

Report of the

**REGIONAL WORKSHOP ON METHODS FOR AQUACULTURE POLICY
ANALYSIS, DEVELOPMENT AND IMPLEMENTATION IN SELECTED
SOUTHEAST ASIAN COUNTRIES**

Bangkok, 9–11 December 2009



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PREPARATION OF THIS DOCUMENT

This document is the report of the Regional Workshop on methods for aquaculture policy analysis, development and implementation in selected Southeast Asian countries, held from 9 to 11 December 2009 in Bangkok, Thailand. The workshop was organized by the Development Planning Service of the Fisheries and Aquaculture Department of FAO (FIEP) in collaboration with the FAO Regional Office for Asian and the Pacific (RAPI) and the Network of Aquaculture Centres in Asia and the Pacific (NACA). Funding for the workshop was provided by the FAO Regular Programme. The report documents the outcomes of capacity building exercises and discussions held during the workshop. It also contains summaries of the presentations and analyses made by participating countries.

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ABSTRACT

The Regional Workshop on Methods for Aquaculture Policy Analysis, Development and Implementation in Selected Southeast Asian Countries was held in Bangkok, Thailand, from 9 to 11 December 2009. It was co-organized by FAO and the Network of Aquaculture Centres in Asia and the Pacific (NACA). A total of 18 participants attended the workshop, from Cambodia, Indonesia, Thailand, Myanmar, Philippines, Viet Nam and Malaysia. The Southeast Asian Fisheries Development Centre (SEAFDEC) and the Secretariat of the Association of Southeast Asian Nations (ASEAN) were also represented. The workshop was in response to a request from the Sub-Committee on Aquaculture (New Delhi, 2006) to provide and disseminate information and advice on aquaculture policy formulation and implementation. It constituted an opportunity to build capacity related to aquaculture planning and policy development in the selected countries by providing participants methods for aquaculture policy analysis, formulation and implementation, and a follow-up to the recommendations of the Expert Consultation on Improving Planning and Policy Development in Aquaculture held in Rome in 2008. Through a series of presentations on the status of aquaculture planning in participating countries, discussions, group work and facilitated exercises, participants identified participation, achievability, accountability, continuity, monitoring and evaluation, and balancing goals as the six characteristics that aquaculture policies should bear. Participants were encouraged to critically reflect on their own experiences through a strengths, weaknesses, opportunities and threats (SWOT) analysis of the planning processes undertaken in their countries and on the relevance of the contents of their aquaculture policies. Discussions led to the formulation of a number of recommendations to make the contents of the outline for the FAO technical guidelines for aquaculture policy formulation and implementation more specific to Southeast Asian circumstances. The workshop also generated a number of ideas to lay a foundation for a common vision for aquaculture development in Southeast Asia.

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PART 1 – WORKSHOP REPORT

BACKGROUND

1. The production of fish for food from aquaculture has been steadily growing and now accounts for 50 percent of the total global fish production. With production from capture fisheries reaching a plateau, this trend is expected to continue in the next decade to meet the increasing demand for aquatic products, fuelled both by population growth and higher revenues. The sector will need proper planning through the formulation of appropriate and supportive policies that create an enabling environment for sustainable aquaculture development so that aquaculture can fulfill its role as the main supplier of quality food fish, and as a vector of economic growth and poverty alleviation.

2. In general terms, the act of planning provides the means to regulate, in the public interest, the development of an activity in order to achieve a defined set of goals and objectives. Planning reduces risks, informs decision-making and establishes trust. It also conveys information and establishes the “way ahead” (what to do, when, how, by whom and at what cost). However, planning is not a magic formula for achieving developmental progress. Inadequately carried out, it will yield results that may not be any better than no provisions for planning at all (Hamlish, 1988). In addition, the outcomes of planning processes (i.e. policies, strategies and plans) rely on political will, commitment and support, stakeholder participation and resource allocation (Conroy and Berke, 2004). These considerations apply to aquaculture development where planning is an important process that will stimulate and guide the evolution of the sector by providing incentives and safeguards, by attracting investments and boosting development, while ensuring long-term sustainability (economic, environmental and social), to ultimately contribute to economic growth and poverty alleviation.

