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Scaling up Integrative Collaborative Governance towards Sustainable Coastal Development: Contributions of the Integrated Coastal Management System in the East Asian Seas Region

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Introduction

The recent publication “Local Contributions to Global Sustainable Development Agenda: Case Studies in Integrated Coastal Management in the East Asian Seas Region”¹ is a milestone in dedicated regional efforts to developing, testing, and implementing integrated coastal management (ICM) in several countries of the East Asian Seas region (hereafter the EAS region).² Authored by more than 60 local practitioners, local government leaders, private sector partners, economists, scientists/researchers, and experts from ten countries, this publication verified the validity, feasibility, value, and applicability of the

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- 1 T.-E. Chua, L.-M. Chou, G. Jacinto, S.A. Ross and D. Bonga, eds., *Local Contributions to Global Sustainable Development Agenda: Case Studies in Integrated Coastal Management in the East Asian Seas Region* (Quezon City: Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and Coastal Management Center (CMC), 2018).
 - 2 In this article, the EAS region encompasses six large marine ecosystems: the South China Sea, the Gulf of Thailand, the East China Sea, the Yellow Sea, the Sulu-Celebes Sea, and the Indonesian Seas.

integrated coastal management system (ICMS) as an operational modality for achieving the goals of sustainable coastal development.

The purpose of this article is to reflect on implementation of ICM in the EAS region over the last 25 years to: reaffirm the validity and usefulness of the ICMS from the perspective of its applicability, dynamics, and effectiveness as well as its limitations in the context of varying political, social, economic, and environmental circumstances; summarize the lessons learned from implementing ICM and its scaling up in the region in terms of achievements, impacts, and constraints; and highlight the urgency and needs for scaling up integrative collaborative governance throughout and across the regional boundary, particularly in the era of climate crisis.

Background

The ICMS evolved from the experiences and lessons drawn from over 50 years of coastal management practices around the world.³ ICM was conceptualized as “Coastal Zone Management” (CZM) in the early 1960s in the United States and further strengthened with the enactment of the *Coastal Zone Management Act* in 1972, resulting in various CZM/integrated coastal zone management (ICZM) programs in the coastal states.⁴ ICZM, variously called integrated coastal and ocean management (ICOM), coastal resource management (CRM), CZM, integrated coastal area management (ICAM), and ICM, originated from a stronger policy–science interface in managing coastal complexities.⁵ The need to minimize conflicts in terms of policy, legislation,

3 D. Bonga and T.-E. Chua, “The ICM System: Development and Evolution,” in Chua et al., n. 1 above, 9–34.

4 J.R. Clark, *Integrated Management of Coastal Zones*, FAO Technical Paper No. 327. (Rome: FAO, 1992); B. Cicin-Sain and R.W. Knecht, *Integrated Coastal and Ocean Management: Concept and Practices* (Washington D.C.: Island Press, 1998).

5 J.C. Sorensen, “The International Proliferation of Integrated Coastal Management Efforts,” *Ocean and Coastal Management* 21, nos. 1–3 (1993): 45–80; J.C. Sorensen, “National and International Efforts at Integrated Coastal Management: Definitions, Achievements and Lessons,” *Coastal Management* 25, no. 1 (1997): 3–41; J.R. Clark, *Coastal Zone Management Handbook* (Boca Raton: CRC Press, Inc., 1996); S.B. Olsen, “Assessing Progress towards the Goals of Coastal Management,” *Coastal Management* 30 (2002): 325–344; T.-E. Chua, *The Dynamics of Integrated Coastal Management: Practical Applications in the Sustainable Coastal Development in East Asia* (Quezon City: GEF/UNDP/IMO Regional Programme for Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), 2006); P.J. Ricketts and P. Harrison, “Coastal and Ocean Management in Canada: Moving into the 21st Century,” *Coastal Zone Management Journal* 35, no. 1 (2007): 5–22; S.R. Bremer, “Exploring

institutional functions, and financing in the conventional governance system had driven greater demand for more holistic, integrative, and collaborative management interventions.⁶

Since then, the concept of ICZM has been introduced to more than 100 countries around the world,⁷ largely through aid agencies and international and regional organizations. The principle of ICZM was tested in Canada, Brazil, South Africa, and in the European Union.⁸ Several countries in the Southeast and South Asian regions such as Thailand, the Philippines, Malaysia, Brunei Darussalam, Indonesia, Singapore, Sri Lanka, and India have benefited from the US efforts.⁹ Like many countries in Asia, Africa, and Latin America, the US AID ICZM/CRM initiatives generally failed to continue beyond the project phase.¹⁰ Similar situations occurred in Europe, when the European Commission provided funding support to initiate ICZM in several countries since 1995, but none were able to continue beyond the project phase.¹¹ Nonetheless, the above initiatives had generated significant public awareness and coastal and ocean policy, legislation, and management improvements.¹²

With the establishment of the Global Environmental Facility (GEF) on the eve of the Rio Earth Summit in 1992, the EAS region was awarded a GEF regional marine pollution project in 1993 under the International Waters portfolio.

a “Post-normal” Science–policy Interface for Integrated Coastal Management” (Ph.D. diss., Massey University, 2011).

- 6 T.-E. Chua and D. Bonga, “A Functional Integrated Coastal Management System towards Achieving Sustainable Development Objectives” in Chua et al., n. 1 above, 525–552.
- 7 Sorensen (1993, 1997), n. 5 above; Clark, n. 5 above.
- 8 Ricketts and Harrison, n. 5 above; L.A. Klumb-Oliveira and R.D. Souto, “Integrated Coastal Management in Brazil: Analysis of the National Coastal Management Plan and Selected Tools Based on International Standards,” *Journal of Integrated Coastal Zone Management* 15, no. 3 (2015): 311–323; M. Sowman and N. Malan, “Review of Progress of Integrated Coastal Management in South Africa since the Advent of Democracy,” *African Journal of Marine Science* 40 (2018): 121–136; R. Ballinger, A. Pickaver, G. Lymbery and M. Ferreria, “An Evaluation of the Implementation of the European ICZM Principles,” *Ocean and Coastal Management* 53, no. 12 (2010): 738–749; Rupperecht Consult., “Evaluation of Integrated Coastal Zone Management (ICZM) in Europe,” Final Report to the European Parliament and Council, (2006).
- 9 L.F. Scura, T.-E. Chua, M. Pido and J. Paw, “Lessons for Integrated Coastal Zone Management: The ASEAN Experience,” in *Integrative Framework and Methods for Coastal Area Management*, eds. T.-E. Chua and L.F. Scura, ICLARM Conf. Proc. 37 (Makati: ICLARM, 1992).
- 10 Bonga and Chua, n. 3 above.
- 11 Video interview by Eric Siirila on Integrated Coastal Zone Management with Dr. Peter Burbridge, Professor Emeritus, Newcastle University, UK in April, 2012 (vimeo on ICZM).
- 12 Scura et al., n. 9 above; Chua, n. 5; S. Gambert, “The Integrated Maritime Policy of the European Union,” in *Routledge Handbook of National and Regional Ocean Policies*, eds. B. Cicin-Sain, D. VanderZwaag and M. Balgos (New York: Routledge, 2015), 495–503.

