



Advisory  
Services

# **CGIAR Research Program 2020 Reviews: FISH CRP Annexes**

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**Find the report and brief here:**

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# Annex 1: CRP 2020 Review TOR

Links to CRP 2020 Reviews [TOR](#) and [Addendum](#)<sup>1</sup>.

## Annex 1.1: Call for Expressions of Interest

CRP 2020 Independent Reviews of Quality of Science and Effectiveness

Deliverables and consultation for the CRP Review (pag.9–10 of the ToR attached)

The review team is expected to produce the following deliverables:

1. A preliminary findings matrix, for discussion midway through the review process, to check the progress of the review and to provide a basis for early course correction if required. The CAS Secretariat will provide the review team with a template for the preliminary findings matrix.
2. A brief presentation of preliminary findings, for the debrief with the CRP management and the CAS Secretariat for validation, factual corrections, and feedback.
3. A draft report of the CRP review, for review by the CRP management and the CAS Secretariat for final feedback. The CAS Secretariat will provide a template for the draft and final reports.
4. A final report of the CRP review, following the report template with a maximum of 20 pages, a 2-3-page executive summary, and a set of annexes with additional information apart from the main body of the report.
5. A PowerPoint presentation covering the main points of the review, including purpose, methods, findings, conclusions, recommendations, and additional notes relevant to the review. The CAS Secretariat will provide a template for this presentation.

Templates for the preliminary findings matrix, draft, and final report, and the presentations will be provided to the review team in the first week of the review.

The review team will engage with the CAS Secretariat and the CRP under review at the following key points:

- Initial discussion with the CAS Secretariat to start the review and clarify questions from the review team;
- Briefing at the start of the review between the review team and CRP management, facilitated by the CAS Secretariat;
- Interview with the CRP Leader and a focus group discussion (FGD) with other members of the CRP management during data collection;
- Debrief presentation of the preliminary findings led by the review team, for validation, clarifications, and feedback by the CRP management and the CAS Secretariat;
- The draft report will be shared with the CRP Leader and staff for factual correction and final feedback.
- Additional discussions between the review team, the CRP management, and the CAS Secretariat may be scheduled based as needed during the course of the review.

## Annex 1.2: Addendum to the TOR & Call for Expressions of Interest, June 2020

The CAS Secretariat has made the following modifications to the Terms of Reference (TOR) and Call for Expressions of Interest, for the CRP 2020 Reviews of Quality of Science (QoS) and Effectiveness.

Please note: (i) the independent reviewers for CRP reviews that will begin in August (see Annex I for the working schedule) will be selected by the first week of July, and (ii) the overall deadline is 15 July 2020 for submission of expressions of interest for the CRP 2020 Review.

**Methods.** The proposed surveys of CRP researchers, partners, and donors have been removed from the CRP 2020 Reviews. The sample frame of respondents for these surveys was considered to be smaller than anticipated, thereby limiting the value of quantitative data collected from the surveys. Given the extensive qualitative methods (primarily key informant interviews) already applied to the same pool of respondents, the value of the surveys was determined to be questionable. Further, the burden on

<sup>1</sup> Accessed September 25, 2020

respondents was considered excessive, and a higher value is placed on the in-depth qualitative interviews. Considering the limited value addition of the proposed surveys and the burden on respondents, CAS has removed the surveys as a method for the reviews.

Establishing contributions to Intermediate Development Outcomes (IDOs). Links between the outcomes (documented as milestones) from the CRPs and the CGIAR Strategic Results Framework will be examined at the sub-IDO level, not the IDOs themselves.

**Data sources.** CRP performance data will be drawn from the Plans of Work and Budget (POWBs) and Annual Reports for the period under review, with supplementary information from the CGIAR result dashboard. The CAS Secretariat supports the reviews by integrating data from the dashboard, the CRP internal monitoring, and the POWB and annual reports, to allow the review team to make quantitative assessments of performance. The dashboard data will also be used in conducting a 'deep dive' of selected CRP outcomes (OICRs).

**Knowledge management.** The review team will be responsible for uploading and storing its original data, analysis, and drafts on the secure online content site (SharePoint) provided by the CAS Secretariat, as a basic step in knowledge management for the review.

**Analytics support.** The team will also need to adhere to timelines for accessing technical consultants made available by the CAS Secretariat, e.g., for quantitative analysis of performance data.

**Distribution of effort within the team.** The two members of each review team (subject matter expert and senior evaluator) are each allocated 39 days for execution of the work, over the 11-week period. An additional two days are allocated to the team member who takes on the team leadership role. The team leader will also commit to responding to any questions or need for clarifications that arise from copy editing of the final report.

Further notes to interested consultants:

Consultants who have already submitted their expressions of interest have been logged in the CAS consultant database and do not need to re-submit their documents. Short-listed candidates will be contacted as preparations for the CRP reviews are made.

Consultants who wish to apply should indicate their expertise and availability in relation to the nine CRPs that are scheduled to be reviewed between August and December 2020. The reviews of three CRPs (A4NH, GLDC, and Wheat) have already started.

**Table 1. Working Schedule of CRP 2020 Reviews**

Timeframe	Agri-Food System	Global Integrated Program
April-June	GLDC + WHAT	A4NH
August-October	LIVESTOCK	PIM + CCAFS
September-November	FISH + MAIZE + RTB	-
September-December	FTA + RICE	WLE

**Working Schedule of CRP 2020 Reviews**

<b>CGIAR Research Program (CRP)</b>	<b>Type</b>	<b>Review Period</b>
Grain, Legumes and Dryland Cereals (GLDC)	Agri-Food System	Apr-Jun
Wheat	Agri-Food System	Apr-Jun
Agriculture for Nutrition and Health (A4NH)	Global Integrated Program	Apr-Jun
Forests, Trees and Agroforestry (FTA)	Agri-Food System	Aug-Oct
Livestock	Agri-Food System	Aug-Oct
Climate Change, Agriculture and Food Security	Global Integrated Program	Aug-Oct
Fish	Agri-Food System	Sep-Nov
Maize	Agri-Food System	Sep-Nov
Water, Land and Ecosystems (WLE)	Global Integrated Program	Sep-Nov
Rice	Agri-Food System	Sep-Dec
Roots, Tubers and Bananas (RTB)	Agri-Food System	Sep-Dec
Policies, Institutions, and Markets (PIM)	Global Integrated Program	Sep-Dec

Note: This working schedule may be modified. When submitting an Expression of Interest, consultants are advised to indicate a range of dates for which they are available for conducting the reviews. The schedule for all 12 reviews spans April to December 2020, with an anticipated duration of 11 weeks for each review. The final three reviews will begin in late September, to conclude by mid-December.

## Annex 2: CRP-Specific Review Methodology

Over the course of data collection, the review team employed a mixed-methods approach building on the initial document review to derive findings. Data collection through document review, stakeholder interviews, and analysis of Outcome Impact Case Report (OICRs) continued up until the writing of the initial draft report. Subsequently, the team completed an analysis of CRP biblio and Altmetric data and triangulated data sources. Data analysis was parallel and sequential in order to identify emerging themes and trends for probing in order to strengthen findings as they emerged and formulate conclusions and test their accuracy.

### Annex 2.1: Data Collection Methods

The review team employed several data collection methods to implement this review, including 1) document review; 2) analysis of biblio and Altmetric data; and 3) key informant interviews (KIIs) of stakeholders.

