



PIERCE STUDIES IN INDIAN MANAGEMENT
in association with Indian Academy of Management



Business Responsibility and Sustainability in India

Sectoral Analysis of Voluntary Governance Initiatives

Edited by

Bimal Arora - Pawan Budhwar - Divya Jyoti



Palgrave Studies in Indian Management

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Palgrave Studies in Indian Management

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Series Editors: Pawan Budhwar, Aston University, UK, and Arup Varma, Loyola University, US

The Palgrave Studies in Indian Management series, in association with the Indian Academy of Management, publishes books which are designed to inform and inspire academics, practitioners, and anyone else with an interest in understanding the issues involved in management of organizations in India. Since the economic reforms began in the early 1990's, the Indian economy has been growing at a steady pace, and the country has rightfully assumed its place among the leading economies of the world. Indian organizations are increasingly going global and setting up operations and/or acquiring organizations in different parts of the world. At the same time, multinationals from around the world have made a beeline to India to capitalize on the huge market, as well as to draw upon the highly qualified workforce.

Of course, the world's largest and most diverse democracy faces numerous challenges – from infrastructure needs, to dismantling bureaucracy, and creating systems and processes that are more investor-friendly. In 2014, the Indian electorate picked a new government with overwhelming majority, and charged it with helping the Indian economy grow faster, so that the benefits may reach a wider section of the population. The new government has been busy creating policies that are designed to foster innovation, entrepreneurship, and business leadership. Indeed, in the first year since the government assumed office, the inward flow of FDI has increased substantially, and several multinational corporations have announced setting up operations in India, in response to the Prime Minister's "Make in India" campaign.

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Bimal Arora • Pawan Budhwar
Divya Jyoti
Editors

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In memory of my father—Late Major Abhe Ram—PB
In memory of my father—Late Sri Lekhraj Arora—BA
For Maa and Papa—DJ
To all those who look forward to a sustainable future in India

Foreword

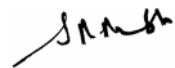
I am pleased to present a very timely and topical book that should prove very useful to anyone interested in business responsibility, sustainability and standards. Bimal Arora, Pawan Budhwar and Divya Jyoti through this book have undertaken an analysis of prominent voluntary sustainability standards in key exports sectors in India. By bringing together chapter contributors actively engaged in these sectors, the editors have put together an impressive volume that covers several critical aspects of transnational private regulation and the scene of play in India.

As I have shared on several occasions earlier, sustainability itself can often appear to be a daunting idea and an abstract construct. Therefore, standards—which articulate and define meaningful, tangible activities in production and consumptions of goods and services—can be valuable. The social and environmental impacts of business activities and exponentially growing production and consumption worldwide are an increasing threat and concern globally for sustainability. With enhanced expectations from businesses on their role and contribution towards achievement of the global goals set for the year 2030, businesses need broader knowledge, understanding, tools and an ecosystem. Multi-stakeholder initiatives driven voluntary sustainability standards can support businesses, policymakers and the diverse set of stakeholders in creating mechanisms, processes and practices that help them play their roles and contribute to achieve the “Sustainable Development Goals” (SDGs).

While there are several voluntary and public policy initiatives in India towards implementing these standards, there is indeed scope for adoption and adaptation of international standards, development of local standards where none exists, and implementation of a large number of standards for industries and consumers keeping in mind the diversity of markets and its interests. The intent of such standards, however, needs to be explicitly stated, whether these standards are for larger public good or narrow and limited interests of select corporates and micro, small and medium enterprises (MSMEs) to keep their personal slates look clean. Assuming that larger public good is the intent, this however cannot be achieved without two critical requisites. The first one is the issue of measurement, documentation and transparency, and the second is the issue of inclusiveness of all stakeholders, including developing countries, both in shaping and governance of standards.

India has long been a key sourcing destination for the global companies and is quickly becoming an important consumer market of its own. Global and national voluntary sustainability standards and collaborative sustainability initiatives can play a positive role in making this transition more responsible and sustainable. However, voluntary sustainability standards will need to be locally relevant, increase their engagements and visibility in the Indian market and among Indian consumers and policy-makers. I am happy that the editors of this book have adopted a comprehensive approach in underscoring the needs and nuances of business responsibility and voluntary sustainability standards in India with this insightful collection of work by eminent scholars and practitioners. The in-depth examination of voluntary sustainability standards in select sectors creates scope for dialogues and reflections, and I look forward to the conversation gaining momentum.

Minister of Commerce and Industry
and Civil Aviation, Government of India
New Delhi, India



Suresh Prabhu

Preface

The idea for this book was developed and shaped with the co-editors working towards incubating Centre for Responsible Business (CRB) in India between 2011 and 2013. CRB was incubated through a public–private partnership between the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Social Accountability International (SAI) and Business Social Compliance Initiative (BSCI)/Foreign Trade Association (FTA) (now amfori), as part of a German Federal Ministry for Economic Cooperation and Development (BMZ)-supported project from 2010 to 2013. The CRB is now well established and works as a global south-based think-tank on the issues of business responsibility and sustainability, with a particular focus on voluntary, collective and collaborative governance and steering through voluntary sustainability standards (VSS).

The primary origination of VSS is generally in developed countries of North America and Europe, and the implementation happens in developing countries through supply chains and global value chains. Generally, while there is representation of developing country actors during the development of standards, wider inclusion, participation, consultation and buy-in of developing country stakeholders are not a norm. Sensing the lack of a south-based platform for North-South dialogue on VSS, the co-editors conceptualised an annual conference *India and Sustainability Standards: International Dialogues and Conference (ISS)* in 2013. The ISS convenes and conducts dialogues and consultations on diverse industry

sectors and themes in different formats every year in November, with partners as co-hosts and convenors—to deliberate on the status, challenges and opportunities inherent in different industry sectors and themes covered. The dialogues involving 60+ partners and 800+ delegates develop a roadmap for actions through the following year and taking to a wider set of stakeholders.

With overwhelming response and encouragement over the years from Indian and international partners, standard setters, large companies/MNCs, micro, small and medium enterprises (MSMEs), civil society supporters, policymakers and government agencies, media and delegates, ISS evolved into an India-based international Multi-stakeholder Dialogue Platform and as an annual flagship conference. CRB's partnership with ISEAL Alliance for a three-year project to promote awareness and uptake of VSS in emerging economies (India, China and Brazil) has played a crucial part in shaping the ISS Dialogue Platform. The adoption and initiation of Agenda 2030 for Sustainable Development Goals (SDGs) has provided both the impetus and the framework for greater attention to the issues of business responsibility and sustainable development. The role of business, and its interface with United Nations Guiding Principles on Business and Human Rights (UNGPs), SDGs and with Paris Agreement-related climate change decisions, has emerged as critical areas on this agenda at global level and requires a platform like the ISS for wide-ranging multi-stakeholder dialogues. Deliberations at the ISS Dialogue Platform also strongly oriented to contribute positively towards the Government of India's flagship initiatives like "Make in India", "Zero Defect Zero Effect", "Improving the Ease of Doing Business" and other forward-looking sustainability and developmental initiatives.

The agenda for sustainable development necessitates innovation in governance approaches and models. VSS offers one such approach and tools and calls upon societal actors, other than the state (the traditional rule-makers), to define rules and govern own and others' behaviour and practice. The size, complexity and magnitude of developmental and sustainability challenges in India beckon a concerted action by all actors. Collective steering approaches, then, undeniably have much to offer. In this book, we present few select VSS in different industry sectors, as examples of collective steering and reflect on their approach, models,

strengths, limitations and challenges as they are being adopted in India. The book is targeted at policymakers and civil society in India to better understand the interplay between VSS and policy, at different actors involved in setting up, implementation and uptake of VSS and at governance and regulation and business sustainability researchers. It is for anyone interested in sustainability issues and multi-stakeholder governance in India.

