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Report of the Third External Program and Management Review of the WorldFish Center

January 2007

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

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Report of the Third External Program and Management Review of the WorldFish Center

Panel: Benedict Satia (Chair)
N. Balasubramanian
Stephen Blaber
Bernard Chevassus-au-Louis
Exequiel Gonzalez

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THIS DOCUMENT CONTAINS:

- Extracts from the Summary Record of Proceedings of the Annual General Meeting 2006 (AGM06)
- Science Council Commentary
- Transmittal letter and WorldFish Response to the Report of the EPMR
- Transmittal letter and Report of the Third WorldFish EPMR

Consultative Group on International Agricultural Research (CGIAR)

CGIAR Annual General Meeting, 2006 (AGM06)

Agenda Item 6. Evaluation

(a) External Program and Management Review of WorldFish[1]

K.Sierra introduced the item and asked F.Reifschneider to explain the new format for discussing EPMRs at AGM. He explained that this year, instead of dedicating time to formal presentations on EMPRs that have been completed up to a year ago in some cases, and in agreement with the Science Council, no formal presentation would be made in order to have more time for discussion. Questions and concerns raised by Members would be addressed by the Panel Chair Benedict Satia (through video conference), the Science Council Chair, Center or CGIAR Secretariat representative. F. Reifschneider presented the ExCo 10 recommendations to the CGIAR regarding the WorldFish EPMR.

Discussion:

- The high attrition rate of staff was mentioned as a concern by one Member.
- Another Member requested clarification of the role of coastal and marine fisheries in the Center's research agenda.
- The Director General, Stephen Hall, attributed the high turnover of corporate services staff to the competitive environment of the private sector in Penang, Malaysia. The Panel Chair, B. Satia, agreed with the DG but added that there was also concern about the high attrition within the research ranks as well, which the Panel believed was attributed to the introduction of matrix management.
- With respect to the research agenda. S.Hall, explained that the Center's capacity in coastal and marine fisheries had declined over the years and needs to be built up while keeping a focus on small scale fisheries.

Decision:

- *The CGIAR endorsed WorldFish EPMR recommendations and commended the Center for being proactive on governance issues and board reforms*.

[1] Extract from the Summary Record of Proceedings of Annual General Meeting, 6-7 December 2006.

Science Council Commentary
on the Third External Program and Management Review of
the WorldFish Center

April 2006

The Report of the Third EPMR of WorldFish was discussed at the Fifth Meeting of the Science Council (SC5, April 10-12, 2006) in the presence of Panel Chair, Dr. Benedict Satia, the Director General of WorldFish, Dr. Stephen Hall (through video-conference) and the Center's Deputy Director General for Research, Patrick Dugan. The SC thanks Dr. Satia and his team for a thorough and comprehensive review of the Center. The SC endorses all 15 Panel recommendations and notes, for the most part, that the Center Board and Management have as well. The SC found many other valuable suggestions throughout the body of the text and encourages the Center to consider all of these seriously. WorldFish moved from its previous location in the Philippines to its current location in Penang, Malaysia in 2000. The Panel finds the Center still in a transitional phase, and accordingly makes a number of key recommendations aimed at completing this transition in the near future. Overall, the SC was pleased by the Panel's assurance that donors' funds had been well invested and that the future for the Center was bright, though challenging.

The Panel identified a number of major achievements of the Center since the last Review. These include the worldwide successful transfer of the GIFT, the strengthening and expansion of INGA, the development and application of methodologies and technologies for integrated aquaculture-agriculture (IAA) and rice field based aquaculture, the production of *Bayfish* and *TrawlBase* databases and the upgrading and maintenance of other key databases such as *Fishbase* and *Reefbase*, the production of global and regional models on fisheries and aquaculture supply and demand ("Fish to 2020" co-authored with IFPRI), and the development of methodologies and guidelines on fisheries co-management. The Panel also noted positively the new strategic alliance with IWMI to share Corporate Services. Major aspects of the Center's performance that attracted the Panel's concerns involved its priorities, its science quality, its regional reach, and its focus on SSA.