**Document Review:** Document review continued throughout the data collection period and entailed assessment of program-related literature in order to understand the context and underlying concept of the project, as well as to understand how the FISH CRP has been implemented to date. Documents for review will include FISH CRP management documents and any subsequent modifications, evaluation, and strategy documents related to the CRP, peer-reviewed journal articles, reports, and bulletins, as well as from background and research documents on topics related to the project themes and context. The review team also selected two OICRs for a “deep dive” analysis. The team based the selection of these specific OICRs on their relationship to specific topics, including cross-cutting issues, as well as genetics due to the expertise of the Senior Subject Matter Expert.

**Biblio and Altmetric Data Analysis:** The team used biblio and Altmetric data and analysis to address inquiries related to “QoS”. The Senior Subject Matter Expert with support of the Team Leader implemented the biblio and Altmetric data analysis over the course of the data collection period using analytical documents produced by the CRP Project Management Team. Within these criteria, the team sought to select OICRs with high impact.

**Key Informant Interviews (KIIs):** Following initial document review and congruently with the launch of biblio and Altmetric data analysis, the review team implemented KIIs with a purposively selected sample of each FISH CRP project stakeholder group. The purpose of the KIIs was to probe results of the document review for findings related to the review questions. Purposive sampling of KII participants consisted of selecting informants according to the likelihood of significant knowledge of FISH CRP project activities, as well as convenience of access to access the largest number of informants possible throughout data collection within the limited time and personnel resources available to the review team.

KIIs consisted of in-depth facilitated discussions conducted with individuals or small functional groups of related individuals (e.g., up to three participants) using a semi-structured “evolving subject-driven” approach. In this case, “semi-structured” means that the team utilized a pre-existing data collection protocol (guide), while “evolving subject-driven” refers to an iterative process in which information was assembled transversely across successive interviews so that it could be aggregated and analyzed in a cohesive and consistent manner.<sup>2</sup> The review team developed KII data collection protocols (interview guides) utilizing a “base” interview guide during Weeks 2-3 of the review process following initial interviews with the PMU and FP leaders to develop KII topics lists. The protocols were differentiated by stakeholder group according to their anticipated areas of subject specialization.

Based on initial orientation with the CRP team, the review team identified the following seven stakeholder groups for KIIs; 1) Project Management Unit (PMU) staff; 2) FP leaders; 3) Cluster Leaders; 4) Cross-Cutting Theme Leaders; 5) Product Leaders; 6) Managing Partners, and 7) Country Partners. Over the course of data collection, the review team implemented 30 KIIs with members of these stakeholder groups, as illustrated in the following table (see **Annex 4: List of persons interviewed**).

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<sup>2</sup> King, Gary, Robert Keohane, and Sydney Verba 'Designing Social Inquiry: Scientific Inference in Qualitative Research' Princeton University Press" Princeton University Press, 2016

**Table 2: Number of KIIs by Stakeholder Group**

Stakeholder Group	No (#)
Project Management Unit (PMU)	6
Flagship Program Leaders	2
Cluster Leaders	3
Cross-Cutting Theme Leaders	2
Product Leaders	5
Managing Partners	3
Country Partners	9
TOTAL	30
a. Some interviewees are in multiple stakeholder groups but listed only once here at the highest level.	

## Annex 2.2: Data Analysis

The review team utilized methodological triangulation of data obtained during preliminary document review and initial “base” interviews to develop parallel protocols with same or similar questions across KIIs. Throughout KIIs, overseen by the Team Leader, the review team recorded data directly into audio recording software for subsequent analysis. In addition, the team transcribed key notes into MS Word doc-based forms in real-time analyzing feedback on a daily basis to identify emerging trends to aggregate findings around common themes and generate further probing.

Data analysis methods used by the team to produce findings and conclusions included:

- **Triangulation** – Throughout and subsequent to data collection, triangulation entailed cross-verification, and validation of findings emerging from distinct data sources to identify correlations related to the review questions. Triangulation strengthened the linkages and accuracy of data in cases where results obtained through one method were less conclusive than another method; and
- **Trend Analysis** – Trend analysis using progress reports enabled the team to further examine FISH progress toward targets over time to identify anticipated convergence (or divergence) of project outputs and outcomes, as well as how specific exogenous and endogenous events may be contributing to these outcomes.

This report is structured to protect the anonymity of specific respondents. Following submission of the final report, all interview audio recordings will be destroyed to protect respondent confidentiality.

## Annex 3: List of Documents Reviewed

### Annex 3.1: FISH CRP Project Documents and Data

CAS files-Bibliometric and Altmetric data

Costello, Christopher, Ling Cao, Stefan Gelcich "The Future of Food from the Sea" Ocean Panel, World Resources Institute, Washington DC, 2019

"FISH CRP Annual Report – 2017" FISH CRP, December 2017

"FISH CRP Annual Report – 2018" FISH CRP, December 2018

"FISH CRP Annual Report – 2019" FISH CRP, December 2019

"FISH CRP - Introductory Presentation" ppt by FISH CRP, 2019

Rünzel, Max and Gaia Gullotta "Dashboard data pre-analyzed by CAS" CAS, 2020.

Tran, N.H, M. Joffre "Fishponds shrimp" Verdegem, O. 4 057, 2017

### Annex 3.2: Background Documents

"An impact evaluation of the development of genetically improved farmed tilapia and their dissemination in selected countries" Asian Development Bank, 2005.

Arismendi, Ivan and Brooke E. Penaluna "Examining Diversity Inequities in Fisheries Science: A Call to Action" BioScience, Vol. 66 No. 7, Oxford University Press on behalf of American Institute of Biological Sciences, 13 April 2016

Beaulieu, Luc "How many citations are actually a lot of citations?" The Paper Mountain, November 19, 2015, Brown, Carol M. "Women in the Aquaculture Professions" U.N. Food and Agriculture Organization, 2019

Branch, Trevor "Fisheries journal impact factors" University of Washington, 29 June 2020

"CGIAR Research Program 2020 Reviews: GLDC" CAS, 2020

"CGIAR Research Program 2020 Reviews: Livestock" CAS, 2020

"CGIAR Research Program 2020 Reviews: Policies, Institutions, and Markets (PIM)" CAS, 2020

"Evaluation of CGIAR Research Program on Livestock and Fish" Independent Evaluation Arrangement (IEA) of the CGIAR. Final Report Vol. 1. And Vol. 2, CGIAR-IEA, Rome, Italy, 2016

OICR 665-3459 "The better management practices (BMPs) for Genetically Improved Farmed Tilapia (GIFT) in Timor-Leste help to realize the potential of aquaculture in the country"

"Study finds lack of diversity among fisheries scientists" Oregon State University, Corvallis, Oregon, April 13, 2016

"Supporting Women in Fisheries Science" Fishbio, June 6, 2018

"What's a Good Impact Factor & Why It Matters (with 2018/2019 Impact Factor Ranking in 27 Categories)" SCI Journal, 2018

### Annex 3.3: FISH CRP Peer-Reviewed Journal Articles

1. Agboola JO; Teuling E; Wierenga PA; Gruppen H; Schrama JW. 2019. Cell Wall Disruption: An Effective Strategy To Improve The Nutritive Quality Of Microalgae In African Catfish (*Clarias gariepinus*). Aquaculture Nutrition. 10.1111/Anu.12896
2. Agha S; Mekki W; Ibanez-Escriche N; Lind J; Mandal A; Benzie Jah; Doeschl-Wilson A. 2018. Breeding For Robustness: Investigating The Genotype-By-Environment Interaction And Micro-Environmental Sensitivity Of Genetically Improved Farmed Tilapia (*Oreochromis niloticus*). Animal Genetics. 10.1111/Age.12680