We hope that this compilation will contribute to the consolidation of knowledge and furthering of dialogues and deliberations on business responsibility, business sustainability and VSS more broadly, and particularly in India. Perhaps far-fetched, or maybe not, we hope the book will initiate and contribute to voluntary governance related debates, inspire Indian civil society and other stakeholders to consider development of home-grown VSS, and lead us to a vibrant, thriving world where voices of all actors and stakeholders find a seat at the table, where rule-makers and rule-takers are roles that everyone and anyone can assume, as per the demand of a future, which we can together make sustainable.

Birmingham, UK

Bimal Arora
Pawan Budhwar
Divya Jyoti

Series Preface: The INDAM-PALGRAVE Book Series

As we get ready to host the sixth Indian Academy of Management (INDAM) conference in December 2019 at the Indian Institute of Management, Trichy, we believe it is time to take stock of how the academy has evolved over the past decade. From the overwhelming support received at the very first conference held in December 2009 at XLRI, Jamshedpur, it became clear that INDAM had filled a critical void in the Indian management education space. Indeed, at each biennial conference since, we have seen the attendance grow steadily and the quality of submissions continue to improve.

In response to calls from members for a book series which would present books on topical issues relating to developments in India, we launched the INDAM-PALGRAVE series at the fourth INDAM conference. The first book of this series was co-edited by current INDAM President Naresh Khatri, and Abhoy Ojha. This volume was titled, *Indian Brand of Crony Capitalism: Establishing Robust Counteractive Institutional Frameworks*, and included incisive essays on subjects relating to the practice of crony capitalism and family oligarchies that have played major roles in the Indian economic story since independence in 1947. This volume was published at a critical time, given that India had elected a new government in 2014, led by Prime Minister Narendra Modi, who has made providing corruption-free governance to Indian citizens, a hallmark of his government.

We are excited to present the second volume of the INDAM-PALGRAVE series, titled “Governance through Voluntary Sustainability Standards: An Introduction”, co-edited by Bimal Arora, Pawan Budhwar and Divya Jyoti. The collection of essays in this volume discusses a hot-button topic around the world—sustainability and related voluntary sustainability standards. The content should be of interest to scholars, policymakers, private and public firms and civil society organisations, as the authors address critical issues related to sustainability and corporate social responsibility. Further, the emphasis on examining and exploring the notion and relevance of standards, and helping develop a common definition of sustainability is a critical contribution of this volume and should play a major role in helping shape policy and lead academic discussion.

We are confident the readers will enjoy reading the chapters in this volume. We will be back soon with the next book in this series.

Aston University, Birmingham, UK,
Co-founder and Past President, INDAM
Loyola University Chicago, Chicago, IL, USA,
Co-founder and Past President, INDAM

Pawan S. Budhwar
Arup Varma

Acknowledgements

For the past few years, having worked on sustainability in India, and specifically with different voluntary standards, we realised the need to compile together a book on the topic. Book projects such as this are an outcome of the efforts of dedication of a lot of people.

The majority of the contributions to this volume are original and have been specifically written at our request. We would like to thank all the contributors for being responsive to our demands, revising their chapters as per the reviewers' suggestions and for meeting rigid deadlines.

We would also like to thank all those who have helped us in various capacities, often behind the scenes, to bring this project to fruition. We would also like to thank Rijit Sengupta and other colleagues at Centre for Responsible Business (CRB) for supporting us with coordination and follow-ups as needed. Our special thanks to Palgrave for giving us the opportunity to develop this volume and for being open to our proposal and the numerous modifications. We would also like to thank the series editor, Prof. Arup Verma for his guidance and support and the reviewers of the proposal who offered suggestions for strengthening our manuscript plans. Finally, we would like to thank Liz Barlow and Lucy Kidwell for their encouragement, help and patience at various stages of the production of this volume.

xvi Acknowledgements

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Aston University, Birmingham, UK

Bimal Arora
Pawan Budhwar
Divya Jyoti

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OECD	Organisation of Economic Cooperation and Development
OTA	Organic Trade Association
P&C	Principles and Criteria
PC	Performance-Oriented criteria
PDS	Public Distribution System
PEFC	Programme for Endorsement of Forest Certification
PFAD	Palm Fatty Acid Distillate
PhRMA	Pharmaceutical Research and Manufacturers of America
PL	Performance Levels
PLA	Plantation Labour Act, 1951
PMBJPK	Pradhan Mantri Bhartiya Janaushadhi Pariyojana Kendra
PMG	Project Monitoring Group
POIG	Palm Oil Innovation Group
PPE	Personal Protective Equipment
PPP	Public Private Partnerships
PSCI	Pharmaceutical Supply Chain Initiative
PSM	People's Science Movement
PSS	Private Sustainability Standards
PT	Workers Party
PVS	Private Voluntary Standards
RA	Rainforest Alliance
RBD	Refined Bleached & Deodorised
REEL	Responsible Environment Enhanced Livelihoods
RSPO	Roundtable on Sustainable Palm Oil
RTRS	Roundtable on Responsible Soy
SA	Soil Association
SA8000	Social Accountability 8000
SAN	Sustainable Agriculture Network
SCC	Soft Commodities Compact
SDGs	Sustainable Development Goals
SEAI	Solvents Extractors Association of India
SEBI	Securities Exchange Board of India
SERP	Society for Elimination of Rural Poverty
SFDCs	State Forest Development Corporations
SMEs	Small and Medium Enterprises
SuRe	The Standard for Sustainable and Resilient Infrastructure
T4SD	Trade for Sustainable Development Programme of ITC
TBI	Tea Board of India

TFA	Tropical Forest Alliance
TGB	Tata Global Beverages
TMC	Technology Mission on Cotton
TNMSC	Tamil Nadu Medical Services Corporation
TRIPs	Trade-Related Aspects of Intellectual Property Rights
UNCTAD	The United Nations Conference on Trade and Development
UN Environment	The United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFSS	United Nations Forum on Sustainability Standards
UNGC	United Nations Global Compact
UNIDO	United Nations Industrial Development Organization
UPFC	Uttar Pradesh Forest Corporation
US	United States
USA	United States of America
USDA	United States Department of Agriculture
VBF	Volume-Based Fee
VPAs	Voluntary Partnership Agreements
VSS	Voluntary Sustainability Standards
WWF	World Wildlife Fund for Nature
WTO	World Trade Organization

Numbers, Measurements and Dates

In this book, reference is made occasionally to the Indian numbering system, which specifies 100,000 as one lakh and 10 million as one crore. Metric measurements are used throughout, where reference is made to a non-calendar year period (2010–11). The dates in question follow the Indian financial year, which is 1 April to 31 March.