One of the key subprojects was the development and implementation of ICM programs at two demonstration sites: in Xiamen (China) and Batangas (the Philippines). The subproject's design was also built upon lessons learned and recommendations from past US experiences in ICZM and Southeast Asia's experience in implementing the USAID-funded CRM Project.¹³ The term ICM was based on the consideration that it operates on a defined management area within a local government's administrative boundary, covering both land and adjacent seas. Unlike other past, internationally funded projects, the ICM demonstration projects, which began in 1994, emphasized the leading role of local government in project implementation; promoted interagency cooperation and stakeholder participation; strengthened a science-informed policy and management decisions; invested in local leadership; and built capacity, financial commitments, policy, and legislative support, and more importantly, local ownership.¹⁴

While the two demonstration sites had made significant progress with visible and measurable outputs after project completion in 1997, they would have suffered the same fate as those initiatives mentioned earlier if there were no new project resources to continue and strengthen initial efforts. Realizing the values of ICM efforts in achieving sustainable development objectives by both the participating local and central governments in the region had led to the formulation of a new GEF project on implementing a regional Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), which justified the continuation of the two ICM demonstration projects and their replication in six sites of six other countries: Bali (Indonesia), Danang (Vietnam), Chonburi (Thailand), Nampho (DPR Korea), Port Klang (Malaysia), and Sihanoukville (Cambodia). Through this new arrangement, ICM activities in each participating country were able to apply the ICM model as demonstrated in Xiamen and Batangas. At the same time, more efforts were made in identifying and validating additional key components, framework, processes, and their applications in achieving a common vision and management targets of partner local governments. The intention was to develop a reliable and effective working operational model for future ICM program development and implementation.

By 2003, Xiamen and Batangas had gone through ten years of continuous ICM implementation while the other replication sites had at least gone through the first cycle. To date, all sites were able to sustain their ICM practices

13 Scura et al., n. 9 above.

14 Chua and Bonga, n. 6 above.

although with varying levels of achievement.¹⁵ Local knowledge and experience in development planning and integrated governance and management had greatly enhanced local commitments from the local leaderships and stakeholders as well as strengthened interdisciplinary scientific research in providing a stronger information base for policy and management decisions. More important was the development of institutional capacity, confidence, and local leadership to be able to manage coastal environment complexities and other emerging challenges.

The SDS-SEA was formally adopted at Putrajaya (Malaysia) in 2003 by 14 participating countries and a new regional mechanism, the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), with the mandate to facilitate the implementation of the regional strategy, was established.¹⁶ In response to international efforts to manage the oceans and coasts, the region's SDS-SEA promoted the development of national sustainable development strategies in regard to meeting international targets and obligations.¹⁷ The implementation of SDS-SEA at a national and regional scale is in line with global objectives towards attaining sustainable coast and ocean. It laid the foundation for achieving the specific sustainable development goals especially SDG 14 (Life below water), which was developed and adopted many years later.

By 2014, PEMSEA had already established ICM sites in 26 locations around the region, demonstrating the value of ICM while developing the capacities of its practitioners. Building on the experiences gained, PEMSEA's partner countries further expanded ICM to additional sites, again in collaboration with local governments. By 2017, about 19 percent of the region's coastlines were under ICM (Table 1).¹⁸

As their experience and confidence in ICM grew, national and local governments began to scale up ICM program coverage to include river basins and

15 Bonga and Chua, n. 3 above.

16 T.-E. Chua, D. Bonga and S.R. Bernad, "The Evolving Partnership Model in Coastal and Ocean Governance in the Seas of East Asian Region – PEMSEA's Role," in *Securing the Oceans: Essays on Ocean Governance – Global and Regional Perspectives*, eds. T.-E. Chua, G. Kullenberg and D. Bonga (Quezon City: Global Environmental Facility/United Nations Development Programme/International Maritime Organization Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and The Nippon Foundation, 2008), 597–628.

17 PEMSEA, *Regional Review: Implementation of the Sustainable Development Strategy for the Seas of East Asia (SDA-SEA) 2003–2011* (Quezon City: PEMSEA, 2012); PEMSEA, *Regional Review: Implementation of the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) 2003–2015* (Quezon City: PEMSEA, 2015).

18 Bonga and Chua, n. 3 above.

TABLE 1 Geographic Scaling up of ICM in 2017 and Opportunities for Scaling up to 2021

Country (Length of total national coastline)	Length of coastline covered in 2015	Percentage of national coastline covered by existing ICM programs/ sites in 2015	Length of coastline covered in 2017	Estimated percentage of national coastline covered by new ICM programs/ sites in 2017	Opportunities for ICM scaling up to cover 25% of the regional coastline by 2021
Cambodia (440 km)	119.00	27.0	321.00	73.00	
China (32,000 km)	3,488.05	10.80	749.70	2.34	Development of an ICM certification standard in line with PEMSEA's ICM Code and Recognition System as a voluntary mechanism for the 52 coastal cities and provinces to subscribe to ensuring sustainable development of coastal areas and implementation of good governance practices in managing these areas. Issuance of a State Oceanic Administration (SOA) Administrative Guidelines is anticipated to facilitate the process.
DPR Korea (2,880 km)	127.00	4.41			
Indonesia (95,161 km)	7,494.00	7.88	4,300.76	4.52	<i>National Act on Management of Coastal Zones and Small Islands</i> requires the development of ICM programs in all coastal provinces of Indonesia.
Japan (35,000 km)	492.50	1.41			<i>Basic Act on Ocean Policy and Basic Plan on Ocean Policy 2013</i> requires the integrated management of land and sea and establishing a coordination system for ICM to be led mainly by local governments. Possible scaling up sites: – Taketomi Town, Okinawa Prefecture, consisting of 16 islands – Omura Bay Area, Nagasaki Prefecture, includes 5 cities and 5 towns.