3. Ahmmed MK; Ahmmed F; Kabir M; Ahmed Si; Ahsan MN. 2017. Biochemical Impacts Of Salinity On The Catfish, *Heteropneustes fossilis* (Bloch, 1794), And Possibility Of Their Farming At Low Saline Water. *Aquaculture Research*. 10.1111/Are.13246
4. Akester MJ. 2019. Productivity And Coastal Fisheries Biomass Yields Of The Northeast Coastal Waters Of The Bay Of Bengal Large Marine Ecosystem. *Deep-Sea Research Part II-Topical Studies In Oceanography*. 10.1016/J.Dsr2.2018.08.001
5. Ali H; Rahman MM; Rico A; Jaman A; Basak Sk; Islam N; Keus HJ; Mohan CC. 2018. An Assessment Of Health Management Practices And Occupational Health Hazards In Tiger Shrimp (*Penaeus monodon*) And Freshwater Prawn (*Macrobrachium rosenbergii*) Aquaculture In Bangladesh. *Veterinary And Animal Science*. 10.1016/J.Vas.2018.01.002
6. Ali SE; Gamil AAA; Skaar I; Evensen O; Charo-Karisa H. 2019. Efficacy And Safety Of Boric Acid As A Preventive Treatment Against Saprolegnia Infection In Nile Tilapia (*Oreochromis niloticus*). *Scientific Reports*. 10.1038/S41598-019-54534-Y
7. Ali Se; Songe MM; Skaar I. 2019. Colorimetric Assay For The In Vitro Evaluation Of Saprolegnia Biofilm Inhibitors. *Journal Of Fish Diseases*. 10.1111/Jfd.13017
8. Allam BW; Khalil HS; Mansour AT; Srour TM; Omar EA; Nour AAM. 2020. Impact Of Substitution Of Fish Meal By High Protein Distillers Dried Grains On Growth Performance, Plasma Protein And Economic Benefit Of Striped Catfish (*Pangasianodon hypophthalmus*). *Aquaculture*. 10.1016/J.Aquaculture.2019.734792
9. Allison EH; Mills DJ. 2018. Counting The Fish Eaten Rather Than The Fish Caught. *Proceedings Of The National Academy Of Sciences Of The United States Of America*. 10.1073/PNAS.1808755115
10. Alonso-Poblacion E; Rodrigues P; Wilson M; Lee Ru. 2018. Narrative Assemblages For Power-Balanced Coastal And Marine Governance. *Tara Bandu As A Tool For Community-Based Fisheries Co-Management In Timor-Leste*. *Maritime Studies*. 10.1007/S40152-018-0093-9
11. Andrew NI; Bright P; De La Rua L; Teoh SJ; Vickers M. 2019. Coastal Proximity Of Populations In 22 Pacific Island Countries And Territories. *PLOS One*. 10.1371/Journal.Pone.0223249
12. Apgar JM; Cohen PJ; Ratner BD; De Silva S; Buisson MC; Longley RC; Mapedza E. 2017. Identifying Opportunities To Improve Governance Of Aquatic Agricultural Systems Through Participatory Action Research. *Ecology And Society*. 10.5751/Es-08929-220109
13. Asaduzzaman M; Igarashi Y; Wahab Ma; Nahiduzzaman M; Rahman MJ; Phillips MJ; Huang S; Asakawa S; Rahman MM; Wong LI. 2020. Population Genomics Of An Anadromous Hilsa Shad *Tenualosa ilisha* Species Across Its Diverse Migratory Habitats: Discrimination By Fine-Scale Local Adaptation. *Genes*. 10.3390/Genes11010046
14. Asaduzzaman M; Noor Ar; Rahman MM; Akter S; Hoque NF; Shakil A; Wahab MA. 2019. Reproductive Biology And Ecology Of The Green Mussel *Perna viridis*: A Multidisciplinary Approach. *Biology-Basel*. 10.3390/Biology8040088
15. Asaduzzaman M; Wahab MA; Rahman MJ; Nahiduzzaman M; Dickson MW; Igarashi Y; Asakawa S; Wong LI. 2019. Fine-Scale Population Structure And Ecotypes Of Anadromous Hilsa Shad (*Tenualosa ilisha*) Across Complex Aquatic Ecosystems Revealed By Next-Generation Sequencing. *Scientific Reports*. 10.1038/S41598-019-52465-2
16. Aura CM; Musa S; Yongo E; Okechi JK; Njiru JM; Ogari Z; Wanyama H; Mbugua H; Kidera S; Ombwa V; Oucho JA. 2018. Integration Of Mapping And Socio-Economic Status Of Cage Culture: Towards Balancing Lake-Use And Culture Fisheries In Lake Victoria, Kenya. *Aquaculture Research*. 10.1111/Are.13484
17. Avadi A; Henriksson PJG; Vazquez-Rowe F. 2018. Towards Improved Practices In Life Cycle Assessment Of Seafood And Other Aquatic Products. *International Journal Of Life Cycle Assessment*. 10.1007/S11367-018-1454-8