Priorities and Strategy

The Panel found that the Center had not yet clearly defined its research priorities *(Recommendation 3*) and that its strategy does not articulate the major specific objectives to be attained over a given time period. Given the vast area of research that conceivably falls under aquaculture and fisheries research and development, as defined in Chapter 1 of the report, the SC concurs with the Panel about the need for the Center to identify a smaller set of science based priorities on which it keeps a tight focus and for which the Center will be well recognized by its science peers. The Panel also found that science quality appeared mediocre when judged by publications in peer reviewed journals. The two issues, priority definition and science quality, are by no means unrelated. It is clear that WorldFish Management is

aware of and is addressing this issue with new research strategies being developed for the September 2006 Board meeting. While emphasizing he did not wish to in any way to pre-determine the strategies to be developed by the Center's Discipline Directors, the Director General identified a number of possible priority areas during his video-conference at the SC5 meeting. The SC reiterates that it is vital that WorldFish articulate soon its research niche capitalizing on its comparative advantage. Partnerships with ARIs, where World Fish is seen as the preferred research partner, will clearly be a key route to enhancing the outputs and impact of the Center, as will be filling key vacancies left by high performing scientists.

The SC is concerned that a third element -- the large numbers of regions in the region x discipline matrix may also be compromising scientific focus. WorldFish is, therefore, encouraged, like other Centers, to think carefully about the optimal number of regional offices and the core scientific staff needed in each in the context of focusing on a clear mandate for generating good quality science capable of generating mission-relevant IPGs. The SC highlights that the changing demography of the Center's staff has important implications for research management, in particular, stressing the need for mentoring of young scientists to help them achieve the appropriate balance of time between research and knowledge transfer.

The SC was expecting to see further elaboration in the Panel's Report about the future involvement of WorldFish in the conservation of genetic resources, in line with the new CGIAR Priority 1D. Discussion at SC5 did not determine whether a modest entry into fish genetic resources research was among the priority foci that WorldFish would embrace, but as the Center is being encouraged to focus on a fewer number of priority areas and this is currently not on their agenda, it may not get the attention the SC believes it warrants.

Science Quality and Relevance

The Panel stopped short of making a recommendation about the Center's shortfall in publication output as they were satisfied that Management had satisfactorily addressed this problem through the setting of Key Performance Goals and the annual appraisal system. Top quality papers are necessary to attract the top-flight collaborators from leading ARIs that are essential to achieving WorldFish's goals. In addition, and perhaps more critically important, setting individual performance targets should be complemented by a sharpening of the scientific focus. Potential journals for publication should also be discussed at the time of experimental design. The SC does, however, agree that WorldFish scientists also need to spend some time publishing research that can be applied by their primary NARS partners.

The Panel also urged WorldFish to continue to move away from pure development projects (*Recommendation 5*). The SC agrees with this recommendation and is reassured by the Center's response concerning the strong complementary linkages with NARS and NGOs. It is also pleased with WorldFish's use of the 'research-for-development value chain' to identify the place on the chain whereby research could achieve the greatest impact, but specifying where on the chain the Center should position itself for achieving its major objectives needs fuller articulation.

The SC notes the Panel drew extensively on the five CCERs conducted since the last review and therefore strongly supports the recommendation to institute rolling CCERs for each of the programs (*Recommendation 13*, bullet 5).

Focus on SSA

The Panel raised the concern (see *Recommendation 10*) about the lack of critical mass and activity in SSA (compounded by the large number of regional sites discussed above) and as a consequence the probable lack of impact in the future. This was an issue raised prominently by the 2nd EPMR team and the SC is also concerned, therefore, to note again that the 3rd EPMR Panel observed that 'the accomplishments … in no way correspond to the acclaimed importance that the Center attaches to SSA'. The SC understands that the demands for Africa are immense and that impact in Africa is difficult to achieve making the earlier observation on focus and fewer regional centers even more critical for the Center to address. The SC received assurances that the Center is indeed progressively increasing its resource commitment in the Region. The SC cautions that with a small unrestricted budget this alone cannot address the concern of overstretching with too few scientists in too many regions to conduct mission based IPG research that will make a difference in Africa. The Center is encouraged to address the issues raised earlier to maintain focus.