3. Yet, planning and policy implementation related to aquaculture are impeded by a number of factors relating to: i) limited human and institutional capacities; ii) confusion over terminology and requirements; iii) weak consultation and policy formulation processes; and iv) information gaps. This can lead to wrong economic choices and inappropriate policies. It could also result in the slow, uncoordinated and unsustainable development of aquaculture, as well as in conflicts within and outside the sector.

4. Confronted with the challenges of integrating and managing multiple stakeholder interests, allocating sufficient funds and resources to planning processes and policy implementation, developing the necessary human capacity, preventing and mitigating conflicts, devising supportive legislation and ensuring continuity in the face of political changes, members of the Sub-Committee on Aquaculture called for the continuous support of FAO in providing and disseminating information and advice on aquaculture policy formulation and implementation (Committee on Fisheries, 2006).

5. A first step in this direction was made through the holding of an FAO Expert Consultation on improving planning and policy development in aquaculture in 2008, which agreed on the definitions of “policy”, “strategy” and “plan”¹ and produced an outline for FAO Technical Guidelines on how to improve the process of aquaculture policy formulation and policy implementation (FAO, 2008).

6. The present regional workshop responds to the request of the Sub-Committee on Aquaculture to FAO and builds on the outcomes of the 2008 Expert Consultation. It focuses on selected Southeast Asian countries where aquaculture is developing rapidly but where aquaculture planning is still in

¹ An aquaculture **policy** consists of a broad vision for the sector, reflecting its directions, priorities and development goals at various levels including provincial, national, regional and international.

A **strategy** represents a roadmap for the implementation of a policy and contains specific objectives, targets and instruments to address issues which might stimulate or impede the comparative advantage of the sector and obstruct its development.

An (action) **plan** represents a roadmap for the implementation of a strategy, that is, to achieve its objectives and implement strategy instruments. It is time-bound, contains specific programmes and activities, and details the resources required to achieve them.

infancy. The workshop was organized and convened by the Development Planning Service of the Fisheries and Aquaculture Department of FAO (FIEP) in collaboration with the FAO Regional Office for Asia and the Pacific (RAPI) and the Network of Aquaculture Centres in Asia and the Pacific (NACA). Representatives from the governments of Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Viet Nam, and from the ASEAN (Association of Southeast Asian Nations) and SEAFDEC (Southeast Asian Fisheries Development Centre) Secretariats participated in the workshop. The full list of participants is provided in Appendix B.

OPENING OF THE MEETING

7. Dr C. Brugère officially opened the workshop and welcomed all participants on behalf of the Director-General of FAO. In her opening address, she highlighted the diversity of aquaculture policies in the region and stressed the importance of coherence in planning to ensure the long-term sustainability and economic contribution of the sector. The importance of aquaculture in Southeast Asia was given as one of the reasons for initiating capacity building to strengthen aquaculture policy formulation and implementation in the Asian region.

8. Mr K. Yamamoto, of NACA, also welcomed participants and, on behalf of the Director-General of NACA, conveyed his good wishes for a productive workshop, looking forward to concrete results that would assist the countries in the region in strengthening their aquaculture policy development efforts.

9. Mr S. Vichitlekarn, of the ASEAN Secretariat, also welcomed participants on behalf of ASEAN. He noted the importance of fisheries and aquaculture in this region and the long history of working together with FAO and NACA. He described the plans for the building of an ASEAN Community by 2015, which will act as a single unit in accessing the global market, in which aquaculture and fisheries will play a major role.

10. Mr S. Vichitlekarn was nominated by Thailand and seconded by Malaysia and unanimously elected to chair the workshop.

ADOPTION OF THE AGENDA

11. The elected Chair introduced the provisional agenda which was adopted without change (shown in Appendix A).

OBJECTIVES OF THE WORKSHOP

12. The specific objective of the workshop was to build capacity related to aquaculture planning and policy development in the participating countries by providing participants methods for aquaculture policy analysis, formulation and implementation.

13. Workshop outputs include: (i) a collection of national case studies based on the presentations made by participating countries during the workshop and national SWOT analyses of aquaculture policy formulation processes and contents; (ii) recommendations for the development of specific technical guidelines on planning and policy formulation and implementation for aquaculture development for Southeast Asia, on the basis of the existing generic FAO technical guidelines on the subject; (iii) a list of trends and key characteristics of aquaculture in future years upon which countries and organizations such as ASEAN and SEAFDEC should focus to maintain the sector's regional comparative advantage and which could lay the foundation for a "common vision" for aquaculture development in Southeast Asia.