Notes on Contributors

Bimal Arora is an expert and scholar of global value and supply chain sustainability and CSR. He has combined work experience of 23 years in India and overseas with diverse sectors—private, non-profits and academia—and is a faculty member at Aston Business School, Aston University, UK. He is the founder CEO of Centre for Responsible Business (CRB), a specialist global centre focused on value and supply chain sustainability, standards and CSR that has been incubated by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH of Germany, Social Accountability International (SAI) of USA and Business Social Compliance Initiative (BSCI) of Brussels. Arora has been involved in exciting work related to path-breaking research, and design, development and implementation of innovative capacity building and training solutions for MNCs, Indian companies and SMEs on value and supply chain sustainability in various manufacturing and exporting industry sectors. He consults several global brands and companies in textiles and apparel, leather and footwear, automotive, food and beverage, electronics, mining and sandstone quarrying sectors—on human rights and environmental sustainability risks and challenges in their supply chains and developing solutions for them. Arora was awarded a gold medal during his Bachelor of Law under graduate course, achieved merit during his Masters in NGO Management from London School of Economics (LSE) and obtained PhD degree in Business and Management

(Sustainability and CSR) from International Centre for Corporate Social Responsibility (ICCSR), Nottingham University Business School, UK. He is frequently invited as speaker at conferences and workshops. He has written papers for international journals and undertaken research projects for UNDP, United Nations Research Institute for Social Development (UNRISD), British Council, GIZ, and BSCI and is authoring books on the topics of CSR and sustainable development.

Katharina Franziska Braig studied Law and Political Science at the University of Strasbourg, France. Subsequently, she holds an LLM in Law from the University of London, UK. In 2012, she completed her PhD thesis at the universities of Strasbourg, France and Basel, Switzerland, specialising in human rights and environmental law. She brings work experience from the public and private sector, as well as from international organisations.

Pawan Budhwar is the Associate Pro-Vice-Chancellor International (India), Aston University, UK. A member of the Work and Organisational Psychology Group, Joint Director of the Aston India Centre for Applied Research and Joint Co-editor-in-Chief of *British Journal of Management*. Budhwar is globally renowned for his research into the international aspects of HRM and has held many visiting professorships worldwide. Budhwar's research interests lie mainly in the linkages between HRM and performance in different international contexts. He conducts the majority of his empirical work in emerging markets, especially in India. Budhwar's work is of great significance given the links with developments within the Indian economy and the scarcity of research in the field within this context. His previous work has been extensively used by academics, especially his three-level framework of factors influencing HRM in a given context. He has examined HRM systems in emerging markets and established links with social, cultural, political and legal contexts, and this is increasingly being referenced by other researchers. He has received funding from a variety of funders such as the ESRC, Society for HRM (USA), British Academy and European Regional Development Fund (ERDF) to investigate a variety of HR aspects in different set-ups such as in Indian Call Centres, wherein he highlighted many people

management-related issues and challenges, and the problems emerging in this sector. Budhwar regularly delivers keynotes at international and national events. He has received numerous awards for his research achievements.

Louis Downing is a sustainability and resilience expert and the Chief Operating Officer of the Global Infrastructure Basel Foundation. Downing managed the development of SuRe®—The Standard for Sustainable and Resilient Infrastructure and has 10 years' experience in design engineering, post conflict and emergency engineering as well as capacity building and managing participatory stakeholder processes. Downing has worked in regions including Asia-Pacific, Africa and Europe. More recently, Downing has been working on finance for sustainable infrastructure, including working on data-driven approaches to increase the business case for sustainable investing.

Hans-Peter Egler is Director Public Affairs with South Pole and leads the cities' practice. Prior to that Egler was CEO of Global Infrastructure Basel Foundation (GIB). He has been instrumental in the development of SuRe®-Standard and has long-standing expertise in international cooperation, sustainability management, capacity building, knowledge sharing and project innovation. Before joining GIB he leads the Trade Promotion Division of the Swiss State Secretariat for Economic Affairs (SECO). Prior to that, he was responsible for investment promotion activities and infrastructure financing for Latin America and Africa. Egler was also Deputy Country Director of Swiss Development Cooperation (SDC) in Bolivia and Deputy Head of Division for Latin America in charge of bilateral trade and investment issues at SECO in Bern Switzerland. Egler is co-heading with ICLEI the CapaCITIES project in India, which focuses on climate action support in Udaipur, Siliguri, Coimbatore and Rajkot, and the EIT Climate-KIC Project on the City Finance Lab and so on.

Rory Horner is a senior lecturer at the University of Manchester, Global Development Institute. He holds a BA (Economics and Geography) from Trinity College, Dublin (Ireland), and an MA and PhD

in Geography from Clark University (USA). Horner's research agenda is focused on the political economy of globalisation, industrial development, trade, India and Africa. He has a long-standing focus on India's pharmaceutical industry dating back to his PhD thesis. He is extending this research through ESRC-funded research on the South-South dynamics of India's pharmaceutical industry and its implications in sub-Saharan Africa.

Divya Jyoti is a researcher, practitioner and a scholar of Corporate Social Responsibility (CSR) and Sustainability. She has worked with German Development Corporation (GIZ) and has played a pivotal role in the incubation and creation of the Centre for Responsible Business (CRB), a first of its kind centre of excellence on CSR and Sustainability in value chains in India. At CRB she has conceptualised, designed, developed and implemented several systemic interventions and researches focusing on mainstreaming the sustainability dialogue within organisations in India. She has worked with national and international businesses, governments, multilateral and bi-lateral agencies and civil society organisations. She completed her MSc in Social Responsibility and Sustainability from Aston Business School in UK and was also selected as a Pioneer into Practice under the European-Union Climate-KIC Initiative. One of the key sectors of focus in her work remains the fashion industry. Jyoti completed her undergraduation from National Institute of Fashion Technology (NIFT) New Delhi, where she was awarded the Gold Medals for Best Academic Performance and All-Round Performance. During her time at NIFT, she studied the leading apparel manufacturers including Brandix in Sri Lanka and Arvind and Raymond in India. She has undertaken research on child labour in the mining and footwear industry and supplier voice on CSR in textile and apparel industry among others. Much of the focus of her work at CRB included working with global brands and retailers on social dialogue and worker-management communication in factories. She is currently pursuing her doctoral research as a Dean's scholar at Aston Business School. Her research is an ethnographic study in the fashion industry that examines factory worker experiences of corporate codes of conduct and CSR standards.

Saji M. Kadavil is a management consultant with expertise in CSR, Responsible Business, Climate Resilience Agriculture and Sustainable Livelihood. He has a PhD in Economics from Jawaharlal Nehru University (JNU), New Delhi, on governance, institutions, forest and sustainability on the Western Ghats of Kerala. He was involved in the initial phase of implementation, promotion, process and evaluation of UTZ- private labelling and voluntary standard-in large scale and small-holders of the tea industry in India and Sri Lanka. He has worked for over 14 years on sustainability of the primary commodities, responsible business, governance and policy implementation in the sphere of CSR, livelihood and development. He has compiled and contributed research reports and articles on tea, CSR and sustainable business.

Alexander Kasterine is Senior Advisor in the Trade for Sustainable Development Programme (T4SD) at the International Trade Centre. His professional interests revolve around agricultural and natural resource value chains, the economics of biodiversity and climate change, the wild-life trade and corporate social responsibility. At ITC he is responsible for managing Aid for Trade projects in the field of agriculture with a focus on strengthening competitiveness and climate resilience. Prior to joining ITC, Kasterine worked as a researcher on agricultural development policy in Mexico and with the University of London and its associated consulting company in Brussels. He has a PhD in Agricultural and Environmental Economics from Imperial College, London, and a master's in Environmental Policy from Wye College, University of London.