Governance and Management

Other issues raised by the Panel included the new matrix management system, restructuring of the Center Board and the inter-Center linkages. While understanding WorldFish's need for having separate disciplinary and regional foci, the SC nevertheless shares the Panel's concern about potentially high transaction costs and staff acceptability of the matrix (*Recommendation 1*). The SC was reassured by the monitoring process already in place at WorldFish. However, the SC notes that regional matrix system was common to several Centers reviewed in 2006 and in all the centers concerns were raised about the potential loss of focus on IPG research and on the loss in integration across disciplines (which is the main source of high quality, land mark journal publications) inherent in an over-extended regional matrix system. It is important that these potential high transactions costs do not overwhelm the task of integration at the discipline levels. For example, the Panel has highlighted the need of developing a strategic research agenda from the merger of genetic resources and NRM research and to guard against a mere co- habitation of these in the new management system. The SC would encourage the Center to critically examine the implementation of its own matrix structure earlier rather than later (*Recommendation 1*).

Board structure and the establishment of a Scientific Advisory Committee was an issue the Panel addressed at some length (*Recommendation 13*). The SC was pleased to note that WorldFish had already put the required changes in place.

The SC joins the Panel in commending the proactive actions taken by WorldFish and IWMI to share Corporate Services. SC also noted the ongoing discussions between the scientists and the Boards of the two Centers and encourages further interactions that enhance the effectiveness and efficiencies of the Centers.

The SC looks forward to seeing some first responses to the Panel's observations in the 2007-2009 MTP, particularly it relates to key scientific research focus, fewer regional nodes, and the Center's plans to enhance its presence and improve impact in SSA through appropriate interactions with other CGIAR Centers working in the region.

CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH

SCIENCE COUNCIL AND CGIAR SECRETARIAT

REPORT OF THE

THIRD EXTERNAL PROGRAM AND MANAGEMENT REVIEW

OF THE

WORLDFISH CENTER

Review Panel: Benedict Satia (Chair)
N. Balasubramanian
Stephen Blaber
Bernard Chevassus-au-Louis
Exequiel Gonzalez

Deepjee Singhal (Consultant)

SCIENCE COUNCIL SECRETARIAT

March 2006

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ACKNOWLEDGEMENTS

The 3rd WorldFish EPMR Panel wishes to expresses its sincere appreciation to the Board, Senior Management and all staff of WorldFish for their support and assistance during this review. The Panel is grateful to Trond Bjorndal, Chairman of the Board, and the other members of the Board of Trustees for their positive and constructive approach to this Review.

The Panel thanks especially Steve Hall- Director General, Patrick Dugan- Deputy Director General for Research, Jamie Oliver- Science Coordinator, Helen Leitch - Director of the Business Development Office, Tan Guat Chang – Chief financial Officer, Marie Chan –Finance Manager, Tan Khor Hoay – Head of Human Resources, Emily Khor – Board Secretarial, and other members of the management staff, all of whom cooperated fully with the Panel in the organization and implementation of this EPMR. They ensured that the Panel was provided with a good working environment, effective technical support, and friendly hospitality (including coping with a couple of vegetarians!).

The Panel was fortunate to visit several of WorldFish's country Programs in Malaysia, Malawi, Egypt and Cambodia—and wishes to express its gratitude for all the support, information and hospitality provided by WorldFish staff and its partners at those sites. Special thanks go to E. W. Ponzoni and A. Ponniah (Malaysia); Daniel Jamu and Simon Heck (Malawi); Blake Ratner, Yumiko Kura and Eric Baran (Cambodia) and Patrick Dugan (Egypt), for their help in organizing and hosting Panel visits to those countries.

There are a number of other WorldFish staff who either directly or indirectly helped the Panel by providing the necessary logistical, computing, photocopying, and other support, including nourishment! They are many, but we especially want to mention the assistance the Panel received from Helen Leich and her fantastic team. In particular, the Panel would like to specifically mention the superbly efficient support from Meena Arivananthan, who never seemed to be without a smile. The Panel also records with appreciation the valuable support received from Siew Hua Koh in terms of travel and related assistance for Panel visits to Penang.