TABLE 1 Geographic Scaling up of ICM in 2017 and Opportunities for Scaling up to 2021 (*cont.*)

Country (Length of total national coastline)	Length of coastline covered in 2015	Percentage of national coastline covered by existing ICM programs/sites in 2015	Length of coastline covered in 2017	Estimated percentage of national coastline covered by new ICM programs/sites in 2017	Opportunities for ICM scaling up to cover 25% of the regional coastline by 2021
Malaysia (5,087.5 km)	291.00	5.72			Potential scaling up in Kedah State following the example in Selangor State; Kedah Water Resources Authority has identified Langkawi Island, with 55 km coastline, as the first ICM site.
Philippines (36,289 km)	6,421.86	17.70	918.25	2.53	ICM status review of the 228 (out of 832) coastal municipalities with ICM plans, as reported by the Department of Environment and Natural Resources (DENR) in May 2015, will be conducted using the PEMSEA ICM Code. Advocacy for the passage of the ICM Bill in the 17th Congress; updating of the National ICM Program and adoption by DENR through a Department Administrative Order (DAO).
RO Korea (14,963 km)	14,963.00	100.00			
Singapore (195 km)	195.00	100.00			
Thailand (3,148 km)	171.80	5.46	391.05	12.42	Marine and Coastal Resources Management Promotion Act, B.E. 2558 (2015) requires all coastal provinces to establish interagency Provincial Committees on Marine and Coastal Resources and develop marine and coastal resources management plans.
Timor-Leste (735 km)	142.00	19.30	112.16	15.26	Possible replication of ICM programs in other coastal districts

TABLE 1 Geographic Scaling up of ICM in 2017 and Opportunities for Scaling up to 2021 (*cont.*)

Country (Length of total national coastline)	Length of coastline covered in 2015	Percentage of national coastline covered by existing ICM programs/ sites in 2015	Length of coastline covered in 2017	Estimated percentage of national coastline covered by new ICM programs/ sites in 2017	Opportunities for ICM scaling up to cover 25% of the regional coastline by 2021
Vietnam (3,269 km)	1,319.00	40.30	1,098.00	33.59	Law on Marine Resources and Environment of Seas and Islands ratified by the National Assembly and took effect on July 1, 2016; National ICM Strategy to 2020 and Vision to 2030 and National Action Plan 2016–2020 approved by the Prime Minister; ICM Policy and Technical Guidelines under development to support ICM implementation in 28 coastal provinces as required by the law and national ICM strategy.
GRAND TOTAL (227,713.6 km)	35,224.21	15.47	7,890.92	3.46	Target 4: 25% of the region's coastline

watershed areas, as in the cases of Xiamen and Lao PDR;¹⁹ extended coastal use zoning across the entire coastline, as in the case of Selangor, Malaysia;²⁰ and expanded ICM initiatives to cover all coastal provinces, as in the case of

- 19 B. Rafael, "Institutional Mechanisms for Integrating River Basin Management and Integrated Coastal Management: Xiamen/Jiulong River Experience," in Chua et al., n. 1 above, 71–78; S. Phantamala, S. Inthachack, K. Phuipaseut and B. Rafael, "Integrated River Basin Management at the Local Level: Experience from Houay Champi Sub-basin, Lao PDR," in Chua et al., n. 1 above, 327–336.
- 20 N. Shamsuddin, "Achieving Integrated Coastal Management Scaling Up throughout the Coastline of Selangor, Malaysia," in Chua et al., n. 1 above, 453–458; N. Shamsuddin, "A Gazetted Integrated Coastal Use Zoning Plan for the State of Selangor, Malaysia," in Chua et al., n. 1 above, 515–522.

Cambodia;²¹ or all contiguous coastal and non-coastal municipalities, as in the case of Chonburi, Thailand.²²

The growth track of ICM practice from demonstration to replication, and then to eventual scaling up followed two practical tenets. The first is “strength in numbers,” where the increase in numbers of partner local governments underpinned the need to learn from the spread of community of practice when very few successful (and sustained) ICM operational modalities existed before. Also, beyond branding, as PEMSEA advocated a “different” way of doing things, the tenet operationalized the core values for integrative and collaborative governance. And beyond becoming familiar with frameworks and mental models, local government partners institutionalized the practice and thus sustained ICM program operations. The other tenet, “safety in numbers,” underpinned resilience and ecosystem-based management: “a successful local ICM practice, alone and amid problematic areas, is in itself very weak and vulnerable. Good practices need to be replicated ... [aimed at maintaining]... functional networks of robust and resilient ecosystems... [which serve as]... the insurance of a continuous flow of ecosystem goods and services.”²³ In Xiamen and in Lao PDR, for example, the need to scale up was in response to a particular stressor generated at a different scale(s), i.e., declining water quality and declining water supply and safety, respectively. In these cases, scaling up sustainable land use practices across a broader regional scale (in Xiamen and Lao PDR) and incorporating them into marine spatial planning (in Xiamen) were steps in the right direction.²⁴

The ability of PEMSEA’s participating countries to sustain and scale up ICM practices over the last 25 years demonstrated the:

- commitment of partner local governments in continuing and supporting ICM practices using their own human and financial resources despite varying levels of success;
- strong political and social acceptance;
- dynamics of the ICMS in driving changes from conventional governance to integrative collaborative governance towards the goals of sustainable coastal development; and

21 PEMSEA, n. 17 above; P. Visal, S. Nay and B. Rafael, “Strengthening Local Capacity for ICM Implementation and Scaling Up in Preah Sihanouk, Cambodia,” in Chua et al., n. 1 above, 459–468.