Mathieu Lamolle is Senior Advisor on Sustainability Standards and Value Chains in the Trade for Sustainable Development Programme (T4SD) at the International Trade Centre (ITC). He has over 10 years of experience working in developing countries, delivering training programmes and providing technical support and advice on market access and development issues and trade negotiations at multilateral or regional level. His main responsibility in the T4SD team is to coordinate and supervise the development and maintenance of the Standards Database for the Sustainability Map website (www.sustainabilitymap.org). Lamolle coordinates the collaborations between ITC and its private and public

partners on the use of information from the Standards Database for various benchmarking or market research projects and activities. Prior to joining ITC Lamolle was an associate expert at the EU-ACP Project Management Unit in Brussels, a programme financed by the European Commission to provide technical assistance to African Caribbean and Pacific countries and regions in the context of the Economic Partnership Agreements negotiations. He holds a master's degree in International Economics and Management from the Solvay Brussels School of Economics and Management (SBS).

Vinod Malayilethu holds a Master of Science degree in Marine Biology and has over 25 years of experience in the seafood industry, Mariculture, Aquaculture, Fisheries Research & Extension and conservation of marine resources. He presently coordinates and leads the Ocean & Coasts programmes for WWF in India and is a core team member of WWF Global Ocean Practice. In his previous roles, he has worked as a production lead with Charoen Pokphand Feed Mill Company in Thailand, Senior Research Fellow in Central Marine Fisheries Research Institute (CMFRI) in Tuticorin, India, and as Fisheries Extension Officer in the Kerala State Fisheries Department along with undertaking dissemination and consultancy with the Rajiv Gandhi Centre for Contemporary Studies at the Cochin University of Science and Technology. Malayilethu has 40 publications (both national and international) to his credit, which includes research papers, scientific articles, reports and brochures.

T. R. Manoharan is a sustainability professional based in New Delhi. He is Senior Advisor at the Forest Stewardship Council (FSC) and visiting faculty in School of Planning and Architecture, Delhi. Manoharan's experience and interest areas include stakeholder engagements, research, teaching, development and management of projects and policy analysis in the area of environmental economics, forest conservation, trade and environment, environment regulation, forest certification and sustainable standards.

Aditya Mishra is the Manager of the Sustainable Agriculture Programme in WWF-India. He has been working on promoting sustainable supply

chains for high-impact commodities for the last five years with WWF-India, primarily on commodities with high environmental footprints like Palm Oil, Seafood, Soybean and Rubber. Mishra has previously worked in the Tea sector, with Jayashree Tea and industries, focusing on CTC production and sustainability initiatives. Mishra holds a degree in engineering as well as a master's in energy and environment from Symbiosis International University. Mishra works with the sustainable agriculture team with WWF-India on facilitating sustainable production practices for water and input intensive commodities like cotton and sugarcane.

Amol Mishra is an MBA graduate from Saïd Business School, University of Oxford, and has had prior experience in category management in apparel retail, production and supply chain management. Mishra worked with Wrangler denims (VF Corporation) in India before going for his master's and post his bachelor's from NIFT, Bangalore. He has been awarded the Impact Business Leaders fellowship by Shell Foundation. Mishra has been working on developing new streams of revenue generation for the organisation in the form of pilot programmes for financial literacy for cotton farmers, sustainable cotton traceability tools, mobile agri-extension programme, health and safety programmes for cotton gin workers, soil enhancing agents and so on. In addition, he is also working on sustainable cotton market linkages and supply chain mapping and risk assessment for apparel brands.

Kolliyil Sunilkumar Mohamed completed his master's in marine biology and PhD in crustacean physiology and has been working in Central Marine Fisheries Research Institute (CMFRI) since 1986 on molluscan fisheries and mariculture. He heads the division of molluscan fisheries in CMFRI. He has interests in marine ecological modelling particularly its application to fisheries management. He is the leader of a team of researchers from CMFRI working on trophic modelling of Indian marine ecosystems and has modelled the Arabian Sea ecosystem off Karnataka State, the northwest coast ecosystem and the Gulf of Mannar ecosystem. He has published more than 200 research articles in international and national journals. Mohamed is Secretary of the Marine Biological Association of India for the past six years. He has won the Jawaharlal

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Alison Ward has over 20 years of international experience in sustainability and corporate affairs, shaping system change and translating social impact programmes into commercial value within the FMCG, food and apparel sectors. Ward is the CEO of CottonConnect, where she leads a team of 45 employees and over 270 implementing partners in India, Pakistan, China and Peru, impacting the lives of 675,000 farming families. Under Ward's leadership, the organisation drives supply chain transparency connecting sustainable fibres from farm to store, focuses on the rights and skills of women in supply chains through pioneering gender programmes, and continues to develop innovations at a farm level. Ward has previously worked with Mondelez International (Kraft Foods) and as part of a small team developed the business case to invest \$400m into Cocoa Life. Ward's commitment to sustainable supply chains started during her four years at Cadbury, where she was Global Head of Corporate Responsibility and pioneered the first mainstream Fairtrade chocolate bar across six commonwealth markets. With a mission to drive scalable change, Ward also serves as an Advisory Board Member at Textile Exchange and on Forum for the Future's Working Group, Cotton 2040.

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5

Charting a Path Towards Sustainable Seafood Resources in India: The Role of Voluntary Sustainable Standards

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Introduction

The rapid development and growth of the fisheries sector in India over the last couple of years has led to the sector playing an increasingly important role in the country's economy. Fisheries contribute to India's economy through increased employment, gross domestic product (GDP) and improved food security. The sector is, however, now faced with challenges to continued sustainability amidst concerns about overfishing, depleted stocks and illegal unreported unregulated fishing in the wild catch sector. In the aquaculture sector, concerns abound about landscape destruction,

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soil and water pollution, biodiversity loss, mangrove destruction, disease and chemical use (Mynar et al. 2013; Mishra et al. 2017).

Voluntary Sustainability Standards (VSS) are becoming important tools in efforts to ensure sustainability of seafood resources and ensure competitiveness of the sector in the global seafood market. Some of the more commonly known standards in the sector include the Marine Stewardship Council (MSC), the Aquaculture Stewardship Council (ASC) and the Global Aquaculture Alliance (GAA).

This chapter provides an overview of the emergence and use of VSS in the fisheries sector in India. It describes the contribution of India's fisheries sector to global fish production and trade, the sustainability issues associated with the sector, approaches to governance and management of fisheries resources, and the opportunities to scale up the impact of VSS as an increasingly important tool to support government, non-governmental organisations (NGOs) and industry efforts to promote a more sustainable approach to fisheries production in the country.

Capture and Aquaculture Production

India is one of the major fish producing countries in the world. It ranks second in global fish production and contributes over 3% of global marine and freshwater capture fisheries and about 6.3% of the world's total fish production (FAO 2016; National Fisheries Development Board 2016). Both wild capture and aquaculture (fish farming) are important to the fisheries sector in India and both sectors have seen significant development in the last few decades.

Wild Capture

India's Exclusive Economic Zone (EEZ) covers a total area of 2.02 million square Kilometre (sq. km). This is inclusive of 0.86 million sq. km on the west coast including the Lakshadweep Islands and 1.16 million sq. km on the east coast, including the Andaman and Nicobar Islands and a continental shelf of half a million sq. km (Sugunan 1997). This extensive coastline and the expansive continental shelf that can be found in some

parts of the country helps ensure India's role as a key seafood producing country. The annual marine capture is 3.59 million tonnes, making India the sixth most important country globally with respect to marine capture production (FAO 2018).

India's waters support a high diversity of marine species, of which several are of high commercial importance. Some of the more important species that dominate production in the marine capture sector include oil sardine, which makes up about 12.9% of total marine fish landings. Others are Indian mackerel, Bombay duck, penaeid prawn, ribbonfishes, threadfin breams and cephalopods. Some of the states with the highest seafood production in India include Gujarat, Karnataka, Kerala, Maharashtra and West Bengal (FRAD, CMFRI 2017).