The expresses its appreciation to all donor representatives, Directors General of CGIAR centers, WorldFish clients and stakeholders for accepting to interact with the Panel in-person, on telephone interviews and email correspondence.

It is the Panel's pleasure to also thank the SC Secretariat, in particular Tim Kelley, who served as secretary to the Panel, and the CGIAR Secretariat, particularly Manny Lantin who served as resource person to the Panel, for coordination and management of this review and for guidance throughout. The Panel also would like to thank Irmi Braun-Castaldi from the SC Secretariat for making travel arrangements for the Initial and Main Phases of the review and the Field Visits.

PREFACE

This is the report of the Third External Program and Management Review (EPMR) Panel appointed to evaluate the research program and management of the WorldFish Center. The composition of the Review Panel and short biodata of its members are given in Appendix I. The standard terms of reference for EPMRs and an additional set of issues specific to this particular Review are found in Appendix II. The itinerary of the Panel is provided at the end of Chapter I.

The EPMR Panel was guided by the general objectives of EPMRs: (a) providing the CGIAR members with an independent and rigorous assessment of the institutional health and contribution of the Center; and (b) providing the Center and its collaborators with assessment information that complements or validates their own evaluation effort.

The Panel made every attempt to conduct the review in an objective and transparent manner with a focus on the future as well as the past.

With respect to the review process, the Panel relied on a vast amount of information in identifying key issues and concerns, assessing Center performance and reaching its conclusions and making recommendations. These included:

- briefings given to the Panel Chair and members by the SC and its Secretariat;
- extensive documentation provided by WorldFish and the SC and the CGIAR Secretariats that was made available to the Panel in an EPMR Internet site and is listed in Appendix III;
- briefings during the Initial Visit to WorldFish HQs from: (a) the Director General (DG) and his senior management team, (b) Regional Portfolio Directors and other project leaders, (c) communications and other research support units, and (d) finance and administration team;
- Panel member field visits in Malaysia (October 2005), Malawi (October 2005), Egypt (January 2006) and Cambodia (January 2006) to review WorldFish research project activities in the field and meet with its clients and collaborators;
- review of BoT agendas, minutes and other documentation, observations of the BoT in action (at the September 2005 meeting) and interaction with BoT members individually;
- BoT member survey;
- consultant's report on finance by Deepjee Singhal;
- in-person or telephone interviews and email correspondence with a variety of WorldFish donors, clients and other stakeholders, including other CGIAR Center and Challenge Program leaders (see Appendix VIII);
- follow-up meetings and discussions with WorldFish Center staff members during and between the Initial and Main Phase visits;
- WorldFish staff survey conducted electronically by the Panel.

The Panel did not delve into every aspect of the Center's activities and into all possible issues, but chose to focus on what it believed were the most significant ones, given the time available. To the extent possible, the Panel relied on Center commissioned external review and donor commissioned reviews that had been completed prior to December 2005.

The Center was kept informed of the Panel's activities and progress during the review. The Panel Chair and WorldFish DG were in regular contact. During the Main Phase, Panel members worked individually and collectively to produce drafts of specific sections of the report. As they were completed, drafts were shared with the Center for comments and to check for factual accuracy prior to finalization. At the end of the Main Phase visit, the Panel Chair presented the main findings and recommendations of the Review to WorldFish staff. The Chairman of the Board of Trustees was also present.

SUMMARY AND RECOMMENDATIONS

This is the report of the Third External Program and Management Review of the WorldFish Center and covers the period 1999 to 2005. During this time, the Center has undergone major changes: It moved its global headquarters from the Philippines to Malaysia, it changed its public name from ICLARM to WorldFish, executive and Board leadership changed and the Center implemented two new strategies and re-structured its programs. Indeed, the Center is still in transition in many respects, a healthy sign in the Panel's view.

The Panel conducted the third EPMR in two parts. A retrospective part assessed the outputs and achievements of the Center, based on the old program structure, which was in place for the greater part of the review period. For the prospective part of its assessment, the Panel considered the current mission, strategy and organizational structure of the Center and its new programmatic thrusts to examine how well it is positioned to meets its goals and objectives. The Panel's assessment was facilitated by *inter alia*, documentation provided by the Center, briefings by the Center, SC and CGIAR Secretariats, views obtained in meetings and/or interviews with the Board members, previous board chairs, the previous Director-General of WorldFish, donors and a range of stake-holders, as well as visits to four countries.