14. It is foreseen that the outcomes of this workshop will feed into future events such as the 2010 FAO/NACA Global Aquaculture Conference and the 2011 ASEAN/SEAFDEC Regional Conference on Sustainable Fisheries for Food Security towards 2020.

15. The workshop was structured to encourage participants' inputs, reflections and self-learning, using presentations as case study materials in discussions and analytical sessions based on facilitated exercises.

16. Participants were encouraged to take home the knowledge gained through the sharing of experiences during the workshop and to seek ways to implement this new knowledge in their professional capacity, at national level.

COUNTRY PRESENTATIONS AND DISCUSSIONS

17. The first day of the workshop was dedicated to participants presenting the current status of aquaculture planning in their countries. Presentation guidelines had been circulated to ensure that presentations addressed thematic issues related to the planning processes undertaken at national levels, the overall structure of the planning documents, their salient features and their coherence with international concerns and approaches to development. Presentation authors were also encouraged to critically reflect on the effectiveness of the planning processes undertaken and on the means in place to implement their aquaculture policies. The free exchange of information and sharing of experiences proved to be a useful knowledge-enhancing exercise and constituted an excellent basis for subsequent discussions and facilitated sessions.

18. Detailed country summaries are provided in Part 2 of this report. The points that follow were noted in the discussion/synthesis held after the presentations.

19. Aquaculture planning in the region is advancing rapidly in many of the countries in Asia and the importance of sound planning is well recognized. These advances, and particularly the rich diversity of policies and plans in the region, were highlighted. It was noted that it is often necessary to strike a balance between potentially contradicting key policy goals (e.g. environmental sustainability and food security).

20. There is a growing awareness of the importance of adopting an ecosystem approach to aquaculture development and attempts are made at integrating it in aquaculture development planning.

21. Good governance characteristics, such as participation, consensus, effectiveness and efficiency, accountability, transparency, equity and the rule of law (UNDP, 1997; ESCAP, 2009) were reiterated as necessary to allow effective policy contributions to the development of the sector.

22. A variety of means and methods for tackling aquaculture policy formulation was noted. These ranged from bottom-up consultative processes, strengths, weaknesses, opportunities and threats (SWOT) analyses to new approaches such as "outcome-based approaches" (replacing "output-based approaches") in devising policy contents.

23. The strong linkage between research outputs and policy in terms of guidance and influence policy (e.g. Viet Nam) was noted.

24. High consideration is given to the broader context of aquaculture development, e.g. high-level national development objectives and international development paradigms emanating from international conferences and summits.

25. However, formulating strategies and plans to implement policies whose goals have been decided at highest levels but which may not be aligned with realistic production targets, remains a challenge for those in charge of implementing aquaculture policies.

26. Policy contents and timeframes vary according to the nature of the governments in place (e.g. Myanmar versus Thailand).

27. This point echoed the mention of the challenge of decentralization in effective policy implementation between national and local levels of government.

28. Another challenge to policy implementation relating to the influence of donor orientations and priorities (allocation of funding) was also noted.

29. The question of increasing the scope for collaboration among Southeast Asian countries, perhaps towards the formulation of a common aquaculture development policy, was raised.

CAPACITY BUILDING, ANALYTICAL SESSIONS AND DISCUSSIONS

“Perfect” aquaculture policies

30. A presentation was made by Dr C. Brugère (FAO, FIEP) to clarify a number of definitions and planning concepts.

31. This was followed by a brainstorming exercise which objective was to determine, in the participants’ own words, the characteristics of a “perfect” aquaculture policy. The experiential objective of this exercise was to test knowledge gained so far and to engage participants in reflecting on what they should strive to do in terms of aquaculture planning.

32. The exercise led to the identification of the following as the six characteristics upon which a “perfect” aquaculture policy (and the implementation process going with it) should be based (note that they are not ranked):

- participation,
- achievability,
- accountability,
- continuity,
- monitoring and evaluation,
- balancing goals.

33. Participants agreed that achieving all of the above would lead to effective policy implementation. However, they expressed doubts over their individual capacity to *influence* policy. Discussion focused on processes in place in each country to influence policy-making processes. Questions concerning the revision and adjustment of policy development processes (particularly if these are actually not requested by the central government) were raised and discussed.