22 P. Barnette and N. Wiwekwin, “Integrated Coastal Management Implementation and Scaling Up in Chonburi Province,” in Chua et al., n. 1 above, 469–481.

23 Bonga and Chua, n. 3 above.

24 Rafael; Phantamala et al., n. 19 above.

- political will in formulating and implementing national ocean policy, legislation, or administrative orders to promote among others, ICM practices at local level.

Steering Mechanisms: How Does the ICMS Work?

With the lack of a practical working methodology since its endorsement and adoption at the Stockholm Convention in 1972, sustainable development remains more of a normative concept rather than a reality, even after the New York UN Summit of 2015 when specific Millennium Development Goals and targets were reviewed and reframed as Sustainable Development Goals (SDGs).²⁵ The questions being repeatedly asked were: How does one know that sustainable development has been attained? How can the sustainable development concept be operationalized? Sustainable development was envisioned to be underpinned by long-term (even lifelong-term) and iterative operational mechanisms.

Globally, several ICM frameworks and implementation models were developed in an attempt to operationalize sustainable development. As enumerated,²⁶ these models include: the cross-sectoral integrated coastal area planning (CICAP) process, Olsen's ICM cycle, the model proposed by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), the World Bank guidelines, the ICM guidelines in Cicin-Sain and Knecht, the European ICZM recommendations in the European Commission, the Canadian integrated management model, the Australian implementation model, and the flexible cyclical umbrella model proposed by the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA).²⁷

25 Chua and Bonga, n. 6 above.

26 S. Taljaard, J. Slinger and J.H. van der Merwe, "Criteria for Evaluating the Design of Implementation Models for Integrated Coastal Management," *Coastal Management* 39 (2011): 628–655.

27 J.C. Pernetta and D.L. Elder, *Cross-sectoral Integrated Coastal Area Planning (CICAP): Guidelines and Principles for Coastal Area Development* (Gland: International Union for Conservation of Nature, 1993); S.B. Olsen, J. Tobey and M. Kerr, "A Common Framework for Learning ICM Experience," *Ocean and Coastal Management*, 37 (1997): 93–103; S.B. Olsen, K. Lowry and J. Tobey, *A Manual for Assessing Progress in Coastal Management*, Coastal Management Report 2211 (Rhode Island: Coastal Resource Center, University of Rhode Island, 1997); GESAMP, *The Contributions of Science to Integrated Coastal Management*, GESAMP Reports and Studies No. 61 (Rome: Food and Agricultural Organization of the United Nations, 1996); J.C. Post and C.G. Lundin, *Guidelines for Integrated Coastal Zone Management*, Environmentally Sustainable Development Studies and Monographic

While most ICM sites have been informed by these guidelines, many initiatives folded immediately or were not sustained. Only a few regions, including the EAS region, were able to plod on.

Since 1994, and learning from other international experiences, the EAS region through PEMSEA embarked on developing and demonstrating, and, most importantly, sustaining the implementation of ICM towards achieving sustainable development objectives. This has led to the evolution of the ICMS as an environmental management system. Its maturation has been both adaptive and reflexive as it underwent a series of evaluations (and reframing) over the years: its development from being a “resource management system” with essential elements consisting of three mutually supporting components of processes, issues, and actions,²⁸ to a system focused on concept, operation, and effectiveness,²⁹ then to a system of dynamic processes which steer an ICM program,³⁰ and finally to an environmental management system that is comprehensive, systematic, planned, participatory, documented, and codified.³¹ In short, the ICMS is systematic in process, holistic in coverage, and governance/

Series. No. 9 (Washington D.C.: World Bank, 1996); Cicin-Sain and Knecht, n. 4 above; Recommendation of the European Parliament and Council of May 30, 2002 concerning the implementation of ICZM in Europe. Official Journal of the European Communities Directives No.2002/413/EC(148/24), Brussels, Belgium; DFO (Department of Fisheries and Ocean), *Policy and Operational Framework for Integrated Management of Estuarine, Coastal and Marine Environments in Canada* (Ottawa: Government of Canada, Fisheries and Oceans Canada, Ocean Directorate, 2002); NRMCC (National Resource Management Ministerial Council), *National Cooperative Approach to Integrate Coastal Zone Management: Framework and Implementation Plan* (Canberra: Australian Government, Department of the Environment and Heritage, 2006); UNEP/GPA (United Nations Environmental Programme and Global Programme of Action for the Protection of Marine Environment from Land-based Pollution), *Protecting Coastal and Marine Environments from Land-based Activities: A Guide for National Action* (The Hague: UNEP/GPA, 2006).

28 Scura et al., n. 9 above; T.-E. Chua, “Essential Elements of Integrated Coastal Zone Management,” *Ocean and Coastal Management* 21 (1993): 81–108.

29 T.-E. Chua, “Lessons Learned from Practicing Integrated Coastal Management in South-east Asia,” *Ambio* 27, no. 8 (1998): 599–610.

30 Chua, n. 5 above.

31 T.-E. Chua, “Coastal Governance: A Reflection of Integrated Coastal Management (ICM) Initiatives with Special Reference to the East Asian Seas Region,” in *Securing the Oceans: Essays on Ocean Governance – Global and Regional Perspectives*, eds., T.-E. Chua, G. Kullenberg and D. Bonga (Quezon City: Global Environmental Facility/ United Nations Development Programme/International Maritime Organization Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and The Nippon Foundation, 2008), 371–402; T.-E. Chua, “Coastal and Ocean Governance in the Seas of East Asia: PEMSEA’s Experience,” *Coastal Management* 41, no. 2 (2013): 99–119; T.-E. Chua, “Two Decades of Integrated Coastal Management Implementation in the Seas of East Asia: What Have We Learnt?” Keynote paper presented at the East Asian Seas Congress, November 16–21, 2015, Danang, Vietnam.

management in focus towards the long-term objectives of environmental, economic, and social sustainability.