Vision, Mission and Strategy

Against the backdrop of the many changes that occurred in the external and internal environment during the review period, WorldFish made significant efforts to update its Vision, Mission and Objectives and to propose to its partners, donors and other key stakeholders new perspectives on fisheries and aquaculture that address the challenges of sustainable development, consistent with CGIAR goals. The Center elaborated a Strategy update in 2005 to respond to the challenge of meeting the Millennium Development Goals (MDGs) with a fish focus. The direct interventions are with regard to the eradication of extreme poverty and hunger, to ensure environmental sustainability, the promotion of gender equity and the empowerment of women. However, flows of benefits would accrue to the other MDGs. The strategy update provides details of the processes and mechanisms the Center will pursue in order to generate various outputs that ultimately contribute to achieving the MDGs. However, no detailed programs or milestones for an assessment of performance in the medium term have yet been elaborated. The Panel believes that the Center needs to make key choices, limit itself to a few strategic areas of work, and be selective in its choice of partners. Institutional KPGs and related quantitative indicators mirrored in the CGIAR's Performance Monitoring System have been elaborated in the MTP 2006-2008.

WorldFish is in the process of implementing its new program structure based on a matrix structure of three global disciplines (Natural Resource Management, Aquaculture and Genetic Improvement and Policy, Economics and Social Sciences) and interacting with six to eight regional portfolios. Several organizational steps have been taken by the Center, including the definition of roles to provide clarity and alternative career streams for scientists based on their skills and interests, and modification of the process to avoid problems typically associated with the matrix structure. The Panel sees merit in adopting the matrix management approach and was informed that the structure has been working

well thus far. However, it wondered whether the Center was not underestimating the difficulties in implementing its matrix. Among the perceived or potential difficulties are the possible drift towards short term projects, tensions between Discipline and Portfolio Directors, increased transaction costs, the lack of a critical mass of scientists, the lack of well specified long term goals and, based on the latter, the need for the right balance between the disciplines. Some of these issues can only be addressed after the Center has more clearly articulated its chosen research domain, defined Center and program level research priorities and identified its positioning along the R-D value chain for each major objective specified.

Accomplishments and Impacts

Despite the potentially disruptive effects of the relocation of the headquarters, the research output has, in general, remained steady and staff have continued to produce a wide range of outputs, some of which have made significant contributions to science.

In the area of biodiversity and genetic resources, transfer of the GIFT methodology to other areas including Africa or other species (Asian carps) represented a key contribution of WorldFish to the definition of efficient genetic improvement strategies for tropical aquaculture. This was further enhanced by the strengthening, expansion and change of emphasis of INGA, making it more actively involved in the development of genetic improvement programs, and in particular in multiplication and dissemination of the improved stock.

WorldFish developed innovative restocking and alternative livelihood options for sea cucumber (beche de mer) fisheries and is now re-focusing the biological work using a more comprehensive approach in which culture and restocking are seen as one management tool among many in small-scale fisheries. The Center also produced *Bayfish*, a decision-making tool that utilizes data on species and habitat diversity in developing modelling approaches that link fish production and hydrological patterns in the Greater Mekong Region. In addition, the WorldFish partnered with NARs and ARIs to produce *Trawlbase* and has continued to upgrade and maintain *Reefbase* and *FishBase*, the world's premier source of information on all fish species.

Methodologies and technologies for promoting pond and rice field based aquaculture and the efficient use of wetlands have been elaborated and validated. Over 200,000 farm families have adopted the Integrated-Agriculture-Aquaculture (IAA) technology. WorldFish conducted two impact assessments that validate the relevance of their research (i) on the development and dissemination of GIFT fish in six countries, and (ii) on the development and dissemination of IAA technologies in Malawi. GIFT tilapia are now farmed in 13 countries where they contribute to increasing the supply of low cost, high quality protein for the poor. In terms of past and projected impacts, the internal rate of return (IRR) from GIFT research, dissemination and related activities over the period 1988 to 2010 has been estimated at 70%. In a similar manner, the adoption of IAA in Malawi has reduced childhood malnutrition by 15%, increased the number of fish farmers from 400 (1980) to 4000 and increased total annual fish production by more than 160 percent. Considering only *ex-post* effects, the estimated IRR from IAA research, dissemination and related activities already achieved is 15%.