In addition to its marine capture fisheries, the country also has important inland fisheries resources, comprising a network of rivers, reservoirs, flood plains, ponds, lakes and estuaries. Landings from inland waters amount to 1.46 million tonnes (ICAR-CIFRI 2017) with some of the most important inland capture species, including carps, catfish, trout and Indian shad.

Aquaculture

India's natural aquatic resources also provide the basis for the significant growth that India has seen in the aquaculture sector in the last couple of years. According to the Food and Agriculture Organization (FAO) (2018), total production from the aquaculture sector came to 5.7 million tonnes in 2016, making India the second most important country for farmed seafood products.

There is relatively little fish farming in the sea in India, and most aquaculture production comes from freshwater and coastal areas. The most important farmed species in India include carp, catfish, pangasius and prawns. Production systems range from extensive systems with little input beyond stocking with fish seed, to much more intensive forms involving feeding and fertilisation. Some of the most important states for aquaculture production include Andhra Pradesh and West Bengal. A more recent development in India is aquaculture of marine species of bivalves (mussels and oysters) and high value finfish such as Cobia and Pompano.

Growth and Development of the Sector

Fish production in India grew 11-fold in the last 60 years, growing from 0.75 million in the early 1950s to a production level of 9.6 million tonnes in 2012–2013 (FAO 2017). Its contribution to GDP amounts to 1.21%, and to 5.3% of agricultural GDP (Infantina et al. 2016).

The growth of the sector follows decades of technological innovation, year on year increases in fleet capacity, and increased private and public investment in the sector which has contributed to transforming the sector from the low input, highly traditional, subsistence production systems to the highly commercial and much more industrial approaches that typify a significant proportion of both the capture and culture sectors today.

In addition to its economic value, and its importance as a source of protein, the seafood sector is an important source of livelihoods in India. The population of marine fishermen in the country is estimated at 4.0 million, of which 0.99 million are active fishermen (CMFRI 2010). The sector also provides millions of related work opportunities in the post-harvest, aquaculture and trade, bringing the number of people directly and indirectly employed in the sector to an estimated 14 million people (National Fisheries Development Board 2016).

National policy on fisheries in the country has in the past largely focussed on growth and economic development. This meant a focus on increasing production and investment in capacity and infrastructure with clear dividends in terms of economic returns and global positioning as a major player in the seafood sector. The new national policy on marine fisheries places emphasis on sustainability, ecology and equity.

The rapid growth in the sector has led to increased employment, significant economic benefits and improved food security. However, the sector is now faced with challenges to the continued sustainability of this growth and threats to livelihoods due to growing concerns about over-fishing, depleted stocks, decreasing catch rates for some species, degradation of habitats and resources, illegal, unreported, unregulated fishing and stock depletion in the wild catch sector and in the aquaculture sector, concerns about landscape destruction, soil and water pollution,

biodiversity loss, mangrove destruction, and effect of chemical use (Bhavsar et al. 2016; Jayanthi et al. 2018).

The Seafood Industry and Trade

India plays a significant role in the global trade in seafood. It is the sixth largest seafood exporting country in the world, exporting seafood valued at 5.54 billion USD to over 70 countries, with key importing countries, including Japan, the USA, the European Union, China, Hong Kong, the UAE, Canada, Singapore and Thailand (Sam et al. 2015; FAO 2018). In addition to its contribution to the export sector, the industry also supports a vibrant domestic market.

The Domestic Sector

The bulk of fish produced in India is consumed domestically, of which the bulk is marketed fresh, while the remaining is sold as smoked, dried or is processed into fishmeal. The domestic industry is unorganised and considered to be inefficient with the presence of many intermediaries between the consumer and producer. Intermediaries in the chain provide a range of services, which include processing, preservation, packing and transportation. Key intermediaries include auctioneers who provide first contact for the producer, wholesalers, retailers and vendors, who then sell on directly to consumers.

Domestic seafood trade in India faces many challenges, including high perishability of seafood, but also the high cost of storage and transportation relative to domestic prices. These in turn lead to problems with quality, safety and guaranteed supply of seafood.

The Export Sector

India plays a key role in the global trade in seafood. Key export products include shrimp, squid and a diverse range of finfish. Frozen shrimp makes

up a significant contribution to the value of exports, contributing 19.24% by volume and 41.62% by value (Salim 2012).

The export sector is much better organised, compared to the domestic sector. Investment has been used to great effect to develop the infrastructure required to meet international food safety and quality requirements, and many coastal states are well served with Individually Quick Frozen (IQF) facilities, ice plants, cold storage facilities and processing factories to enable exporters to meet requirements of importing countries.

The key intermediaries in the export sector are factory or commission agents, who transport fish from fishers directly to the processor or exporter, who then exports directly to importing companies.

The seafood export sector in India is supported by an agency set up by the government—the Marine Products Export Development Authority (MPEDA). MPEDA was set up with a mandate to promote seafood trade, with a specific emphasis on exports. MPEDA supports the sector to ensure quality assurance, diversification and promotion through specification of standards, provision of training, inspections and marketing and promotion in international markets.

The export sector also has challenges of its own. These include irregularity in supply of raw material, competition for supply, high cost of production, low profit margins, low value addition and strict quality control requirements in key importing markets. A key challenge is the growing concern about the impact of fish production activity on fisheries resources and associated ecosystem and the implication this has for future seafood supply, food security and livelihoods.

The increasing interest in sustainability in top destination markets for seafood from India represents both a challenge and opportunity for the sector. A growing number of importers in the USA and the European Union request certification to sustainability standards to provide assurance about the environmental credentials of their products. While this development may be considered a constraint to trade, it also presents an opportunity through the possibility of certification leading to increased access to markets where there is interest in sustainability, and the consequent protection and improvement of the state of fish stocks in the country's waters.

Sustainability Issues

Globally, there continues to be concern about the status of the world's fish stocks. According to FAO, the proportion of stocks worldwide that are within biologically sustainable levels has been showing a downward trend in the last couple of decades. FAO estimates that 33.1% of fish stocks are fished at levels that are biologically unsustainable and that 59.9% of stocks are maximally sustainably fished with no room for further expansion (FAO 2018).

India is not exempt from the downward trend that has plagued global fisheries over the last few years. An emphasis across central and state governments on increased production through investments in improved technology and infrastructure has helped India increase its contribution to global seafood supply. However, in many instances, it has resulted in serious impacts on the state of fisheries resources. The fisheries sector in India faces many issues which have implications for sustainability of the resource. These include open access, overcapacity, which is estimated at 56% across different gear types and states (Mohamed et al. 2017), weakness of state and national level legal and policy frameworks, low capacity for monitoring control and surveillance and data gaps on sustainability of key stocks. While many tropical, short-lived species can withstand high fishing pressure to some degree, studies suggest that many important commercial stocks including perches, croakers, threadfin breams, seer, ribbonfish, skates and sharks may already be overfished, and some stocks are already in a severely depleted state and unable to withstand further fishing pressure (Korokandy 2008; Karnad and Karanth 2013; CMFRI 2017). In addition to the impact on commercial species, there is the effect of fishing activity on other species of importance in the ecosystem and habitat degradation consequences. Other issues include conflicts due to competition for dwindling resources and consequent disruptions to livelihoods and food security of those dependent on the resource.

