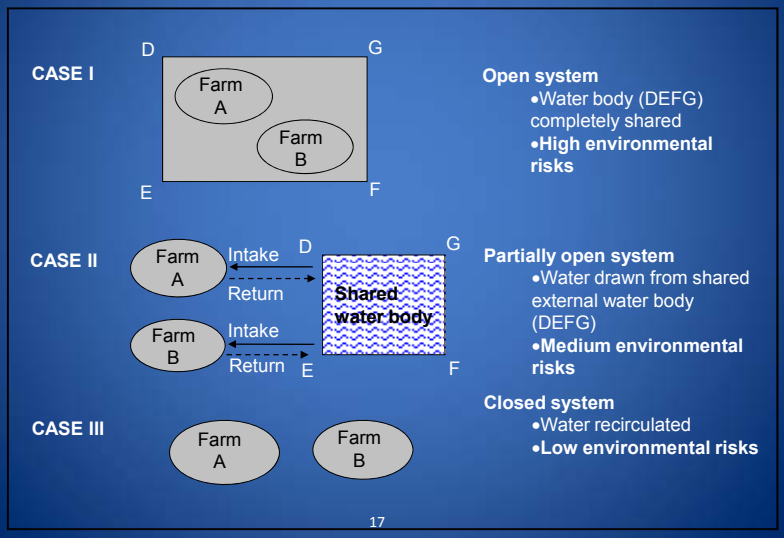
Figure 2: Exposure to risk in aquaculture depends on the extent to which water resources are shared.



Consequences for Investment of Risk and Uncertainty

- Because the returns from aquaculture are uncertain and because most people are risk-averse, investment in aquaculture is reduced.
- This results in under investment in aquaculture from a social viewpoint. Economic theory shows that (under a wide range of conditions) greater investment in this case would reduce economic scarcity, and therefore, could be advantageous.

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Consequences for Investment of Risk and Uncertainty (Cont.)

- This under investment problem is more acute in aquaculture than most other industries because it experiences higher levels of risk and uncertainty.
- Aquafarmers with small holdings are less able to cope with this uncertainty and could be deserving of greater government assistance than aquafarmers with large holdings.

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Sources for Reducing Risk in Aquaculture

- The main sources for risk reduction are:
  - Appropriate actions by individual aquafarmers themselves.
  - Voluntary social actions, e.g. by NGOs.
  - Provision of commercial services, e.g. by insurance companies.
  - Appropriate government policies and responses.

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Sources for Reducing Risk in Aquaculture (Cont.)

- Most strategies for reducing risk and uncertainty are not costless, and their benefits need to be weighed against their costs.
  - This implies that:
    - If the cost of a risk-reducing action exceeds its benefit, it cannot be justified on economic grounds.
    - Only limited risk-reducing action might be economic because beyond some point, the cost of greater action exceeds benefit.

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Ways Individual Aquafarmers Can Reduce their Risks

- Improving farm management, e.g. greater diligence.
- Selecting species and techniques involving lower risk.
- Limiting their indebtedness.
- Limiting investment that could result in high sunk costs, e.g. irrecoverable capital outlays.
- Diversifying their production.
- Taking out insurance, if it is available.

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Ways Individual Aquafarmers Can Reduce their Risks (Cont.)

- None of these risk reducing strategies are without some cost to aquafarmers.
- Many of these risk reducing strategies result in the total output from aquaculture being below its economic potential.
- Adoption of private risk-reducing strategies usually have a private and a social cost.

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Voluntary Social Actions to Reduce Risk

- If aquafarmers can co-operate they can:
  - Engage in some sharing of risks.
  - Adopt collective action to control environmental spillovers, e.g. control of diseases.
  - Undertake collective action and supervision to increase their access to insurance.
- However, voluntary social co-operation is often difficult to achieve and can be fragile.

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NGOs and Risk Reduction

- NGOs can help aquafarmers reduce risk by:
  - Providing them with micro-finance on favourable terms.
  - Giving grants to aquafarmers.
  - Disseminating relevant knowledge to them.
- NGOs can be more flexible than government bodies in meeting social needs.

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Private Insurance Companies

- Although guided by their own self-interest (profit-seeking), they play a positive social role in reducing risks.
- Their economic viability depends on the pooling of their risks and inclusion in their premiums of a charge to cover their administration costs.

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Private Insurance Companies (Cont.)

- Cannot cover all risks faced by aquafarmers because:
  - The cost of insurance coverage is too high for some farmers, especially smallholders.
  - Some risks cannot be reduced by pooling.
  - Some events may cause large and widespread losses, such as major natural disasters, exceeding the capacity of insurance companies to pay compensation.
  - High moral hazards.

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Private Insurance Companies (Cont.)

- FAO experts have considered various schemes (discussed later) involving co-operation between governments and private insurance companies that could extend the insurance cover available to aquafarmers.
- There are, however, some hurdles to overcome in implementing these schemes.

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Government Interventions to Reduce Aquafarmers' Risks

- Governments can intervene to reduce aquafarmers' risks. But governments have limited resources. Intervention is not costless and therefore, priorities are needed.
- Government means of intervening include:
  - Subsidising the investment or production of aquafarmers.
  - Underwriting their losses in particular cases.

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Government Interventions to Reduce Aquafarmers' Risks

- Provision of appropriate information to aquafarmers.
- Promoting R&D, the applied results of which reduce risk.
- Adopting measures that can reduce some environmental risks, e.g. the risk of adverse environmental spillovers or externalities caused by humans.

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Institution Building and Risk Reduction

- Other ways in which governments can reduce risks in agriculture include:
  - Strengthening the property risks of aquafarmers.
  - Ensuring clarity of the law and speedy cost-effective legal remedies.
  - Supporting institutional arrangements that facilitate risk-sharing.

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Institution Building and Risk Reduction (Cont.)

- Institutional structures facilitating risk-sharing include:
  - Shared ownership of enterprises e.g. partnerships, companies.
  - Limited liability of businesses.
  - Co-operative arrangements between aquafarmers.
  - Presence of insurance companies.
- Small-scale aquafarmers often cannot take advantage of these structures.

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Government Measures to Extend Private Insurance

- As discussed in the background paper, private insurance cover for aquaculture is very limited and is unaffordable/unavailable to most small-scale aquafarmers.
- FAO experts have examined ways government policies might extend insurance cover. These policies include:
  - Subsidising insurance premiums of aquafarmers, especially those of small-scale aquafarmers.

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Government Measures to Extend Private Insurance (Cont)

- Paying a portion of aquaculture losses not recoverable from private insurers.
- Compensating aquafarmers for losses due to natural disasters.
- However, this assistance may still not be sufficient to entice small-scale aquafarmers to insure.
- The ability of governments to compensate aquafarmers for losses caused by natural disasters depends on the scale of the disaster and a country's wealth.

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Conclusions

- As a result of economic growth, the investment environment facing aquaculture is changing. It faces increasing natural resource and environmental constraints.
- Future growth in aquaculture production is likely to rely more on investment in intensive techniques of production and less on extension.
- High levels of risk and uncertainty in aquaculture continue to constrain aquaculture investment and result in less investment in aquaculture than is socially optimal.

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Conclusions (Cont.)

- No magic formula exists to eliminate aquaculture risk and uncertainty but measures have been outlined that can help to reduce it.
- These include measures by individual aquafarmers, groups of aquafarmers, NGOs and governments. Possible government measures are wide ranging. They include measures to increase the access of aquafarmers to private insurance.

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