18. Barclay K; Voyer M; Mazur N; Payne AM; Mauli S; Kinch J; Fabinyi G. 2017. The Importance Of Qualitative Social Research For Effective Fisheries Management. Fisheries Research. 10.1016/J.Fishres.2016.08.007
19. Bell JD; Albert J; Amos G; Arthur C; Blanc M; Bromhead D; Heron AJ; Hunt A; Itano D; James Pas; Lehodey P; Liu G; Nicol S; Potemra J; Reygondeau G; Rubani J; Phillips JS; Senina I; Sokimi W. 2018. Operationalising Access To Oceanic Fisheries Resources By Small-Scale Fishers To Improve Food Security In The Pacific Islands. Marine Policy. 10.1016/J.Marpol.2017.11.008
20. Bentsen HB; Gjerde B; Eknath AE; De Vera MSP; Velasco RR; Danting EE; Longalong FM; Reyes TA; Tayamen MM; Ponzoni RW. 2017. Genetic Improvement Of Farmed Tilapias: Response To Five Generations Of Selection For Increased Body Weight At Harvest In *Oreochromis niloticus* And The Further Impact Of The Project. Aquaculture. 10.1016/J.Aquaculture.2016.10.018
21. Blythe J; Cohen P; Eriksson H; Cinner J; Boso D; Schwarz AM; Andrew N. 2017. Strengthening Post-Hoc Analysis Of Community-Based Fisheries Management Through The Social-Ecological Systems Framework. Marine Policy. 10.1016/J.Marpol.2017.05.008
22. Blythe J; Nash K; Yates J; Cumming G. 2017. Feedbacks As A Bridging Concept For Advancing Transdisciplinary Sustainability Research. Current Opinion In Environmental Sustainability. 10.1016/J.Cosust.2017.05.004
23. Blythe J; Sulu R; Harohau D; Weeks R; Schwarz AM; Mills D; Phillips M. 2017. Social Dynamics Shaping The Diffusion Of Sustainable Aquaculture Innovations In The Solomon Islands. Sustainability. 10.3390/Su9010126
24. Bogard JR; Marks GC; Wood Sh. 2018. Measuring Nutritional Quality Of Agricultural Production Systems: Application To Fish Production. Global Food Security-Agriculture Policy Economics And Environment. 10.1016/J.Gfs.2017.09.004
25. Bottema MJM; Bush Sr; Oosterveer P. 2019. Moving Beyond The Shrimp Farm: Spaces Of Shared Environmental Risk?. Geographical Journal. 10.1111/Geoj.12280
26. Brunton La; Desbois AP; Garza M; Wieland B; Mohan CV; Hasler B; Tam CC; Phuc Nguyen Thien Le Pntl; Nguyen Thanh Phuong NTP; Phan; Thi Van PTV; Hung Nguyen-Viet HNV; Eltholth Mm; Dang Kim Pham; DKP; Phuc Pham Duc PPD; Nguyen Tuong Linh NTL; Rich KM; Mateus ALP; Hoque MA; Ahad A; Khan MNA; Adams A; Guitian J. 2019. Identifying Hotspots For Antibiotic Resistance Emergence And Selection, And Elucidating Pathways To Human Exposure: Application Of A Systems-Thinking Approach To Aquaculture Systems. Science Of The Total Environment. 10.1016/J.Scitotenv.2019.06.134
27. Bush Sr; Oosterveer P; Bottema M; Meuwissen M; De Mey Y; Chamsai S; Lien M. 2019. Inclusive Environmental Performance Through `Beyond-Farm' Aquaculture Governance. Current Opinion In Environmental Sustainability. 10.1016/J.Cosust.2019.09.013
28. Byrd K; Dentz HN; Williams A; Kiprotich M; Pickering AJ; Omondi R; Kwena G; Arnold CD; Arnold BF; Dewey KG; Colford JM; Null C; Stewart CP. 2019. A Behaviour Change Intervention With Lipid-Based Nutrient Supplements Had Little Impact On Young Child Feeding Indicators In Rural Kenya. Maternal And Child Nutrition. 10.1111/MCN.12660
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30. Ceccarelli DM; Logan M; Purcell SW. 2018. Analysis Of Optimal Habitat For Captive Release Of The Sea Cucumber *Holothuria scabra*. Marine Ecology Progress Series. 10.3354/Meps12444
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33. Cinner JE; Adger WN; Allison EH; Barnes MI; Brown K; Cohen PJ; Gelcich S; Hicks CC; Hughes TP; Lau NA; Morrison TH. 2018. Building Adaptive Capacity To Climate Change In Tropical Coastal Communities. *Nature Climate Change*. 10.1038/S41558-017-0065-X
34. Cinner JE; Lau JD; Bauman AG; Feary FA; Rojas CA; Barnes BJ; Shum E; Lahari R; Ben J; Graham NAJ. 2019. Sixteen Years Of Social And Ecological Dynamics Reveal Challenges And Opportunities For Adaptive Management In Sustaining The Commons. *Proceedings Of The National Academy Of Sciences Of The United States Of America*. 10.1073/PNAS.1914812116
35. Cisneros-Montemayor AM; Moreno-Baez M; Voyer M; Allison EH; Cheung M; Oyinlola MA; Singh W; Ota Y. 2019. Social Equity And Benefits As The Nexus Of A Transformative Blue Economy: A Sectoral Review Of Implications. *Marine Policy*. 10.1016/J.Marpol.2019.103702
36. Cohen PJ; Allison EH; Andrew J; Evans LS; Fabinyi M; Garces LR; Hall SJ; Hicks CC; Hughes S; Mills DJ; Masu R; Mbaru EK; Ratner BD. 2019. Securing A Just Space For Small-Scale Fisheries In The Blue Economy. *Frontiers In Marine Science*. 10.3389/Fmars.2019.00171
37. Cole SM; Mcdougall C; Kaminski AS; Chilala A; Chisule G. 2018. Postharvest Fish Losses And Unequal Gender Relations: Drivers Of The Social-Ecological Trap In The Barotse Floodplain Fishery, Zambia. *Ecology And Society*. 10.5751/Es-09950-230218
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39. Coulthard S; Evans L; Turner R; Mills D; Foale S; Abernethy K; Hicks I. 2017. Exploring 'Islandness' And The Impacts Of Nature Conservation Through The Lens Of Wellbeing. *Environmental Conservation*. 10.1017/S0376892917000273
40. Dasgupta S; Huq M; Mustafa MG; Sobhan MI; Wheeler D. 2017. The Impact Of Aquatic Salinization On Fish Habitats And Poor Communities In A Changing Climate: Evidence From Southwest Coastal Bangladesh. *Ecological Economics*. 10.1016/J.Ecolecon.2017.04.009
41. De Verdal H; Komen H; Quillet E; Chatain B; Allal F; Benzie Jah; Vandeputte M. 2018. Improving Feed Efficiency In Fish Using Selective Breeding: A Review. *Reviews In Aquaculture*. 10.1111/Raq.12202
42. De Verdal H; Mekkawy W; Lind CR; Vandeputte M; Chatain B; Benzie Jah. 2017. Measuring Individual Feed Efficiency And Its Correlations With Performance Traits In Nile Tilapia, *Oreochromis Niloticus*. *Aquaculture*. 10.1016/J.Aquaculture.2016.11.015
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## Annex 4: List of Persons Interviewed

Date	Name and Gender	Job Title	Division	Role/Cluster
<b>Project Management Unit (PMU)</b>				
10/8/20	1. Michael John Phillips (M)	Director, Aquaculture and Fisheries Sciences	Sustainable Aquaculture	CRP Leader
10/11/20	2. Paola Reale (F)	Research Programs Manager (retiring)	Cross-Cutting	Program manager
10/9/20	3. Cristiano Rossignoli (M)	MEL and Impact Assessment Research Leader	Cross-Cutting	MEL Research Leader
10/8/20	4. Andressa Gutierrez (F)	Monitoring Evaluation and Learning Specialist	Cross-Cutting	Alternate for C. Rossignoli
10/8/20	5. Muhammad Hafizullah Mirhassan (M)	Research Program Specialist	Cross-Cutting	Research Program Specialist
10/9/20	6. Ban Swee Tan (M)	Manager, Research Finance	Sustainable Aquaculture	Budget Project Manager
<b>Flagship Leaders</b>				
10/7/20	7. John Benzie (M)	Research Program Leader - Sustainable Aquaculture	Sustainable Aquaculture	FISH CRP-FP1- Sustainable aquaculture
10/9/20	8. Philippa Cohen (F)	Research Program Leader - Resilient Small-Scale Fisheries	Resilient Small-scale Fisheries	FISH CRP-FP2- Sustainable Small-Scale Fisheries
<b>Cluster Leaders</b>				
10/19/20	9. Sonali Senaratna Sellamuttu (F)	Senior Researcher	IWMI in Southeast Asia	FP2-2- Fish in multifunctional landscapes
10/13/20	10. Vishnumurthy Mohan Chadag (M)	Principal Scientist	Sustainable Aquaculture	FP1-2- Fish health, nutrition, and feeds
10/15/20	11. Fiona Simmance (F)	Scientist	Resilient Small-scale Fisheries	FP2-3- Fish in regional food systems
<b>Cluster Leaders</b>				
10/15/20	12. Cynthia Lauren McDougall (F)	Gender Research Leader	Cross-Cutting	Gender
10/14/20	13. Essam Mohammed (M)	Climate Change Research Leader	Cross-Cutting	Climate Change
<b>Product Leaders</b>				
10/13/20	14. Matthew Hamilton (M)	Scientist (Fish Genetics)	Sustainable Aquaculture	FP1-1- Fish breeds and genetics
10/15/20	15. Tana Lala-Pritchard (F)	Director of Communications and Marketing	Corporate Functions	PMT- Program Management Team
10/19/20	16. Nhuong Tran (M)	Scientist	Sustainable Aquaculture	FP1-3- Aquaculture systems
10/15/20	17. Bo Gustav Hampus Eriksson (M)	Senior Scientist	Resilient Small-scale Fisheries	FP2-1- Resilient coastal fisheries
10/14/20	18. Kelvin Shikuku (M)	Scientist	Sustainable Aquaculture	FP1-3- Aquaculture systems