The significant investment in aquaculture in India starting in the 1980s led to a major transformation of the aquaculture sector, which was previously traditional and low intensity. This growth, while contributing to economic growth, has led to significant environmental and social

impacts. Key issues faced in the sector over time included salt-water intrusion into freshwater bodies, release of contaminants into water sources, social imbalances and mangrove loss (Puthucherril 2016). Other issues that challenge the long-term sustainability of the aquaculture sector include disease outbreaks and collection of fry from the wild with the implications this has for wild capture stocks.

There are a range of efforts to mitigate the impact of seafood production on the environment. These include efforts by governments to improve the institutional framework for the sustainable management of resources. Non-governmental organisations also play a role in encouraging a shift towards a more socially and ecologically sustainable approach to sustainability through campaigns, awareness, capacity building and technical support. The scale of the threat and the immediacy and significance of the potential consequences calls for a range of tools and solutions to mitigate potential impact.

Resource Management

India's legislation and policy on sustainable management of seafood resources is framed within the context of a range of binding and non-binding international and regional instruments to which the country is a signatory. One of the most important instruments is the United Nations' FAO Code of Conduct on Responsible Fishing, which provides principles for conservation and management of fisheries and aquaculture resources. Other key instruments to which the country is subscribed include United Nations Fish Stock Agreement, United Nations Convention on the Law of the Sea and FAO's Voluntary Guidelines on Sustainable Small-Scale Fisheries.

Wild Capture Fisheries

Marine fisheries in India are regulated by both central and state governments. The state has jurisdiction over its territorial waters and the central government has authority up to the Exclusive Economic Zone, with

administration of fisheries in this zone lying with the Ministry of Agriculture of the Government of India.

The regulatory framework for marine fisheries management for states is provided by the Marine Fisheries Regulation Act (MFRA) (Infantina et al. 2016). The act provides guidelines to maritime states to enact laws for protection of marine fisheries by regulating fishing in territorial waters. The most important instrument under MFRA is the seasonal ban of mechanised fishing for 47 days. In 2010, a uniform fishing ban period was implemented along the west coast from 15 June to 31 July and from 15 April to 31 May along the east coast. In 2015, the government extended the fishing ban beyond 12 nautical miles to 61 days from 1 June to 31 July in the west coast and from 15 April to 14 June in the east coast (The Hindu 2015).

In 2017, the government adopted a revision of the 2004 Marine Fisheries Policy following an extended period of consultation. The overarching goal of the policy is to ensure the health and ecological integrity of the marine living resources of India's EEZ through sustainable harvests for the benefit of present and future generations (Government of India 2017). The policy is based on seven pillars, namely, sustainable development, socio-economic upliftment, subsidiarity, partnership, intergenerational equity, gender justice and the precautionary approach. Key provisions of the policy include management of fishing effort, species and area-specific management plans, conservation of ecologically and biologically significant areas and vulnerable marine ecosystems and the protection of iconic, endangered and threatened species. It also includes provisions for legislative support that will ensure that tenure rights of traditional fishermen are protected. Significantly, the revised policy acknowledges the growing importance of market-based eco-labelling programmes as a tool to ensure sustainability of fisheries and includes a commitment to create an enabling environment for environmental labelling of key fisheries that ensure benefits to stocks, the industry and fish workers.

Aquaculture

With respect to aquaculture, the regulation of brackish and coastal aquaculture falls under the central government, while freshwater and inland aquaculture is regulated by the states. Regulations are provided within the Coastal Aquaculture Authority Act of 2005, under which the Coastal Aquaculture Authority (CAA) is established. The CAA has the responsibility of regulating all activities related to coastal aquaculture and protecting the coastal environment from the impact of aquaculture. The CAA regulates the construction and operation of aquaculture facilities, develops standards for inputs and effluents and oversees the registration of aquaculture facilities (Coastal Aquaculture Authority 2006).

Non-Governmental Initiatives

NGOs in India play an important role in ensuring sustainable fisheries and aquaculture production. Several NGOs are working in India to tackle the emerging environmental issues that have accompanied India's rapid development over the last few decades. Many of these organisations have a focus on marine and other aquatic related issues. The role of these NGOs includes undertaking research to support policy development, building awareness of sustainability issues amongst the public and capacity building.

Key organisations include World Wildlife Fund India (WWF-India), which, amongst other things, works to encourage public participation in environmental protection through environmental education, awareness and capacity-building and to promote improved environmental governance through legislation, policy and advocacy (WWF 2017). WWF-India also works to spread the awareness of sustainable standards for fisheries and aquaculture and have been instrumental to the certification of the first fishery and farms to be evaluated against VSS in the country. Other organisations include Greenpeace India, which works to promote sustainability through advocacy and campaigns for co-management with fishing communities and strengthening of regulations and enforcement. The International Collective in Support of Fishworkers (ICSF) is another

important NGO with a specific programme for fisheries. ICSF focuses on social issues for fisheries and fair and sustainable management of resources for small-scale fisheries.

Voluntary Sustainability Standards for the Seafood Sector

VSS have emerged as an important tool to promote sustainable seafood production. Its growth and uptake in the sector has followed increasing public concern and awareness of the poor state of many fish stocks, depletion of iconic marine species, damage to important habitats, impact of fish farm wastes and escapes on the environment, use of pesticides and the effect of fishing activity on overall aquatic ecosystem health.

The use of VSS in the seafood sector is a more recent development compared to its use in other commodity sectors. The first seafood eco-labelling initiatives to come into existence focused on single issues and did not have a wider ecosystem approach. This included the dolphin safe label set up by the Earth Island Institute in 1990, which is centred on the use of a global standard on dolphin safe fishing practices.

Since then, other VSS with a more ecosystem-based approach have emerged. Growth has been dynamic with total seafood certified to VSS across wild and aquaculture growing from 500,000 tonnes in 2003 to 23 million tonnes in 2015 (Potts et al. 2016).

FAO's decision to adopt a set of guidelines for the eco-labelling of fish and fishery products from marine capture fisheries in 2005 signalled the growing importance of eco-labelling in the fisheries sector. A revised version of the guidelines was released in 2009. This was followed with the adoption of a set of guidelines for eco-labelling of fishery products from inland capture fisheries and Technical Guidelines on Aquaculture Certification in 2011.

The FAO guidelines provide a baseline reference for how eco-labelling programmes should be implemented, but crucially, they also provide guidelines on the minimum criteria for standards for fisheries and aquaculture. The minimum substantive guidelines for marine and inland

capture fisheries cover several key features, which include management systems, stock health and ecosystem considerations. The guidelines also specify requirements for standard setting, certification and accreditation (FAO 2009, 2011). The FAO aquaculture certification guidelines specify minimum substantive criteria for animal health and welfare, food safety, environmental integrity and socio-economic aspects. In all cases the guidelines are aimed at ensuring that the set-up and use of VSS for certification and eco-labelling in the seafood sector are based on the principles of transparency, accountability, best scientific evidence, clarity, non-discrimination and accessibility.

In 2015, the Global Sustainable Seafood Initiative (GSSI), a tool to benchmark standards against the FAO wild capture and aquaculture guidelines, was launched. Five standards, the Alaska Responsible Fisheries Management Certification programme, the Iceland Responsible Fisheries Management Certification programme, the Marine Stewardship Council, Best Aquaculture Practices Certification and GLOBALG.A.P. Aquaculture Certification system have been recognised by the GSSI as conforming to FAO guidelines.