34. In order to influence policy-makers in a country, the importance of international guidelines was noted. It was agreed that participants would return to some of these issues with a review of the existing FAO technical guidelines documents on the last day of the workshop.

SWOT analysis of national planning process and aquaculture policies

35. The objective of the session was for participants to analyse planning processes and aquaculture policies at national levels, bearing in mind characteristics of good policies identified earlier, i.e. participation, achievability, accountability, continuity, monitoring and evaluation, and balancing goals. As part of capacity building, the experiential objective was to encourage critical analysis.

36. Table 1 summarizes the salient features of all analyses combined. Individual SWOT tables are included in Part 2 of the report.

Table 1: Salient features of strengths, weaknesses, opportunities and threats (SWOT) analyses of planning processes and aquaculture policies at national levels.

<p>Strengths – <i>Existing or potential resources or capability</i></p> <ul style="list-style-type: none"> – Participatory processes in formulation (Cambodia, Malaysia, Philippines, Thailand) – Long-term planning horizon with regular intermediary reviews (Cambodia, Malaysia, Myanmar) 	<p>Weaknesses – <i>The existing or potential internal forces that could be a barrier to achieving aquaculture policy objectives/results</i></p> <ul style="list-style-type: none"> – Implementation and management gap between higher and lower levels of government (institutional and governance issue) (Cambodia, Indonesia, Myanmar, Philippines, Thailand, Viet Nam) – Monitoring and evaluation (Indonesia., Myanmar, Philippines, Viet Nam)
<p>Opportunities – <i>The existing or potential factors in the external environment that, if exploited, will help implement aquaculture policies and could provide a competitive advantage to the sector</i></p> <ul style="list-style-type: none"> – Increased demand for aquaculture products (domestic consumption and exports) (Cambodia, Malaysia, Myanmar, Viet Nam) – Growing interest in the activity because of job creation (Cambodia, Indonesia, Myanmar, Viet Nam) and because it attracts investments (Cambodia) and international support (Philippines) – Increased regional cooperation re. aquaculture development (Cambodia, Thailand, Viet Nam) – Availability of natural resources (Indonesia, Thailand, Viet Nam) 	<p>Threats – <i>The existing or potential force in the external environment that could hamper aquaculture policy implementation and inhibit maintenance or attainment of the unique advantage of the sector</i></p> <ul style="list-style-type: none"> – Climate change (Cambodia, Indonesia, Malaysia, Viet Nam) – Trade agreements and economic factors, incl. economic crisis and competition (Malaysia, Thailand, Viet Nam) – Political change and by-in (Myanmar, Philippines, Thailand) – Conflicts with other resource uses, including pollution and environmental degradation (Cambodia, Indonesia, Malaysia, Thailand)

RECOMMENDATIONS ON IMPROVEMENTS TO THE GENERIC FAO TECHNICAL GUIDELINES ON PLANNING AND AQUACULTURE POLICY FORMULATION AND IMPLEMENTATION

37. The outline for FAO technical guidelines on policy formulation and implementation for aquaculture development is presented in Appendix C. It was the first time, since its formulation by experts in 2008, that the outline was submitted to practitioners for their appreciation. There was a general discussion about its relevance and use, with a general positive feedback on its contents. Key improvements to bring to the guidelines to make them more specific to the Southeast Asian context are listed hereafter.

38. More background information needs to be added to introduce the need to understand better previous policy successes or failures, as well as emerging challenges and international factors that require consideration prior to initiating a policy formulation process and that will deserve addressing in the new policy.

39. While policy formulation steps are clearly indicated in FAO guidelines, there is a need to better understand the steps required in the translation of policy goals into strategies and plans. To this effect, more detailed and practical information on the means of “moving” through the sequence national policy > fisheries and aquaculture policy > aquaculture development strategy and implementation plan, needs to be provided.

40. The formulation of contingency plans to address unforeseen issues (e.g. fuel price crises, weather/disaster or animal disease-related emergencies, etc.), as part of the policy implementation process needs to be considered.