Date	Name and Gender	Job Title	Division	Role/Cluster
<b>Managing Partners</b>				
10/21/20	19. Johan Verreth (M)	Professor	Aquaculture and Fisheries Group	
10/22/20	20. Tiffany Morrison (F)	Professorial Research Fellow	ARC Centre of Excellence for Coral Reef Studies	
10/20/20	21. John Linton (F)	Commercial Director	Faculty of Engineering & Science	
<b>Country Partners</b>				
10/28/20	22. Alaa Badr (M)	Product Manager	Skretting Egypt (Fish Feed Co)	
10/28/20	23. Aymen Rostom (M)	CEO	Skretting Egypt (Fish Feed Co)	
10/20/20	24. Hussein Adel Mansour (M)	CEO	Aller Aqua for fish feeds	
10/23/20	25. Mohamed Gouda El Sayed (M)	Chairman	Fayoum Fish Farmer Association	
10/20/20	26. Ayman Ammar (M)	Professor Emirate,	Former Director CLAR	
10/22/20	27. Amira El Hanafy (F)	Director	MoA Technical/Scientist	
10/22/20	28. Peter Degen (M)	Senior Advisor on a small-scale fisheries project	Danida	
10/22/20	29. Gabrielle Isaak (F)	Deputy Head of Mission	Embassy of New Zealand in Timor-Leste	
10/22/20	30. Manuel Abrani (M)	Development Programme Coordinator	Embassy of New Zealand in Timor-Leste	
Sub-total M= 19 F= 11				

# Annex 5: “Base” Data Collection Tool

## FISH CRP REVIEW

### KII GUIDE – PMU STAFF AND FLAGSHIP LEADERS

**Interview Date:**  
**Respondent Name:**  
**Respondent Division/Role:**

**Interviewers:**  
**Respondent Job Title:**

#### 1. QUALITY OF SCIENCE

- 1.1. What is your opinion of the successes and constraints related to FISH CRP quality of science with regard to *CRP research inputs*? What are the most significant outputs with regard to quality of science?
- 1.2. What is your opinion of the successes and constraints related to FISH CRP quality of science with regard to *CRP processes*, including those related to partnerships (how do members decide where to publish)?
- 1.3. What is your opinion of the successes and constraints related to FISH CRP quality of science with regard to *CRP outputs*?

#### 2. EFFECTIVENESS

- 2.1. What is your opinion of the successes and constraints related to FISH CRP *achievements of planned outputs*?
- 2.2. What is your opinion of the successes and constraints related to the demonstrated importance of FISH CRP *outcomes* (reference OICRs)? What are the most significant outcomes with regard to outcomes?
- 2.3. What is your opinion of the successes and constraints related to FISH CRP quality of science with regard to *CRP outputs*? What are the opportunities and impediments with regard to SDOs and milestones? How are target numbers derived?

#### 3. FUTURE ORIENTATION

- 3.1. What is your opinion of the successes and constraints related to FISH CRP *future orientation*? How does the relationship with partners work with regard to division of labor vis-à-vis Country Programs and NARs?
- 3.2. What is your opinion of the most important factors related to FISH CRP *future orientation*?

#### 4. CROSS-CUTTING THEMES (CAPACITY DEVELOPMENT, GENDER, PARTNERSHIPS, YOUTH)

- 4.1. What is your opinion of the successes and constraints related to FISH CRP *cross-cutting themes related to capacity development*?
- 4.2. What is your opinion of the successes and constraints related to FISH CRP *cross-cutting themes related to gender*?
- 4.3. What is your opinion of the successes and constraints related to FISH CRP *cross-cutting themes related to partnerships*?
- 4.4. What is your opinion of the successes and constraints related to FISH CRP *cross-cutting themes related to youth*?

#### 5. WHAT ADDITIONAL MATERIALS SHOULD THE REVIEW TEAM CONSIDER IN THIS REVIEW?

## Annex 6: Bibliometrics

Sources	Articles	Impact Factor 2019	Rank	JCR Category
AQUACULTURE	18	3.224	5 of 53; 10 of 106	FISHERIES; MARINE & FRESHWATER BIOLOGY
MARINE POLICY	10	3.228	37 of 123; 7 of 95	ENVIRONMENTAL STUDIES; INTERNATIONAL RELATIONS
AQUACULTURE RESEARCH	6	1.748	20 of 53	FISHERIES
REVIEWS IN AQUACULTURE	6	7.772	1 of 53	FISHERIES
ECOLOGY AND SOCIETY	5	3.89	32 of 168; 27 of 123	ECOLOGY; ENVIRONMENTAL STUDIES
FISH AND FISHERIES	5	6.785	2 of 53	FISHERIES
FRONTIERS IN MARINE SCIENCE	5	3.661	7 of 106	MARINE & FRESHWATER BIOLOGY
MARITIME STUDIES	5			NA in WoS
PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA	4	9.412	8 of 71	MULTIDISCIPLINARY SCIENCES
FOOD SECURITY	3	2.095	70 of 139	FOOD SCIENCE & TECHNOLOGY
GLOBAL FOOD SECURITY- AGRICULTURE POLICY ECONOMICS AND ENVIRONMENT	3	6.034	7 of 139	FOOD SCIENCE & TECHNOLOGY
HUMAN ECOLOGY	3	1.683	24 of 90; 95 of 123; 61 of 150	ANTHROPOLOGY; ENVIRONMENTAL STUDIES; SOCIOLOGY
MARINE AND FRESHWATER RESEARCH	3	1.488	26 of 53; 11 of 22; 51 of 106; 40 of 66	FISHERIES; LIMNOLOGY; MARINE & FRESHWATER BIOLOGY; OCEANOGRAPHY
PLOS ONE	3	2.74	27 of 71	MULTIDISCIPLINARY SCIENCES
SCIENTIFIC REPORTS	3	3.998	17 of 71	MULTIDISCIPLINARY SCIENCES
SUSTAINABILITY	3			
ANIMAL GENETICS	2			
AQUACULTURE NUTRITION	2			
CURRENT OPINION IN ENVIRONMENTAL SUSTAINABILITY	2			
EGYPTIAN JOURNAL OF AQUATIC RESEARCH	2			
FISHERIES RESEARCH	2			
GLOBAL ENVIRONMENTAL CHANGE-HUMAN AND POLICY DIMENSIONS	2			
INTERNATIONAL JOURNAL OF LIFE CYCLE ASSESSMENT	2			
INTERNATIONAL JOURNAL OF THE COMMONS	2			
INTERNATIONAL JOURNAL OF VETERINARY SCIENCE AND MEDICINE	2			
JOURNAL OF FISH DISEASES	2			

Sources	Articles	Impact Factor 2019	Rank	JCR Category
REVUE SCIENTIFIQUE ET TECHNIQUE-OFFICE INTERNATIONAL DES EPIZOOTIES	2			
SCIENCE ADVANCES	2			
ADVANCES IN WATER RESOURCES	1			
AGRICULTURAL SYSTEMS	1			
AGRONOMY FOR SUSTAINABLE DEVELOPMENT	1			
ANNUAL REVIEW OF ENVIRONMENT AND RESOURCES VOL 43	1			
ASIA PACIFIC VIEWPOINT	1			
BIOLOGICAL CONSERVATION	1			
BIOLOGY-BASEL	1			
BMC GENETICS	1			
CONSERVATION LETTERS	1			
DEEP-SEA RESEARCH PART II-TOPICAL STUDIES IN OCEANOGRAPHY	1			
EARTHS FUTURE	1			
ECOLOGICAL ECONOMICS	1			
ENVIRONMENTAL CONSERVATION	1			
ENVIRONMENTAL MODELLING \& SOFTWARE	1			
ENVIRONMENTAL RESEARCH LETTERS	1			
ENVIRONMENTAL SCIENCE \& POLICY	1			
ENVIRONMENTS	1			
FOOD AND NUTRITION BULLETIN	1			
FRONTIERS IN GENETICS	1			
GENES	1			
GENETICS SELECTION EVOLUTION	1			
GEOGRAPHICAL JOURNAL	1			
INDIAN JOURNAL OF GEO-MARINE SCIENCES	1			
INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	1			
INTERNATIONAL JOURNAL OF FOOD SCIENCES AND NUTRITION	1			
JOURNAL OF AGRICULTURAL EDUCATION \& EXTENSION	1			