VSS for seafood have been developed by national and regional government initiatives and international non-governmental initiatives. However, while a few governments have initiated the development of national standards for seafood eco-labels, to date, there has tended to be a much higher uptake of independent, international, non-governmental standards compared to VSS set by national governments.

Some of the key VSS initiatives include the following:

Marine Stewardship Council

The MSC is the most well-known seafood eco-labelling programme. Since it was launched as an initiative in 1997, the MSC has seen 12% of the world's wild caught marine catch engage in its programme. This represents some 300 fisheries from over 34 countries including India (MSC 2017a).

At the heart of the MSC is an international fisheries standard which has three principles. The principles look at (1) the state of the stock, (2)

the impact of the fishery on the ecosystem and (3) the management system in place to ensure delivery of the first two principles. The three principles are further elaborated by 28 performance indicators.

If a fishery is successfully assessed against the MSC Standard, products from the fishery become eligible to use the MSC's eco-label.

In addition to the fisheries standard, the MSC also has a Chain of Custody standard. The Chain of Custody standard provides assurance that the product with the label came from a certified fishery.

The MSC has a range of initiatives and policies designed to increase access of small-scale fisheries and fisheries in the global south to the MSC standard and programme. Some of the initiatives include development of a risk-based framework, which is a tool utilised by certifiers where data to demonstrate sustainability is limited. There are other initiatives and tools to support fisheries that are working towards becoming sustainable and achieving certification.

In 2014, stakeholders celebrated the certification of the first fishery in India, the Ashtamudi Clam Fishery, to the MSC standard. Prior to its certification in November 2014, the fishery undertook a period of improvement, which involved the Central Marine Fisheries Research Institute, the Kerala State Fisheries Department and WWF-India. In addition, the Ashtamudi Clam Fishers formed Ashtamudi Clam Fisheries Governance Council to develop management measures and represent the fishery at regional and state levels (Mohamed and Malayilethu 2015). These measures enabled the fishery to meet the MSC's sustainable fisheries standard and demonstrate the role of VSS as a mechanism to contribute to sustainability.

The MSC identified India as a target country for increased focus in its 2017–2020 Integrated Strategic Plan. The strategic plan outlines the intent to establish partnerships with the government, NGOs and the industry to develop projects and work with partners to encourage fisheries to put in place improvements that are needed for them to achieve MSC certification (MSC 2017b).

There are several other fisheries in India going through a transition phase and working on improvements with a view to eventually qualifying for certification to the MSC standard. These fisheries started out with pre-assessments to understand their performance gaps in relation to the

standard, followed by the development and implementation of action plans in collaboration with partners including government, business and NGOs. Some of the fisheries in the improvement phase and working towards certification to MSC include the Lakshadweep tuna fishery and the Indian oil sardine fishery (Gopal and Boopendranath 2013). Areas of improvement that these fisheries are working on include improving bait management for the Lakshadweep tuna fishery and developing harvest control rules for the oil sardine fishery.

MSC's third-party certification programme involves the use of third-party certification or conformity assessment bodies, accredited by Accreditation Services International (ASI). ASI has accredited 27 bodies globally to undertake MSC assessments (ASI 2017). Several of these accredited bodies, including Bureau Veritas, DNV GL, SCS Global Services and SGS Nederland BV, have local offices and auditors in India that provide capacity for local services in India. These auditors provide expertise for the audits for the over 20 MSC Chain of Custody certificates that have been issued in India.

The market in India for products certified to the MSC standard is less well developed, although a handful of eco-labelled products are available in some very niche outlets in the country. Currently, the greatest driver for MSC certification is from markets outside of India. However, a growing middle class in India with increased awareness of sustainability issues and the presence of transnational corporations with global commitments to sustainability points to the likelihood for an increased demand for sustainable seafood in India in the near future.

Friend of the Sea

Friend of the Sea is a non-profit, non-governmental organisation founded by the Earth Islands Dolphin safe project. The scope of the Friend of the Sea includes both fisheries and aquaculture. Two certification bodies, DNV GL and Rina Services S.p.A., have been accredited to carry out audits for Friend of the Sea.

The fisheries standard considers fish stocks, bycatch, seabed impact, compliance with regulation, carbon footprint reduction and social

accountability. The aquaculture standard covers critical habitat impact, escapes, water quality, Genetically Modified Organisms, social accountability and carbon footprint reduction.

Globally, about 100 aquaculture producers, based mainly in Europe, have been certified to the Friends of the Sea aquaculture standard. Globally 88 fisheries have been certified to the Friend of the Sea capture standard to date. This number includes two fisheries in India—the India oil sardine and yellowfin tuna. In addition to the wild capture sector, 517 metric tonnes of farm-produced fish in India are certified to the Friend of the Sea standard (Potts et al. 2016).

Naturland

Naturland is a non-governmental organisation which functions as a private certification body and an organic farmers association and has been operational since 1982. In 2006, Naturland started to operate a seafood standard called the Naturland wild fish standards for marine and inland capture fisheries. The standard outlines requirements for working conditions, protection of target stocks, protection of the ecosystem and stable business relationships along the seafood value chain (Naturland 2017). It also considers the methods by which products are processed and requires that these meet criteria for organic products. Globally, there are at least two fisheries certified to the Naturland standard. This includes the Lake Victoria Nile perch fishery and a herring fishery in the Bay of Greifswald on Rugen and Usedom. There are currently no wild caught Naturland certified fisheries in India.

Aquaculture Stewardship Council

The Aquaculture Stewardship Council (ASC) is an independent, international non-profit organisation that manages a certification and labelling programme for responsible aquaculture.

ASC has eight standards which cover 12 species including abalone, clams, mussels, oyster, scallop, freshwater trout, pangasius, salmon,

shrimp, tilapia, seriola and cobia. The standard covers environmental issues, which are inclusive of controls for the use of antibiotics and pesticides, use of sustainable feed, water quality and ecosystem impact. The scope of the standard extends to social issues and requires fair working conditions and contracts for farm workers. It also includes indicators that measure the impact of farms on the community.

Globally, there are 27 Conformity Assessment Bodies that are accredited to undertake assessments against ASC's standards. Some of them, including DNV GL and Bureau Veritas, have local branches in India.

There are 45 farms in India, mostly for white leg shrimp that are engaged in the ASC programme. Twenty-eight of these are already certified, and seventeen are undergoing full assessment.

ASC's strategic plan identifies increased output of certified seafood and availability of labelled products in Asia as a priority (ASC 2017). This can be expected to include India, given the current extent of ASC presence in the form of certified farms, and the importance of India to aquaculture in the region. To support its proposals to increase uptake, the ASC intends to operate an Aquaculture Improvement Program, which would be of significance in countries where a significant level of improvements may be required before farms are able to meet the standard.

Global Aquaculture Alliance: Best Aquaculture Practices

The Global Aquaculture Alliance (GAA) is an international non-governmental, industry-led organisation that was set up in 1997, with a mission to promote responsible aquaculture practices through education, advocacy and demonstration. GAA operates a standard called Best Aquaculture Practices (BAP). The standard covers environmental responsibility, social responsibility, food safety, animal welfare and traceability for almost all aquaculture finfish, crustacean and mollusc species and extends to the entire production chain including farms, processing facilities, feed mills and hatcheries.

Certification to the BAP standard involves third-party onsite audit against the appropriate BAP standard by an assigned certification body.

Worldwide, there are over 1600 facilities that are certified to the BAP standard. This includes 305 facilities in India, inclusive of farms, hatcheries, feed mills and processing plants that are certified to BAP standards. In terms of volume, India accounts for 0.5% of global tonnage certified to the BAP standard (Potts et al. 2016).