The ICMS evolved through reframing an integrative marine pollution management initiative to a more holistic sustainable coastal and ocean development, “which in many ways mirrored the global movement resulting in World Summit on Sustainable Development (WSSD), Rio+20 and the Millennium Development Goals (MDGs)... [and SDGs].”³² A new way of reframing problems also informed the ICMS: where before, coastal issues were premised on addressing use conflicts, they are now couched in sharing benefits to further the strategies for integrative and collaborative governance;³³ and where before, the aim was optimization of the use and allocation of ecosystem goods and services, they are now couched in “insuring net benefits in the interaction between nature and human activities.”³⁴

Earlier narratives had adequately presented the steering mechanisms of an ICMS consisting of a Sustainable Development of the Coastal Area (SDCA) framework (Figure 1), the ICM cycle (Figure 2), and the dynamic elements that drive the operational process in developing and implementing ICM programs (Table 2).³⁵ They are briefly discussed here.

The SDCA framework and the ICM cycle are robust “mental models” or visual representations, which enabled ICM initiators and practitioners to conceptualize appropriate proactive planning and management approaches in designing their ICM programs in accordance with local conditions; setting long- and short-term targets/objectives, identifying and prioritizing management challenges; developing operational strategies and action plans for addressing sustainable development challenges; securing and leveraging financing; building collaborative partnerships between line agencies and sectors as well as facilitating political and social support; and more significantly embarking on a long-term strategy to develop the necessary local institutional capacity and expertise to generate the relevant information and databases and their application in policy and management interventions.

The key elements of the governance component of the SDCA framework (i.e., policy, strategy, and plans; legislation; institutional arrangements;

32 A.T. Gonzales, E. Kelley and G. Bernad, “A Review of Intergovernmental Collaboration in Ecosystem-based Governance of the Large Marine Ecosystems of East Asia,” *Deep-Sea Research Part II* 163 (2019): 108–119.

33 B.R. Peng, “Safeguarding the Vulnerable Communities of Xiamen’s Western Sea Areas,” in Chua et al., n. 1 above, 347–356; Q.H. Fang and D.Q. Ma, “Reducing Use Conflicts through Marine Functional Zoning,” in Chua et al., n. 1 above, 495–502; Chua, n. 5 above; Chua, n. 6 above.

34 Chua, n. 5 above.

35 Chua, n. 5 above; Chua, n. 31 above.

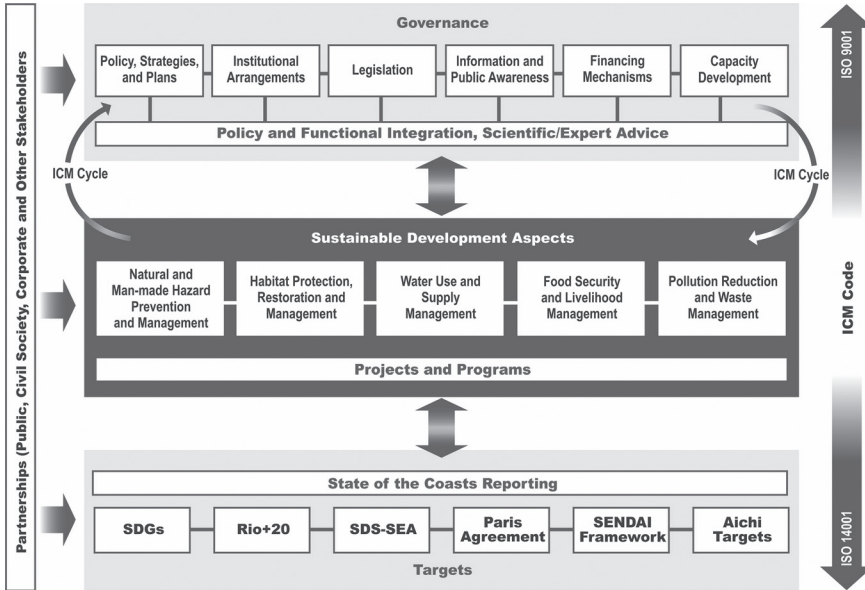


FIGURE 1 The SDCA Framework

sustainable financing; information and public awareness; and capacity) are interdependent and the interface of which resulted in the development of appropriate policy, legislative, and institutional measures as well as the needed capacity to effect implementation and the cooperation and support of an informed public.

The governance component was strategically designed to:³⁶

- ensure that existing policy and legislation are adequate or need to be strengthened to increase effectiveness in addressing the identified management challenges;
- cause the development of vision-led strategies and action plans that could be implemented over time in achieving the set vision and addressing issue-oriented management concerns;
- undertake institutional arrangements, especially in setting up a high-level and authoritative coordinating mechanism with active participation of concerned line agencies, collaborative partners from the private sector, communities, scientific and/or educational institutions;
- explore and develop a sustainable financing mechanism that builds upon government’s regular budgets, bi-lateral and multi-lateral collaborations

36 N. Bermas and T.-E. Chua, “Roles of the Key Elements of Governance in Integrated Coastal Management Practice,” in Chua et al., n. 1 above, 37–59.

such as the public and private partnerships, micro-financing, or revenues from ecosystem services;³⁷

- keep the stakeholders and the public aware of the management interventions and solicit their understanding, support, and collaboration; and
- strengthen management capacity by developing a core of local officials with communication and management skills through the process of learning-by-doing to carry on the ICM operations despite change of political or management leadership, and local institutional capacity through involving local universities or research institutions in the ICM development process such as securing and analyzing secondary and primary information, and undertaking monitoring and reporting.

The ICM cycle is a systematic process for preparing, initiating, developing, adopting, implementing, refining, and consolidating an ICM initiative.³⁸ The ICM cycle guides, structures, and models ICM implementation.³⁹ Over the years, the cycle has undergone a series of redesigns to that which is now as nearly identical to and reflects the public administration's adaptive policy cycle, commonly referred to as the PDCA cycle: plan-do-check-act.⁴⁰ This was a deliberate and practical strategy that, over time: assimilated the ICM into a local government's mandated processes;⁴¹ augmented a local government's effective delivery of goods and services to its constituents;⁴² and contributed to developing organizational and managerial/leadership capacities.⁴³ The dynamics of the ICM cycle generated the needed commitments and resources to continue the initiatives into the next cycle amid changing political or local leadership or movement of key personnel. Despite being time-consuming, as each cycle might take three to five years to reach the next cycle, the process has been building confidence, commitment, capacity, efficiency, and resilience as it moves from one cycle to the next.