Sources	Articles	Impact Factor 2019	Rank	JCR Category
JOURNAL OF CLEANER PRODUCTION	1			
JOURNAL OF ENVIRONMENTAL BIOLOGY	1			
JOURNAL OF ENVIRONMENTAL MANAGEMENT	1			
LAND USE POLICY	1			
MARINE AND COASTAL FISHERIES	1			
MARINE ECOLOGY PROGRESS SERIES	1			
MARINE POLLUTION BULLETIN	1			
MARINE RESOURCE ECONOMICS	1			
MATERNAL AND CHILD NUTRITION	1			
NATURAL RESOURCES FORUM	1			
NATURE	1			
NATURE CLIMATE CHANGE	1			
NATURE GENETICS	1			
OCEAN \& COASTAL MANAGEMENT	1			
PALGRAVE COMMUNICATIONS	1			
PHILIPPINE AGRICULTURAL SCIENTIST	1			
PREVENTIVE VETERINARY MEDICINE	1			
SCIENCE OF THE TOTAL ENVIRONMENT	1			
SINGAPORE JOURNAL OF TROPICAL GEOGRAPHY	1			
SOCIETY \& NATURAL RESOURCES	1			
SUSTAINABILITY SCIENCE	1			
VETERINARY AND ANIMAL SCIENCE	1			
WORLD DEVELOPMENT	1			

## Annex 7: Classifications

The FISH CRP utilized the following classifications to define innovations and levels of progress.<sup>3</sup>

### 7.1: Classifications of Innovations

**Stage 1: Discovery/Proof of Concept (PC - End of Research Phase):** The innovation has completed the initial research phase. For policy research, this could include the identification and testing of policy options. For technologies and varieties, this means that the innovation has been tested under ideal or controlled conditions such as laboratory, greenhouse, or confined settings (for example on-station);

**Stage 2: Successful Piloting (PIL - End of Piloting Phase):** (not relevant for all innovations) - The innovation has completed the piloting phase. The technology or practice has successfully completed broader testing under conditions intended to resemble those that the potential users of the new technology will encounter. The innovation has achieved a documented “real world” assessment of potential performance and feasibility. This may or may not mean that the innovation is immediately available for use;

**Stage 3: Available/Ready for Uptake (AV):** The innovation is ready to be taken up by next users or end-users. All conditions, such as licensing, certification, and regulatory approvals have been met so that end-users (e.g., farmers, service providers) can use and disseminate the innovation legally. If an innovation made available for uptake in a previous year has increased its geographic scope (e.g., certification and release in a new country) it can also be included here; and

**Stage 4: Uptake by Next User (USE):** The innovation has demonstrated uptake by next users. This includes any support for, or adoption by public, private or non-governmental institutions. It does not include uptake by end-users (the underlying logic here is that next users are much easier to count/evidence and that it would be very unusual to have uptake by end-users at scale without involvement of any next users). To report stage 4 requires an OICR case study.

### 7.2: Levels of Progress

**Level 1:** (Sphere of influence) CGIAR research (and related activities) has contributed to changed discourse and/or behavior among key actors (related to the theory of change). Examples of evidence: outcome mapping study, media analysis, e-mail correspondence;

**Level 2:** (Sphere of influence) CGIAR research (and related activities) has contributed to documented policy and practice change by key actors. This may include changes such as income, nutrient intake, etc. in the sphere of influence (e.g., project level). Example of evidence: a study of adoption and effects, commissioned at project level; and

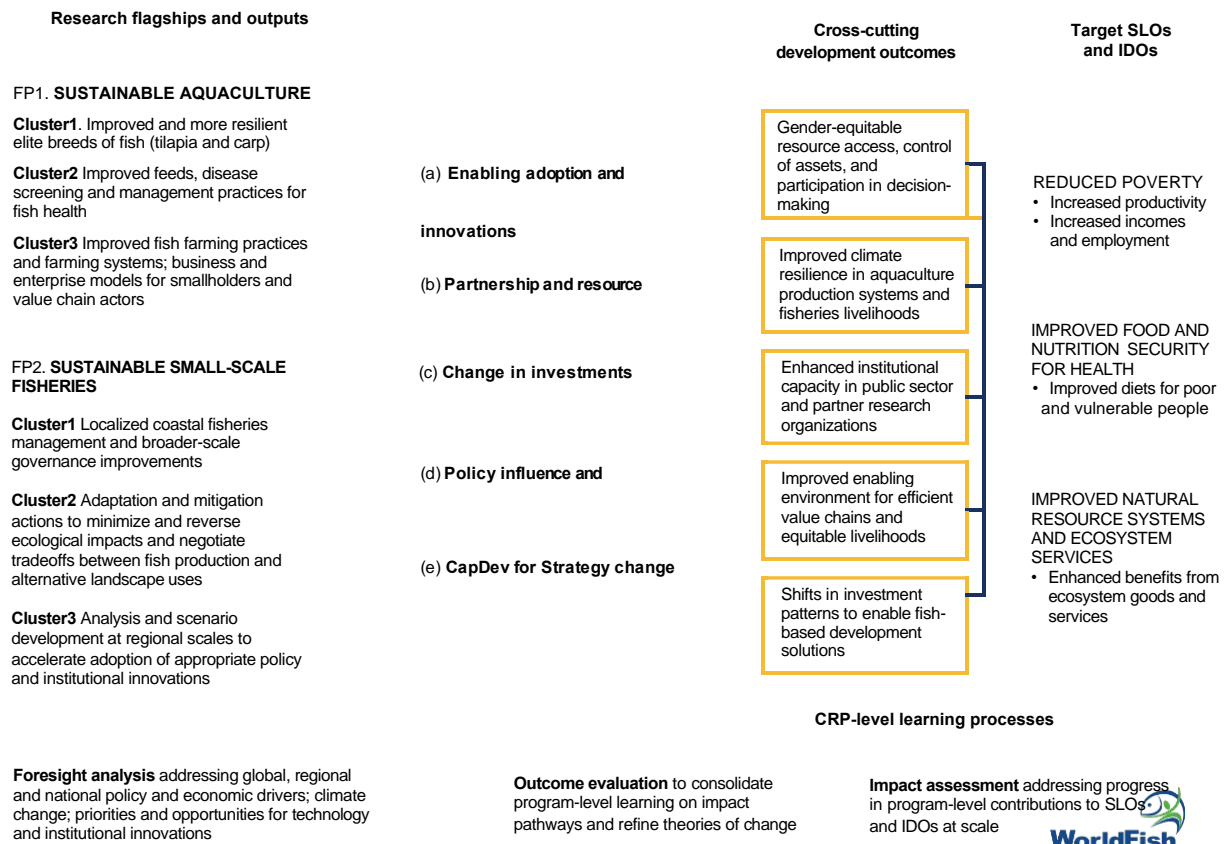
**Level 3:** (Sphere of interest) Policy and/or practice changes influenced by CGIAR research (and related activities) have led to impacts at scale or beyond the direct CGIAR sphere of influence. Example of evidence: Ex-post Impact Assessment.