Auditing capacity for the BAP standard is represented in India through organisations such as SGS Nederland BV and Bureau Veritas.

GLOBALG.A.P.

GLOBALG.A.P. provides international standards for a range of farm products including aquaculture. GLOBALG.A.P.'s aquaculture standard includes criteria for legal compliance, food safety, workers' occupational health and safety, risk assessment for social practices, animal welfare and environmental and ecological care (GLOBALG.A.P. 2018). The scope of the standard extends through the whole production chain, including broodstock collection, seedlings, feed suppliers farming and processing, and applies to a wide range of finfish, crustaceans and molluscs. To become certified to the GLOBALG.A.P. standard, facilities are evaluated by a certification body on an onsite inspection. The first Indian aquaculture producer certification to the GLOBALG.A.P. aquaculture standard was in 2013 (GLOBALG.A.P. 2018).

International Fishmeal and Fish Oil Responsible Supply

The International Fishmeal and Fish Oil Responsible Supply (IFFO RS) is a third-party certification and auditing programme, operational since 2009 and owned by the International Fishmeal and Fish Oil (IFFO) organisation. IFFO RS operates three standards and includes the IFFO RS standard for responsible supply, IFFO RS Chain of Custody and IFFO RS Improver Programme. The IFFO RS responsible supply standard includes fisheries and factories within scope. The themes addressed by the standard include responsible sourcing of raw material, traceability, manufacturing practices, social accountability and community

engagement. There are currently no fisheries in India certified to the IFFO RS standard.

Other Voluntary Sustainability Standard Initiatives

There are a range of other VSS initiatives which are potentially important to India. These include seafood rating initiatives such as sustainable seafood guides provided by WWF and the Monterey Bay Aquarium. There are other initiatives that are national in terms of their scope, but they may become more important to the fisheries sector in India if the use of such initiatives becomes significant in the retail sector of countries that are of export interest to India. Examples of national VSS include the Iceland Responsible Fisheries Management Certification, which is applicable to Icelandic vessel fisheries operating in Icelandic EEZ and to shared pelagic stocks on the high seas targeted by Icelandic vessels (Iceland Responsible Fisheries Foundation 2016). Another example is Marine Eco-Label (MEL) Japan, a national eco-label in Japan, which is an important export country for India. MEL Japan is an initiative that was formed for Japanese fisheries through a partnership of the Japan Fisheries Association and the government (Swartz et al. 2016).

Voluntary Standards and Seafood Sustainability Governance in India

Compared to other parts of the world, specifically Europe and North America, the use of VSS in the seafood sector in India, either as a supplier or in the domestic market is low. The main driver for certification to VSS in India currently appears to be international markets, particularly markets where there is higher public awareness about sustainability issues in the seafood sectors. There are, however, emerging trends backed up with research that suggest that changing economic, social and psychographic attributes of India's consumer class is leading to a growing interest in ethical and sustainability attributes of products (Pande 2017). If this extends

to interest and concern about sustainability of fisheries resources, it would enhance the incentives for fisheries to comply with VSS.

As with many other developing countries, there are a range of factors that constitute a barrier to mainstream use of VSS in the capture fisheries and aquaculture sector. Some of the typical constraints include cost of certification, difficulty meeting certification requirements, limited data availability to demonstrate compliance with requirements, lack of awareness and understanding of VSS and how they operate (Ramachandran 2010; Oloruntuyi 2010; Washington and Ababouch 2011; Stratoudakis et al. 2016).

While the actual uptake of VSS for seafood product in India is low, there is clearly recognition within India, including by the government, of the role that VSS can play in encouraging social and environmental responsibility and sustainability.

In 1991, the government, through the Ministry of Environment and Forests, set up a scheme to provide a voluntary eco-label—ECOMARK—to products from a set of product categories certified as meeting specified environmental criteria. The initiative, to be managed by the Bureau of Indian Standards, was introduced for up to 16 product categories, although it did not include the seafood sector.

In 2012, the National Academy of Agricultural Science (NAAS), a government agency, proposed that India should formulate principles and criteria for certification of fisheries and recommended the implementation of pilot projects in India in collaboration with other VSS (NAAS 2012).

Another institution, the Quality Council of India, set up by the Ministry of Commerce and Industry, is the secretariat for the Indian National Private Sustainability Standards Platform (Indian PSS Platform). The platform has several objectives, which include fostering sustainability across all business, trade and production sectors, to bring transformative change to production and consumption patterns in India and to promote sustainable public procurement either through voluntary or private sustainability standards. An indication of the growing importance of VSS to government is that the Quality Council of India is currently working with the United Nations Forum on Sustainability Standards (UNFSS) to provide a dialogue platform to address issues on leveraging trade,

standards and value chains as tools for sustainable development in a range of sectors, including fisheries (ICSTS-QCI 2018).

Further evidence of the growing interest in VSS for seafood in India comes from a recent commitment made by a group of stakeholders in India to initiate and implement Fishery Improvement Projects for ten fisheries. The ambition is for the fisheries to eventually attain MSC certification (Intrafish 2018).

Conclusion

The uptake and engagement with VSS in the seafood sector in India is still in its early stages and the proportion of certified tonnage of seafood from India compared to global tonnage is still low. As such, it is too early to draw overarching conclusions of the impact of VSS at a national level.

There are, however, individual case studies that demonstrate sustainability improvements that have resulted from the use of VSS (WWF 2014; Mohamed and Malayilethu 2015). These have often followed collaboration between government, NGOs and business organisations, with these collaborations leading to a range of outcomes such as improvements in management and improvements in information and data to support management. The role of VSS in these early stages has therefore been to provide a framework within which to chart out progress towards sustainability, to facilitate collaboration required to support fisheries progressing towards certification and to signal the market benefits available to fisheries that are managed in a sustainable manner.

These examples, and the growing global market in the use of VSS, explain the growing interest in VSS in India. These developments are also consistent with the direction of fisheries policy in India, with its increasing focus on sustainable management of resource through management of fishing effort and biodiversity conservation in production processes. More specifically, India's new fishery policy, which commits the government to creating an enabling environment for the promotion of eco-labelling of key Indian fisheries that benefits fish stocks, the seafood industry and fishers, is a recognition of the role that VSS can play in promoting sustainability.

The recognition of the role of eco-labelling by the government, the important role of India in seafood trade and production, budding consumer interest in ethical issues and the initial, albeit still nascent, successes with certification to VSS in the country to date, signal the opportunities that exist within India to include VSS within the armoury of tools to promote a more sustainable approach towards utilisation of aquatic resources for fish production in India. The actual outcome and impact will depend very much on commitment from stakeholders both within and outside of India, inclusive of government, businesses and NGOs. However, many of the key ingredients for success, including awareness of VSS, market pull, NGO engagement in transition initiatives and government support for seafood sustainability initiatives are steadily coming into place and provide the basis for optimism about prospects for seafood VSS in India.

Key Takeaways

- India plays a significant global role in the trade and production of seafood.
- The rapid development of the sector has been accompanied with sustainability concerns.
- There is growing recognition in India of the role of VSS as a marketing and conservation tool.
- Sector-wide uptake of VSS is faced with a range of challenges; however, recent trends and development, both locally and internationally, indicate a likely increase in uptake of VSS in the future.
- Continued collaboration and partnerships amongst stakeholders, and particularly partnerships with the government, are required if seafood VSS are to have any significant impact as a tool to deliver sustainability of fisheries resources in India.

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