The SDCA framework was designed primarily to address the common concerns regarding sustainable use of products and services generated by coastal

37 Peng, n. 33 above.

38 Chua, n. 31 above; S.A. Ross, "Applying the Integrated Coastal Management Methodology to Catalyze Finance for Coastal and Ocean Management," in *Catalyzing Ocean Finance*, vol. II, *Methodologies and Case Studies* (New York: UNDP, 2012), 42–60.

39 D. Bonga and T.-E. Chua, "The Application of the ICM Cycle for the Development and Implementation of ICM Program: Usefulness of the Process, Challenges, Constraints and Lessons Learned," in Chua et al., n. 1 above, 147–160.

40 Id.

41 Id.; J. Zaldivar and Y.F. Guo, "Integrating ICM into the Planning Process of Local Governments," in Chua et al., n. 1 above, 161–172.

42 Chua, n. 5 above; R. Cardinal, D. Padayao and D. Bonga, "ICM System Certification: A Process for Recognition, Inquiry and Internal Dialogue," in Chua et al., n. 1 above, 433–446.

43 Cardinal et al., n. 42 above; Chua and Bonga, n. 6 above.

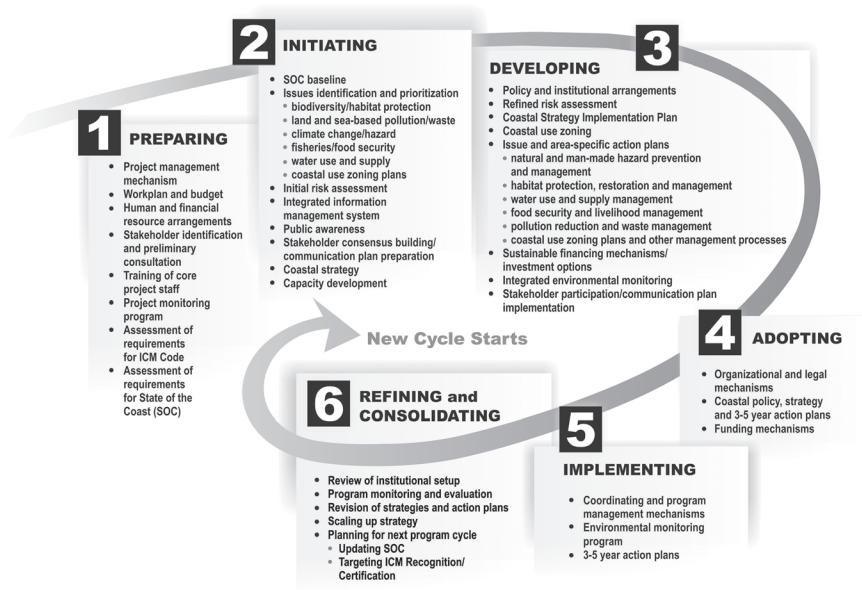


FIGURE 2 The ICM Cycle

ecosystems. Many of these concerns are related to human-made or natural disasters, habitat destruction, freshwater loss, or safety, loss of livelihood and food security, and pollution, which threaten sustainable coastal development in countries around the world. These are sustainable development challenges which are grouped or categorized under the component on “Sustainable Development Aspects” of the SDCA framework. Many factors contribute to these threats, such as unregulated human activities (e.g., land reclamation, forest destruction, intensive or unsustainable fishing, habitat degradation, land and sea-based pollution), or weak coastal governance and ineffective management, as the conventional governance approach is not adequate for addressing problems of increasing coastal complexity. Common in both developed and developing economies, the severity of these management challenges, however, varies from one locality to another.⁴⁴ Resolving these challenges requires a more holistic, integrative planning and management approach with effective collaborative governance. It requires time and resources over several ICM cycles, noting the fact that change in most local governments’ tenure occurs every three to four years and, in most cases, human and financial resources are

44 L.-M. Chou, “Integrated Urban Coastal Management: The Singapore Model,” in Chua et al., n. 1 above, 447–452; K. Kojima, T. Kubo and A. Kinoshita, “Integrated Coastal Management as a Tool for Local Governance of Coastal Resources: A Case Study of Munakara Coastal Zone,” *Ocean and Coastal Management* 81 (2013): 66–76.

limited. Moreover, these challenges might recur, especially if governance and management weaken or further worsen with climate change. In addition, prevailing “wicked problems” (e.g., leadership change, bribery, sectoral conflicts, interagency rivalry, prejudice, and racism) are difficult to address or anticipate. The ICM system seeks to reduce and not totally eradicate such negative impacts as they might recur.

To ensure inclusiveness and ownership through stakeholders’ involvement and participation, the SDCA framework includes a special partnership component which focuses on building collaboration between public, civil society, corporate, and other stakeholders.⁴⁵ Partnership building cuts across the governance in reaching consensus on a common vision, identifying management interventions, leveraging financing, and monitoring. It is a requirement at every stage of the ICM cycle to increase social acceptance and support for the ICM initiatives.⁴⁶

Monitoring and reporting the progress and impacts of ICM implementation are essential component activities. The ICMS ensured that environment monitoring, which was often neglected in the past, becomes an indispensable part of ICM practice. Keeping track of progress and development of the ICM initiatives begins at the early phase of the ICM system. A proper monitoring and reporting format must be in place in the starting phase based on a set of performance indicators.⁴⁷ The State of the Coasts (SOC) Reporting System Guidebook developed by PEMSEA has made it possible to standardize a reporting format for all ICM practices throughout the region.⁴⁸ Some examples of SOC reporting include those of Batangas, Dongying, and Guimaras.⁴⁹ The SOC Report is an internal assessment of the state of progress of ICM implementation.

45 R. Cardinal, “Private Sector Partnership in Addressing Sustainable Development Challenges in Cambodia, Indonesia, Philippines and Thailand,” in Chua et al., n. 1 above, 181–190; R. Cardinal, M. Erni and L. Sollestre, “Leveraging Public-private Sector Partnerships in ICM through Corporate Social Responsibility,” in Chua et al., n. 1 above, 173–180; C.I. Narcise, “Engaging Civil Society Organizations in Sustainable Development of Coastal and Marine Areas through the Application of Integrated Coastal Management System,” in Chua et al., n. 1 above, 191–201.