“Unknown” describes the OICRs without stage of maturity information.

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<sup>3</sup> Rünzel, Max and Gaia Gullotta "Standard tables for Fish CRP performance assessment, based on Milestones, OICRs, Innovations and Policies analysis (2017-2019)" CAS, 2020.

# Annex 8: Fish Theory of Change



## Annex 9: OICR Analysis Templates

### Annex 9.1: Hilsa Production and Fishers' Income Increased

CRP, OICR Number & Title FISH <a href="#">OICR214</a> <i>Hilsa Production and Fishers' Income Increased due to co-management strategies aimed to enhance the socio-economic resilience of fishing communities in Bangladesh</i>		
CRP Lead: FISH		
Phases of report (new/updated same level/updated new level of maturity):3		
If for Innovations at Level 4 or Policies at Levels 2 and 3		
Year reported: 2019	Maturity level: 3	# Years of programmatic work: 4
Geographic location(s): Bangladesh		
Populations covered, estimated size and socio-demographic categories (e.g., subsistence farmers, women, adolescents, etc.) 4,275 fishing households and surrounding communities in the Barisal Province rivers emptying into the Bay of Bengal		
Key contributors to the outcome		
CGIAR (other CRPs, Platforms, FPs, centers) FISH FP2		
1.1.1.1.1 External partners: USAID, International Union for Conservation of Nature, Wildlife Conservation Society, Bangladesh Ministry of Fisheries and Livestock, Department of Fisheries Bangladesh		
<b>Links to the CGIAR Strategic Results Framework: (IDOs and sub-IDOs)</b> 1.3.2 - Increased livelihood opportunities; 1.4.4 - Increased conservation and use of genetic resources		
<b>[CRP] contributions to the outcome</b>		
Innovations Community Fish Guards (CFGs) enhanced compliance in coastal biodiversity conservation in Bangladesh <a href="#">MELINN357</a> Genetic Hilsa ecotypes/races and its return to natal river for spawning discovered by genetic analysis <a href="#">MELINN355</a> Hilsa fisheries co-management and livelihood buffering strategies. <a href="#">MELINN142</a>		
Policies WorldFish contributed to the declaration of the Nijhum Dwip Marine Protected Area (MPA) in Bangladesh through S.R.O. No.211-Law/2019 <a href="#">MELPOL250</a> Allowable mesh size for hilsa gillnets determined and recommended in Bangladesh <a href="#">MELPOL252</a>		
Key CRP publications supporting the OICR <a href="#">M.J. Rahman et al., 2020. Hilsa Fishery Management in Bangladesh Earth and Environmental Science 414.</a> <a href="#">Haque, A.M. Enhanced Coastal Fisheries in Bangladesh (ECOFISH-BD): Poster-ECOFISH-Outputs Enhanced Coastal Fisheries in Bangladesh (ECOFISH-Bangladesh) Annual Report Oct 2018 to Dec 2019</a> <a href="#">Innocent Bikara, Andressa Gutierrez. (2020). Enhanced Coastal Fisheries in Bangladesh (ECOFISH—Bangladesh). Project brief Oct 2018- Dec 2019.</a> <a href="#">Essam Yassin Mohammed. (2020). EcoFish final evaluation report.</a>		
<b>OICR relationship with CGIAR cross-cutting issues: YES</b>		
Capacity development: NO		
Climate change: NO		
Gender: YES		
Youth: YES		
<b>Key implementing organization</b> (e.g., institute, partner) WorldFish		
1.1.1.1.2 External partners related USAID, International Union for Conservation of Nature, Wildlife Conservation Society, Bangladesh Ministry of Fisheries and Livestock, Department of Fisheries Bangladesh		
<b>Partnerships:</b> Key partners: NA		
<b>Brief reviewer's description of the outcome (based on OICR report, documents cited, original data collected/interviews, and other references)</b> <i>One paragraph summary</i> Co-management interventions helped in producing a 6% annual incremental increase in production, resulting in production of over 130,000 tons of hilsa over the last three years valued at over USD 1.04 billion. As a result of increased hilsa production and improved hilsa size, total household income of		

fishers and income from fishing activities increased by 65% and 67%, respectively. A total of 4,257 hilsa fishing households were fully engaged in sound and sustainable Alternative Income Generating as a strategy to improve co-management.

### **Analysis**

*Mapping of the outcome to the CRP/Flagship ToC. How does it fit into the narrative of the ToC Analysis of the reported outcome/impact, using the evaluation criteria of quality of science and effectiveness (also using findings from document review and/or interviews with key informants). Cross-referencing to the QoR4D Framework criteria of scientific legitimacy and credibility.*

This activity met sustainable development goals targeted by FISH for successfully completing a pathway to the FISH ToC and the CGIAR SRF. The outcome positively impacted goals to conserve and sustainably use the oceans, seas, and marine resources for sustainable development, end poverty in all its forms everywhere, end hunger, and achieve food security and improved nutrition. An additional benefit was attained as the livelihoods of fishers and traders in the hilsa value chain and the nutrition of the consumers throughout the country were improved.

In terms of improvements in nutrition, 30% of participants impacted by this initiative were women and youth. The process was highly legitimate as the villages formed a series of organizations and committees and took ownership by supplying their own governance and enforcement. The effort was highly credible resulting in a sound, high-quality journal article and several grey outputs. Obviously, the project required significant impact assessment research.

### **Conclusions**

*Example questions: To what extent does the OICR represent the application of the CRPs research to developmental outcomes? What further information would be useful to elaborate that logic, with reference to the CRP theory of change? What implicit assumptions are revealed by the OICR analysis? What lessons emerge for the CRP or the CGIAR more generally, based on this outcome?*

This is an explicit example of research to developmental outcome, and the outcome was achieved because of the FISH CRP influence of policy working with the Bangladeshi government. The effectiveness will be multiplied as the success of the hilsa management in Bangladesh attracted the attention of two neighboring countries, India and Myanmar, to apply similar incentive-based management. Myanmar has already initiated this approach for fish stocks in the Ayeyarwady Delta to safeguard biodiversity and improve the livelihoods of local fishing communities. The lesson that has emerged is that if you educate local communities on sound fish management, connect them as a continuum and then give them ownership with regard to governance and enforcement, dramatic results can be obtained.