Especially important has been the production of global and regional models on fisheries and aquaculture supply and demand, which have been widely commended for providing key information for policy design and implementation. Co-management research conducted in Asia, Southeast Asia and Sub-Saharan Africa has resulted in the creation of fisheries community organizations, the establishment or modification of fishing rights and the establishment of sanctuaries. It has also led to the production of guidelines for participatory approaches to management and development

Quality and Relevance of Science

The quality of science produced by the Center, as measured by outputs in international refereed journals, has declined since 1999. The annual mean number of scientific papers per scientist was less than one during the review period. This is below the internationally accepted norm.

However, the Key Performance Goal for all scientists in this respect has now been set at a minimum of two refereed papers per year, and the Panel was given evidence that this target will be met for 2006.

Notwithstanding the poor publication record, much of the research being carried out by the Center is highly relevant to its partners and clients. This is exemplified by the internally published reviews, booklets and pamphlets produced for specific audiences and conveying vital messages, which are widely used and applauded by a wide range of NARS and NGOs. Center staff received nine prestigious awards during the review period, further reinforcing evidence of the relevance of their research to stakeholders.

Partnerships and Linkages

One of the key factors in WorldFish successes during the period has been its strong working relationships with NARs and NGOs and the effective use of NARs networks of both within and between countries to address common issues and concerns. In addition, the scope and quantity of WorldFish involvement with other Centers is significant and the latter provided a favorable assessment of their collaboration with the Center. The Center has entered into a Strategic Alliance with IWMI to share Corporate Services. Both Centers have voluntarily engaged in this process that will likely result in improving complementarities between their programs. The entire process seems to be in line with the program and structural alignment, which the CGIAR is now exploring, particularly in SSA.

WorldFish is making substantial progress in the clarification of its relationship with FAO, which is a key partner for many activities. At the same time, the Center continues to establish strategic partnerships with ARIs in a few key areas, aimed at strengthening its scientific staff and improving its international image.

Governance

Overall, governance processes and institutions at WorldFish are adequate but need strengthening in several areas to reach required levels of excellence in terms of international best practices. There is scope for improving the competency profile of the Board in areas like financial and accounting appreciation. The Panel was informed that

action in this regard has already been taken. Board size and structures, however, appear geared for a much larger size of operation, and need correction in the near term.

The Panel perceives a need to strengthen external advice and counsel in matters of science to assist the Board and the executive, and a Science Advisory Committee for this purpose is considered useful. The Panel was informed that that a proposal to this effect is due for discussion at the Board meeting in March 2006.

The Annual Report of the Center, which is a valuable communication medium to all stakeholders is currently published late into the following year. The Panel believes that advancing the publication dates substantially, and including audited financial reports, would significantly enhance its value.

Management

WorldFish has managed the physical transition from the Philippines to Malaysia and established facilities in Penang extremely well. Its executive management structure has been reorganized into a matrix of Disciplines and Portfolios, with necessary support structures. Its ability to attract and retain staff of the right caliber, however, needs further strengthening, without which, it will be hard pressed to achieve its ambitious goals. In terms of its financial accounting management, there seem to be some areas that need strengthening. Internal controls assessment and risk management are beginning to be addressed and there is a need to further improve legal compliance and intellectual property safeguarding. SAP has been introduced and is expected to offer better service delivery in terms of information support and management.

An important issue relating to charging projects imputed rentals for space occupied at Headquarters (where the land is leased at a nominal rent from the Malaysian Government) needs a comprehensive review by the Board taking into account all relevant factors such as the Center's Constitution which mandates it as a not-for-profit organization, the Host Country and Land Lease agreements with the Malaysian Government, transparency and disclosure to donors, and so on.