41. More emphasis should be placed in the guidelines on: (i) formulating strategies and plans themselves, rather than “policies” as such, which, given their broader scope, usually emanate from higher spheres of government and constitute the given framework within which aquaculture planners and implementers have to operate; (ii) bringing Environment Departments more closely on board at all planning stages; (iii) resorting to non-governmental organizations (NGOs) to enhance participatory and bottom-up processes in formulation processes; (iii) taking advantage of decentralized structures and (positive) political interferences in implementation phases; (iv) treating with caution private sector lobbying when it may be against national priorities and interests; (v) considering broader national plans (social and economic) as well as external factors such as regional/international instruments (e.g. ASEAN community framework) that can play an important role; (vi) highlighting that adequate time needs to be given to the process of formulating policies and strategies/plans, and that if too short a timeframe, focus may remain on practical measures that are not comprehensive enough to achieve policy goals.

42. It was recommended to draw clear lines between different types of communications and their requirements, for example between getting feedback on policy implementation, which requires a thorough consultation, and feedback on regulations of policies, which may not require consultation at the farm level.

43. Short-term plans, developed within the longer timeframe of policies, were found to be more adapted to the Southeast Asian context as they allow for greater flexibility in approaches (e.g. commodity-based approaches) and in coping with the rapid changes occurring in the region.

44. In the discussion that followed, it was noted that policy reviews often occur through: (i) periodic government restructuring; (ii) outdated processes due to situation changes. Proactive policy change is normally uncommon but rather triggered by reaction-based attitudes or crisis events.

45. Overall, policy formulation steps indicated in the FAO guidelines have been followed by the governments of the participants; however there are obviously variations among countries about the processes they undertook and that need to be borne in mind: countries often establish task forces through which advice is sought from partners and regional organizations with appropriate competencies, whilst others will resort to broader participatory elicitation.

46. Specific perspectives on policy formulation and implementation, complementing the information provided in the presentation, were also shared by participants. In Thailand, the policy review process is driven by feedback from the field. The length of the policy is usually set to three years, and supported by the implementation of three-year commodity-based strategies (for shrimp and tilapia). In Malaysia, although most previous policy development processes have been top down and market driven, changes are underway to highlight poverty alleviation concerns and the use of co-management. In Cambodia, policies focus on small-scale farmers and in co-opting their views through strengthened participatory approaches. This was achieved, for example, by working with more than 3 000 NGOs (1 000 international, 2 000 domestic) in this process. In the Philippines, policy is sometimes formulated at the level of the President and then comes down to the Bureau of Fisheries and Aquatic Resource (BFAR) leading to a mix of top-down as well as bottom-up approaches. Planning has been restrained by available funds, with a scope that may be too short termed and/or responsive rather than proactive.

47. The discussion led to practical recommendations to help strengthen aquaculture policy formulation and implementation processes, using the key characteristics of “perfect” policies previously defined. This is summarized in Table 2.

GENERATION OF IDEAS FOR A COMMON VISION FOR AQUACULTURE DEVELOPMENT IN SOUTHEAST ASIA

48. The objective of this session was to reflect on past trends and generate ideas related to the future directions of aquaculture development in the region, based on the identification of emerging, established and diminishing trends in the aquaculture sector. This exercise yielded a list of the characteristics for aquaculture development in future years upon which countries and regional organizations such as ASEAN and SEAFDEC should focus to maintain the sector's comparative advantage. Table 3 presents the visual output from this exercise.

Diminishing trends

49. Direct subsidies, chemical use, inconsiderate resource exploitation (e.g. mangroves) were identified as diminishing trends, and show that Southeast Asian aquaculture is taking stock of new and more sustainable modes of farming. Investment in extension was however also identified as a diminishing trend, with the negative consequences this may bear on the development of new activities (**threat**).

Established trends

50. Among **important** established issues deemed to require attention to maintain Southeast Asian aquaculture at the cutting edge, were cited the fishmeal trap (use of trash fish/low value fish in the aquaculture) and trans-boundary movements of species (e.g. invasive spp., health disease). In addition, adherence to farm certification schemes, Free Trade Agreements (FTA) and international codes of conducts and policies (voluntary compliance, CCRF², CITES³, OIE⁴), along with species/strain improvements (e.g. R&D on shrimp), implementation of better management practices (BMPs), sustainability stock enhancement and maintained focus on the culture of key species such as sand goby species and shrimp were identified as established trends that the sector can keep building upon to further its development.