46 Narcise, n. 45 above.

47 D. Padayao, “Enhancing Accountability in Environmental Governance through the State of the Coasts Reporting System,” in Chua et al., n. 1 above, 219–234.

48 PEMSEA, *Guidebook on the State of the Coasts Reporting for Local Governments Implementing Integrated Coastal Management in the East Asian Seas Region* (Quezon City: PEMSEA, 2011).

49 PG-Batangas and PEMSEA (Provincial Government of Batangas and Partnership in Environmental Management for the Seas of East Asia), *State of the Coasts of Batangas Province* (Quezon City: PEMSEA, 2008); OFB (Ocean and Fisheries Bureau) of Dongying Municipality, *State of the Coasts Report of Dongying* (Municipality of Dongying: OFB, 2010); PG-Guimaras and PEMSEA (Provincial Government of Guimaras and Partnership

Over the years, the adaptive capacity of an ICM program has been strengthened. The ICM cycle has included a comprehensive assessment and profiling of the identified management area (e.g., district, municipality, or city) through risk assessment processes to identify and prioritize key sustainable development challenges to be addressed and monitored. Such inclusion in the initial phase of ICM practices ensured that a continuing monitoring program is installed; provided the baseline for tracking changes and determine the scale and level of subsequent monitoring requirements; served as indicators of progress and/or weakness of the ICM program and contributed to SOC reporting; and provided the policymakers with the needed information to strengthen policy and budgetary support.⁵⁰

An ICM Code was developed as a governance and management performance tool to ensure compliance with the agreed process/procedures of governance and environmental management following the international ISO standards 9001 and 14001, respectively.⁵¹ ICM initiatives operated by various sites in the region were encouraged to undergo certification. The recognition is to ensure that standard processes and procedures are followed and also to strengthen individual and collective confidence and compliance in the ICM system as well as to convince government and partners of the value of ICM programs and the many visible or intangible benefits. Beyond “toeing-the-line” to improve their day-to-day operations and keep their recognition, local governments were tasked to think strategically beyond their everyday functioning. The first 15 sites which received their ICMS Level 1 certification looked beyond their current systems and identified the areas for immediate ICMS improvement as well as measures for continual improvement towards sustainable development.⁵²

The strength of the ICMS is its enormous ability to steer key governance and management elements towards achieving set targets and objectives through the SDCA framework and the ICM cycle and is influenced by the inherent “drivers” of the ICMS during the process of its implementation.

Thus far, 16 inherent drivers have been identified that are contributing to accelerating the transition to a more sustainable coastal development (Table 2). The drivers were grouped into three main dynamics. An ICMS commences with vision setting, which sets how the system will be governed. The system is

in Environmental Management for the Seas of East Asia), *State of the Coasts of Guimaras Province*. (Quezon City: PEMSEA, 2012); PEMSEA and Provincial Government of Guimaras, the Philippines, *The Second State of the Coasts of Guimaras Province* (Quezon City: PEMSEA, 2018).

50 Padayao, n. 47 above.

51 Cardinal et al., n. 42 above.

52 Id.

based on the principles of integration, adaptive management, and ecosystem-based management upon which its core values stand. An ICMS also aims to mainstream the practice through embedding the routines of an ICM cycle in the day-to-day operations of a local government. The main mechanism here is coordination that ensures that the agreed-upon goals and activities are rolled out holistically, effectively, and efficiently. The drivers enhance the utilization of policy, and legal and capacity-building platforms; ICM tools for monitoring and reporting; and various streams of financing instruments. For example, Xiamen, Dongying, Batangas, Guimaras, Bataan, and others have already developed organizational routines which embedded their ICM cycle in their day-to-day activities.⁵³ Lastly, an ICMS must become innovative to meet the demands of scaling up the practice. The system commits to collaboration as the main mechanism to create the environment for transformation. One of the practical strategies employed was to leverage institutionalized ICMS platforms, tools, and procedures to build and sustain collaboration. To effect a trans-boundary implementation of ICMS to include river basins in Xiamen, they have started to engage a different stream of sector (e.g., business) and administrative units beyond their “usual ICM actors.”⁵⁴

The interplay between these “drivers” has evidently strengthened the existing governance and administrative structure, improved cost-effectiveness, and delivery of outputs and outcomes. The ICMS generated three core outcomes which had become powerful forces for change:

- political and social acceptance – reduced obstacles to ICM implementation, promoted political and public support, strengthened stakeholders’ collaboration, created a conducive environment for vertical and horizontal governance, and enhanced commitments, confidence, financing, and sustainability.
- policy and science integration – enabled greater interfacing between two major drivers of ICM directing scientific research to provide relevant knowledge and information and reliable and relational databases which can be utilized for policy and management interventions. Such interface promoted interdisciplinary and trans-disciplinary research with respect to the inter-relationship of economic, social, political, and environmental challenges. Such integration greatly enhanced development of appropriate policy and management measures such as coastal use zoning or marine spatial planning. It also highlighted the indispensable role of science in management.
- collaborative governance – changed the mode of conventional governance from single line-agency, single issue-focus to a collaborative governance

53 Id.

54 Rafael, n. 19 above.

TABLE 2 Accelerating the transition to sustainability: Inherent drivers and functions of the ICMS

Dynamics	Main Mechanism	Drivers	Functions
Vision setting: How the system is governed	Principles-based	Integration	Facilitates policy and functional integration of the governance system within and across management boundary to reduce conflicts, increase efficiency and effectiveness, and share benefits. Enables a policy/science interface.
		Adaptive management	Enables application of certain effective traditional or specific conventional management approaches or models to supplement integrated management intervention especially in the absence of better and reliable management practices. Adaptive management widens the scope of ICM when encountering scientific or political uncertainties.
		Ecosystem-based management	Takes into account the full range of impacts and their interaction, including cumulative impacts. Management approach traverses sectors and permits consideration of resource tradeoffs that sustain productive ecosystems and services. Ensures sustainable supply of ecosystem products and functions.
Mainstreaming and Instrumentalizing: How the system works	Coordination	Holistic	Enables identification, prioritization of management challenges and their solutions within a defined geographical coverage (e.g., municipal or city boundary) especially in implementing ICM. The holistic approach allows local government to play a proactive role to effectively address many of the economic, social and environmental concerns across sectors and agencies. Such an approach disrupts conventional governance and management which are issue/problem specific. Enables the development and functioning of a coordinating mechanism to harmonize or at least reduce policy and functional conflicts; facilitates vertical and horizontal coordination in mobilizing national and sectoral support; regulates performance and leads the process of change.