Some IP, gender and diversity, and employee attrition issues have been discussed; the Center is fully cognizant of these matters.

Shared services as a cost-containment exercise under discussion with IWMI is a welcome initiative; thoughts of extending such service offerings to other CG Centers in future, as appears to be the intention, however, is an area where the Center needs to proceed with caution, having due regard for host country land lease agreements and other relevant aspects.

Business development in the last two years of the Review period has been impressive, with substantial funding growth. The Center should redouble its efforts in internal capacity building that will be required to handle the increased activity levels in the years ahead.

Conclusions

Despite the extensive changes that have taken place within the Center, WorldFish is under-going a gradual transition. The Panel has raised a number of issues from its evaluation of the Center's programs, governance, management and finance, and has made recommendations and suggestions for improvement. However, the overall assessment of WorldFish's performance over the period in review is positive. The Panel confirms that donors' funds had been well invested, and on this basis WorldFish should be a Center of choice for future investments by donors. The task ahead will be challenging for the Board, Management and staff of the WorldFish Center, but the Panel is convinced that it is moving in the right direction to achieve its goals.

Recommendations

Recommendation 1. As the matrix management structure is likely to exert a considerable influence on the performance of the Center's research programs, the Panel **recommends** that the Board commissions an external review of the new research structure by mid 2007 to specifically examine the effectiveness and impact of the matrix approach, the extent of transaction costs incurred and the acceptability by different levels of staff.

Recommendation 2. To broaden the staff resource base and maximize its efficiency, the Panel **recommends** that, within the framework of strategic alliances and the growth strategy of the Center, a pragmatic strategy is defined for leveraging additional resources through a range of joint ventures, including but not limited to co-financing of PhD grants, postdoctoral grants, associated scientists/laboratories in advanced research institutes and calls for joint research proposals.

Recommendation 3. While welcoming the potential creativity from and fruitful interactions between Disciplinary and Portfolio Directors, the Panel **recommends** that WorldFish identify and embrace a limited number of key scientific issues and research objectives that could be achieved within a reasonable period of time (4 to 6 years) and that could:

- stimulate WorldFish scientists of different disciplines and promote interdisciplinary research;
- be recognized by the scientific community as cutting-edge research and, as a result, stimulate collaboration with scientists from both developed and developing countries;
- demonstrate the comparative advantage of the Center and its leadership capacity in the field of aquaculture and fisheries for developing countries.

Recommendation 4. To better understand the way selective breeding changes biological growth parameters, the Panel **recommends** further studies on GIFT be undertaken by geneticists and nutritionists working together, using more controlled experimental conditions, and testing a large range of feeding levels.

Recommendation 5. In order to ensure that its development oriented partners are better equipped to scale out methodologies and technologies for enhancing outcomes and impacts, the Panel **recommends** that WorldFish:

- continue to make a conscious effort to move away from downstream development activities and explore opportunities for development-related activities to be executed by local or bilateral entities, where available, while the Center continues to monitor

and evaluate the activities/developments in order to analyze the impacts and also to identify constraints and bottlenecks which might require further research;
- undertake a scoping exercise to identify its partners' strengths and weaknesses in order to better target capacity building, especially of NGOs, to advance the development spectrum of its work; and,
- synthesize and package existing information, including frameworks, manuals, protocols and guidelines to ensure greater dissemination and use of its products.

Recommendation 6. While acknowledging the key role of FishBase within the newly defined NRM priorities and strategic directions, the Panel **recommends** that WorldFish clearly define its continuing involvement and role in the database, including specifying how the various demands on staff will be met.

Recommendation 7. n search of appropriate tools for decisions making, the Panel **recommends** the Center expand its modelling work on the supply and demand of fisheries and aquaculture and undertake additional ex-post impact assessment in aquaculture, paying particularly attention in both cases to technological environmental impacts and non-negligible dynamic (inter-temporal) effects of fisheries and aquaculture activities.

Recommendation 8. Considering the rapid development of aquaculture in developing countries and the increasing demand for dissemination of a few improved strains, from sometimes only non-local species, the Panel **recommends** that future efforts be made in defining on a pragmatic and objective basis, the acceptable dissemination area of an improved strain, and the realistic monitoring that should be implemented in relation to this dissemination.