² Code of Conduct for Responsible Fisheries.

³ Convention on International Trade in Endangered Species of Wild Fauna and Flora.

⁴ World Organisation for Animal Health [former Office international des épizooties].

Table 2: Recommendations on how to achieve the key characteristics of “perfect” aquaculture policies in the Southeast Asian context.

Characteristics	Recommendations
Participation	<ul style="list-style-type: none"> • Allocate sufficient time (minimum 1 year) for the formulation of strategies and plans (e.g. 2 years-Thailand, 2 years-Cambodia). Higher level ministers need to be involved and understand. • Understand the stakeholder views by conducting stakeholder analyses, that can be utilised for effective engagement (not only at the production level, but throughout the overall supply chain). • Multi-stakeholder workshops are a useful tool to seek wider inputs, before and after the formulation of policies and strategies/plans. • Effective involvement of NGOs is useful to implement participatory approaches. • Qualified and designated full-time staff need to work on the policy formulation process. • Promote effective involvement and consideration of small-scale farmers, along with other “weaker voices” (compared to other better-organized stakeholders such as feed, chemical and hatchery stakeholders).
Achievable	<ul style="list-style-type: none"> • Ensure that outputs and outcomes are sufficiently addressed in the strategy. • Understand the available resources to carry out the policy or strategy formulation and the implementation process. • Ensure that there is a common awareness and understanding about what a policy and strategy/plans are and provide assistance where necessary through appropriate communication tools (e.g. log-frames or others) to increase buy-in and to appropriately respond to stakeholders’ concerns, for example through the translation of planning documents in local languages. • Where possible include some flexibility in the strategy to account for ongoing learning processes. • In the process of translating policies into strategies, plans and regulations, draw a clear line between mandatory and voluntary. • Seek government officials’ commitment (from Departments of Fisheries in particular) through appropriate incentives (e.g. salaries). • Build capacity of farmers throughout the policy implementation phase.
Accountability	<ul style="list-style-type: none"> • Ensure close monitoring of spending and implementation of activities by concerned government authorities. • Ensure that appropriate feedback mechanisms are in place. • Create a dedicated work force (instead of an ad hoc group) for formulate policies/strategies and oversee their implementation. • Key stakeholder ownership is very important to ensure accountability and should be built around the aquaculture policy development. • Strengthened political will supporting aquaculture will help capitalize on (positive) political interference. • Both policy-makers and implementers need to be held accountable. • Seek outside and impartial evaluation of government performance in policy implementation. • Increase collaboration throughout the entire supply chain (vertical integration) to improve transparency and communication with regard to profit distribution and equity.

Characteristics	Recommendations
Continuity	<ul style="list-style-type: none"> • Short-term (approx. 3 years) strategies and implementation plans, implying regular review and, if necessary, adjustment in policy implementation, allow to account for political change and external forces whilst maintaining the overall direction set by the policy itself (longer term). • Short-term strategies and implementation plans may however not be reactive enough to adequately cope with unforeseen crises (e.g. fuel price increase, disease outbreaks, trade barriers, etc.). The devise of specific “contingency plans”, containing a range of measures that could be implemented temporarily to specific problems in specific circumstances would be useful without compromising continuity. • A simple “repackaging” of a strategy/implementation plan without fundamentally modifying its contents can be a way to ensure continuity in the face of political change.
Monitoring and evaluation	<ul style="list-style-type: none"> • M&E is seldom at the level of policies, but more commonly encountered at the level of strategies or implementation plans as a M&E system implies devising targets and indicators. A “key performance index” is an example of methodology that can be implemented to evaluate the effectiveness of strategies and plans. • Effectiveness, efficiency and impacts of strategies or plans should be assessed. The reasons for past (or failed) policies should however be analyzed to inform future planning processes. • The usefulness of a M&E system depends on its design (i.e. its relevance to the issues to monitor) and on those who will be in charge of its implementation (i.e. who will monitor). This is directly related to the accountability characteristic of policies previously discussed. • M&E should not be carried out for its own sake, but directly lead to tangible changes and actions for improvements in policy implementation (i.e. effectiveness, efficiency and impacts).
Balancing goals	<ul style="list-style-type: none"> • Balancing goals of environmental sustainability and economic growth/poverty alleviation remains a very challenging and politically sensitive act. • Research into environmentally-friendly production methods, supporting regulations and law enforcement can assist in achieving the twin goal of economic development and environmental sustainability. • Each country may remain sovereign in its decision over the “balance” it wishes to achieve as it will be dependent on its own level of development. • The effects of external forces such as climate change should be recognized in establishing and balancing development goals. The positive attributes of aquaculture in achieving simultaneously environmental sustainability and developmental benefits should be emphasized. • Ensure the representation of multiple interests in policy formulation and implementation processes to help mitigate conflicts of interests and reach consensus over diverging development goals.