## Annex 9.2: How Rice Field Fisheries are Netting Nutrition Gains

CRP, OICR Number & Title FISH <a href="#">OICR216</a>		
<i>How rice field fisheries are netting nutrition gains for over 124,876 people in Cambodia</i>		
CRP Lead: FISH		
Phases of report (new/updated same level/updated new level of maturity):2		
If for Innovations at Level 4 or Policies at Levels 2 and 3		
Year reported: 2019	Maturity level: 2	# Years of programmatic work: 4
Geographic location(s): Cambodia		
Populations covered, estimated size and socio-demographic categories (e.g., subsistence farmers, women, adolescents, etc.) Cambodia, fisher families and rural communities, approximately 296,000 people in this area		
Key contributors to the outcome		
CGIAR (other CRPs, Platforms, FPs, centers) FP2,		
External partners ( <a href="#">partners OUTSIDE of CGIAR / the CRP framework</a> ) The Fisheries Administration Cambodia, USAID		
Links to the CGIAR Strategic Results Framework: (IDOs and sub-IDOs) <i>2.1.1 - Increased availability of diverse nutrient-rich foods</i>		
[CRP] contributions to the outcome ( <i>list any of the following</i> )		
Innovations		
Co-management of community fish refuges (CFRs) in multifunctional rice/wetland landscapes to enhance fish production, water security, and adaptive capacity to climate change in Cambodia <a href="#">MELINN361</a>		
Co-management of community fish refuges (CFRs) to enhance fish production, water security, and adaptive capacity to climate change. <a href="#">MELINN139</a>		
Methods for improving productivity of Aquatic Agricultural systems in Cambodia. <a href="#">MELINN156</a>		
Policies		
Inclusion of co-management of community fish refuges (CFRs) into Cambodia's 10-year Strategic Plan for Fisheries Conservation and Management <a href="#">MELPOL235</a>		
Key CRP publications supporting the OICR		
Fiorella KJ; Bageant ER; Kim V; Try V; Macdonell HJ; Baran E; Kura Y; Brooks AC; Barrett SH. 2019. Analyzing Drivers Of Fish Biomass And Biodiversity Within Community Fish Refuges In Cambodia. Ecology And Society. 10.5751/Es-11053-240318		
<a href="#">Cullhaj, M. Gutierrez, A. (27/4/2020). Feed the Future Cambodia Rice Field Fisheries (RFF II). Project brief April - October 2019. Penang, Malaysia: WorldFish. Project Brief.</a>		
Community Fish Refuges Boost Fish Production in Cambodia <a href="https://www.worldfishcenter.org/content/community-fish-refuges-boost-fish-production-cambodia">https://www.worldfishcenter.org/content/community-fish-refuges-boost-fish-production-cambodia</a>		
Managing Aquatic Agricultural Systems to Improve Nutrition and Livelihoods in Cambodia. 2017. <a href="https://hdl.handle.net/20.500.12348/551">https://hdl.handle.net/20.500.12348/551</a>		
How Rice Field Fisheries Are Netting Nutrition Gains In Cambodia. 2018 <a href="https://fish.cgiar.org/impact/stories-of-change/how-rice-field-fisheries-are-netting-nutrition-gains-cambodia">https://fish.cgiar.org/impact/stories-of-change/how-rice-field-fisheries-are-netting-nutrition-gains-cambodia</a>		
Scaling Up Best Practices to Secure Food for Rural Cambodians. 2018. <a href="https://www.worldfishcenter.org/story/scaling-best-practices-secure-food-rural-cambodians">https://www.worldfishcenter.org/story/scaling-best-practices-secure-food-rural-cambodians</a>		
A Manual for Community Fish Refuge - Rice Field Fisheries System Management in Cambodia.2019.		

<a href="https://hdl.handle.net/20.500.12348/3633">https://hdl.handle.net/20.500.12348/3633</a>
Guidelines for Community Fish Refuge – Rice Field Fisheries System Management in Cambodia (Khmer version). 2019. <a href="https://hdl.handle.net/20.500.12348/3631">https://hdl.handle.net/20.500.12348/3631</a>
OICR relationship with CGIAR cross-cutting issues (YES/NO) YES
Capacity development
Climate change
Gender: YES
Youth: YES
Key implementing organization (e.g., institute, partner) WorldFish
External partners related USAID, The Fisheries Administration Cambodia
Partnerships: Key partners ([CRP]'s engagement with each partner, and extent to which partner expectations/needs were met or not) NA
Brief reviewer's description of the outcome (based on OICR report, documents cited, original data collected/interviews, and other references) <i>One paragraph summary</i> Well-managed community fish refuges (CFRs) significantly improved fish productivity of the rice field environment as soon as one year after the intervention. In one year, the quantity of fish caught increased by 30%, and the proportion of young children under five eating small fish increased by 50%. Over 124,876 people in Cambodia consumed more fish at home following behavior change interventions associated with enhanced rice field fish productivity. This activity met the FISH goal for completing a pathway to the ToC and sphere of influence to increase the availability of diverse nutrient-rich foods for people, of which 50% are women, without deficiencies in one or more essential micronutrients, making it a highly relevant activity.
Analysis <i>Mapping of the outcome to the CRP/Flagship ToC. How does it fit into the narrative of the ToC? Analysis of the reported outcome/impact, using the evaluation criteria of quality of science and effectiveness (also using findings from document review and/or interviews with key informants). Cross-referencing to the QoR4D Framework criteria of scientific legitimacy and credibility.</i>  The effort was highly credible resulting in several high-quality grey outputs, primarily reports and briefs, and one journal article. The contents of the reports and the journal article are highly credible, and at least two journal articles have been published related to the background and pilot aspects of this project with the contents being high quality. This work was highly effective with fish production, fish consumption, and micronutrient consumption increasing significantly for more than 100,000 people. This work maps to both SLO 2.3 2.4 million more people, of which 50% are women, without deficiencies in one or more essential micronutrients, and SLO 1.1 5.0 million more farm households have adopted more improved varieties, breeds, and/or management practices.
Conclusions <i>Example questions: To what extent does the OICR represent the application of the CRPs research to developmental outcomes? What further information would be useful to elaborate that logic, with reference to the CRP theory of change? What implicit assumptions are revealed by the OICR analysis? What lessons emerge for the CRP or the CGIAR more generally, based on this outcome?</i>  This is an explicit example of research to developmental outcome as food access and nutrition of approximately 125,000 people was improved with that number will be more than doubled in the next 2-3 years. This was possible because of the FISH CRP influence of policy working with the Cambodian government. Additionally, nearby countries such as Myanmar have seen these impactful results and are also adopting this technology. The lesson that has emerged is that if you educate local communities on sound fish management, connect them as a continuum and then give them ownership with regard to governance and enforcement, dramatic results can be obtained.

# Annex 10: Conflict of Interest Statements

## Annex 1 - Conflict of Interest Statement

1. Main employer and any other organization that provides you with remuneration (which may be named participants in the project/program/proposal you are being asked to review/evaluate)

Please provide details: NONE

2. Are you aware whether a relative, close friend, close colleague or someone with whom you have financial ties is receiving funding from or giving advice to a project/program/proposal you are being asked to review/evaluate?

Yes/No NO

If Yes, please provide brief details: NONE

3. Does any project/program/proposal you are being asked to review/evaluate cite any of your own current research?

Yes/No NON

If Yes, please provide brief details: NONE

4. Does any project/program/proposal you are being asked to review/evaluate name researchers with whom you have active collaborations, recently published joint papers or are in regular email correspondence?

Yes/No NO

If Yes, please provide brief details: NONE

5. Does any project/program/proposal you are being asked to review/evaluate name any of your past PhD students are active participants?

Yes/No NO

If Yes, please provide brief details: NONE

**Declaration:** I declare that the information provided on this statement is true and complete.

**Name:** David Rinck

**Signed:** 

**Date:** August 17, 2020



### Annex 1 - Conflict of Interest Statement

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Please provide details: none

2. Are you aware whether a relative, close friend, close colleague or someone with whom you have financial ties is receiving funding from or giving advice to a project/program/proposal you are being asked to review/evaluate?

Yes/No no

If Yes, please provide brief details:

3. Does any project/program/proposal you are being asked to review/evaluate cite any of your own current research?

Yes/No I am not sure, I am widely cited.

If Yes, please provide brief details:

4. Does any project/program/proposal you are being asked to review/evaluate name researchers with whom you have active collaborations, recently published joint papers or are in regular email correspondence?

Yes/No no

If Yes, please provide brief details:

5. Does any project/program/proposal you are being asked to review/evaluate name any of your past PhD students are active participants?

Yes/No no

If Yes, please provide brief details:

**Declaration:** I declare that the information provided on this statement is true and complete.

**Name:** Rex Dunham

**Signed:** 

**Date:** 11/25/20







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