Recommendation 9. In view of the critical role of the PESS discipline within the Center, the current breadth of its tasks as outlined in the 2006-08 MTP agenda and its current staff composition, the Panel **recommends** that the Center take action on the following:
- secure a Discipline Director as soon as possible;
- conduct a strategic process of research planning and prioritization that enables the discipline to more precisely identify its research domain and a selected set of issues to produce significant IPGs; and,
- develop and apply a balanced growth policy for qualified scientific staff according to research priorities.

Recommendation 10. Bearing in mind that many activities under fast track opportunities within the WorldFish – NEPAD initiative go beyond the realm of fisheries and/or aquaculture, the Panel **recommends** that WorldFish explore opportunities for collaboration with other CG Centers, in particular IITA, WARDA, IRRI, CIFOR, IWMI, IFPRI and ICRAF, possibly within the context of task forces, to identify gaps in the application of IAA technology and methodology or for activities related to fisheries governance.

Recommendation 11. Given the poor scientific publications record and its current limited scientific expertise and reputation, the panel **recommends** the Center give high priority to:

- recruitment of senior scientists with a proven track record or the involvement of such scientists in Center projects through various forms of partnership and adjunct arrangements, and
- recruitment of a cadre of younger, recent PhD graduates, particularly in view of present and past difficulties in attracting more senior scientists.

Recommendation 12. In view of the importance of partnerships as a vehicle for achieving the goals of the Center, the Panel **recommends** that WorldFish:
- elaborate a Partnership Strategy focusing on, among others, the modus operandi for establishing strategic partnerships and alliances that would add significant value to the current research activities undertaken by the Center;
- explicitly define the roles and responsibilities of the Center relative to its partners in all major projects;
- determine its positioning on the research-to-development continuum, within the framework of an impact pathway analysis, for all major projects; and
- elaborate a human capacity building policy for its staff and its partners taking into account, as appropriate, the suggestions that have been provided.

Recommendation 13. In order to bring about greater cohesion, process improvements, trustee participation and contribution, and board-costs containment, and to enhance the quality of independent science support, the Panel **recommends** that the Center's Board and Board Committees be restructured as follows:
- reduce the Board size to not more than nine Trustees, including the ex officio Director General, Host Country representatives and the FAO nominee;
- modify Board Committee Structure to retain the Audit Committee, the Nominating Committee, and the Executive Committee, and eliminate the Program Committee;
- include in the Center's Annual Reports a Report of the Trustees, discussed and approved by, and signed on behalf of, the Board, and Audited Financials, duly certified by the Director General and the Chief Financial Officer, along with the Independent Auditors' Report;
- constitute a Science Advisory Committee of about four members with suitable qualifications and experience/expertise, with a member of the Board as the Committee Chair. The Committee will report to the Board, and the Committee Chair (or any other member other than the Director General) should brief the Board at every meeting on its deliberations and advice; and,
- process expeditiously planning for CCERs on a five-year rolling time frame, to be updated each year, to obtain the best panelists with adequate advance notice, and spreading the workload evenly over the period. The CCER Panel Chairs should be requested to make the presentations to the Board on their Reports and Recommendations.

Recommendation 14. Given the importance of maintaining reserves at prudent and yet not unduly excessive levels, the Panel **recommends** that the Center continue to accord this matter very high priority and importance so that necessary and appropriate allocations are expeditiously approved and utilized.

Recommendation 15. Given the status of WorldFish as an international not-for-profit organization, having regard to the letter and spirit of the agreements with the Malaysian Government in respect of the leased land, and to ensure that as a CGIAR affiliate, the Center follows the best practices in accounting and reporting, the Panel **recommends** that

the Center should revisit and comprehensively review this recovery methodology in all its aspects, seek directions from the Audit Committee and Board urgently, and adopt an appropriate policy that would be consistent with the its Constitution mandating it as a not-for-profit organization, and in full compliance with the Host Country and Land Lease Agreements with the Malaysian Government, and transparent disclosure to, and concurrence of, the donors, if any such recoveries are proposed to be continued or commenced afresh.