Emerging trends

51. Identified **positive** emerging trends, gaining momentum and opening new horizons for the development of the sector in the region included: farm cluster/group production (**important**), traceability, certification, value chain development (**important**), high value species, organic farming, use of zoning (GIS, remote sensing), new technologies and economic incentives, feed certification, implementation of ecosystem approaches and Public-Private Partnerships. These constitute the key characteristics that the aquaculture sector should focus upon in coming years to maintain the role of the region as a key producer worldwide, in particular in the face of emerging competitors such as Latin America. However, **threatening** emerging trends such as the reliance on market-based measures,

along with the economic crisis and its uncertainties (fuel price variations, social impacts, land use conflicts) will challenge the sustainable development of aquaculture regionally. These trends will require particular attention in their addressing to ensure that they do not undermine the long-term benefits gained from the comparative advantage the sector has gained so far.

52. Looming over these trends, climate change adaptation was considered as both a threat and an opportunity for the future of the sector. Furthermore, regardless of the ultimate path of development chosen for aquaculture development in Southeast Asia in years to come, R&D, capacity building, investment in extension and improved governance are issues that will continue to require the requiring *sine qua non* attention of aquaculture policy makers.

Table 3: Identification of emerging, established and diminishing trends in aquaculture development in the Southeast Asian region.

Emerging trends	Established trends	Diminishing trend
<ul style="list-style-type: none"> • Farm cluster/group (important) • Traceability, certification, value chain development (important) • Market based measures (threat) • Climate change adaptation (threat and opportunity) • High value species • Zoning (GIS, remote sensing) • Economic crisis (fuel, social impact, land use) • Organic farming • New technologies • Economic incentives • Feed certification • Ecosystem approach • Public-private partnerships 	<ul style="list-style-type: none"> • Fishmeal trap (use of trash fish in the aquaculture) (important) • Transboundary movement (e.g. Invasive species, health disease) (important) • Farm certification • Species/strain improvement (R&D on shrimp) • Free Trade Agreements • Sand goby species and shrimp • Better management practices • Sustainability stock enhancement • Food security and safety • International policies and frameworks (voluntary compliance, CCRF, CITES, OIE) 	<ul style="list-style-type: none"> • Investment in extension (threat) • Dichotomy extensive versus intensive production methods • Direct subsidies • Chemical use • Resource exploitation (e.g. mangrove)
(Cross cutting) <ul style="list-style-type: none"> • R&D • Capacity Building • Governance • Investment in extension 		

CONCLUSIONS AND RECOMMENDATIONS

53. Participants suggested:

- The holding of similar capacity building workshops at national levels.
- The follow-up by SEAFDEC of the issue of regional integration in the aquaculture sector to harmonize aquaculture development across the region and overcome intraregional competition.
- The dissemination of the FAO technical guidelines for aquaculture policy formulation and implementation, if possible in their Southeast Asian specific version.

54. To maximize the impact of the workshop and disseminate its outputs to aquaculture policy-makers and the wider scientific community, it was also suggested that the present workshop report be shared with participants at the FAO Global aquaculture conference in June 2010 in Bangkok and at the ASEAN/SEAFDEC Regional Conference on Sustainable Fisheries for Food Security Towards 2020 in 2011.

55. It was finally recommended that the present workshop report be sent to SEAFDEC and ASEAN Secretariats to further their work towards regional aquaculture integration.

CLOSING OF MEETING

56. Summarizing the workshop recommendations and re-emphasizing the role and expertise of FAO in assisting its Members in the strengthening of their aquaculture planning and policy implementation processes, the Chairperson thanked all participants for their valuable contributions as well as FAO and NACA for their organizing of the workshop, and subsequently brought it to closure.

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