TABLE 2 Accelerating the transition to sustainability: Inherent drivers and functions of the ICMS (*cont.*)

Dynamics	Main Mechanism	Drivers	Functions
		Legitimacy	Harmonizes legislative conflicts and strengthens implementation of ICM and ICM-related legislation; facilitates the enactment of new legislation where appropriate to increase the effectiveness of ICM implementation.
		Conformity	Ensures that ICM implementation conforms to the ICM code which encompasses relevant international standards of code of practice such as ISO 9001 for governance and ISO14001 for environmental management. This could be certified to ensure delivery of quality outputs and confidence in ICM implementation.
		Sustainable financing	Changes the conventional thinking of full reliance on government budgets to undertake any activities outside regular government programs, thus impeding initiatives and creativity in search of new approaches. It is a new mechanism which ensures a continuous stream of financial inputs generated through various fund investment, environmental fees collected from ecosystem products and services, donations, etc.
		Capacity	Determines the successful implementation of ICM especially at the local level. Whilst general knowledge of ICM can now be secured, the needed coastal management and skills, especially that of an interdisciplinary approach in addressing socio-economic, political, and cultural challenges, can only be acquired through on-the-job training. Both educational and research institutions involved in actual ICM practices could make significant contributions to the development of ICM leaders/practitioners for scaling up integrative collaborative governance over a wider geographical coverage.
		Monitoring	Regular tracking of progress identifies emerging challenges and needed adjustments.
		Reporting	Analyzes and communicates progress, achievements, and implementation challenges to the relevant authority and keeps the public aware through regular publications (e.g., State of the Coasts report)

TABLE 2 Accelerating the transition to sustainability: Inherent drivers and functions of the ICMS (cont.)

Dynamics	Main Mechanism	Drivers	Functions
Upscaling: How the system is influenced and further transformed	Collaboration	Inclusiveness	Enables the involvement of all concerned stakeholders in terms of public knowledge of the ICM initiatives, objectives, progress, and possible outcomes through public awareness campaigns and public fora where their voice can be heard by the authority. The outcome is an informed public that not only can support the ICM initiatives but can also be engaged in community activities.
		Partnerships	Enable the involvement and participation of corporate and bilateral and multilateral institutions to work together with the public sector in a win-win scenario in achieving shared vision or objectives. Through public-private sector partnerships, the corporate institutions are able to share expertise, contribute to financing, and benefit from the opportunities to work with the local government as well as the outcomes generated by the partnerships.
		Leverage	Enhances the value added to ICM implementation through influencing contributions from other sources such as co-financing, building partnerships, or policy development.
		Resilience	This is an inherent capability of the ICM system through the ICM cycle in allowing flexibility in terms of time and level of operation in achieving the set target and objective due to lack of capacity, financing, political will, and the influence of other "wicked problems"; allows continued improvements in terms of institutional capacity, political and financial commitments, and public support; the ICM initiatives gain momentum and eventual maturity.
	Continual improvements		This is a strategy embedded in the process of capacity-building through the cyclical processes of the ICMS. Due to management complexities of the coastal areas, scientific uncertainties, and prevalence of "wicked problems," capacity development for ICM cannot totally depend on conventional educational curricula, but instead on a gradual process of continual improvements through on-the-job training. In actual practice, many management decisions on the ground level, to a certain degree, depend on the past experiences of managers and local leaders. Intuitive knowledge continues to play a key role parallel to the application of the "Precautionary Principles."

approach involving multi-agencies and multiple issues-focus within a defined land/seascape or even across administrative boundaries. Coordination, integration, and partnerships became key features. Collaborative governance is especially important when addressing cross-boundary and cross-issues management challenges in a wider landscape.

Lessons Learned from the Implementation of ICM and Scaling Up

Several challenges had to be overcome during the 25 years of implementing ICM programs in the EAS region. Some of these were related to project management such as building in-house expertise to guide local ICM implementation; ensuring availability of and sustaining financing resources beyond project phase; and sustaining the support and commitments of participating governments (both central and local), especially in undertaking policy or institutional reforms/adjustments in favor of integrative and collaborative governance with appropriate local participation and involvement in project activities. Most other challenges were related to actual field implementation of (and the inherent difficulties of relational dynamics in) facilitating political and social acceptance at the local level, promoting a policy-science interface, leveraging financial commitments, overcoming “wicked problems,” and building local institutional capacity and a critical mass of local experts at each ICM site. The above challenges, admittedly, are difficult to overcome, especially issues such as geographical disparities in human and financial capability and site-specific management complexities. Their solutions require time, resources, and trust.

The fact that PEMSEA was able to make significant achievements in implementing and sustaining ICM projects in several countries in the region demonstrates that it has acquired and strengthened the basic concept, approach, and practices of ICM primarily through untiring efforts of its professional staff and largely through the process of learning by doing. This has resulted in the improvement of the ICM working methodology into an ICM system, the implementation of which helps to reduce management complexities and strengthen effectiveness towards governments achieving their long-term visions. Many of the experiences, approaches, and efforts of the ICM sites in the region are summarized in the form of lessons learned below.

ICMS is Doable, Valuable, and Effective

The 47 case studies verified the validity, values, and impacts of each of the essential components of the SDCA framework and ICM cycle and confirmed the

functionality and effectiveness of this coastal environmental management system.⁵⁵

The ICM demonstration sites initiated ICM in 1994 and 1997, and despite varying levels of achievement, were able to sustain ICM operation using their own resources after the initial international support had terminated. This is a significant achievement, demonstrating the values of the ICM initiative to the local governments and their willingness and determination to adopt a comprehensive and integrated management approach, despite the long process of the ICM cycles and the challenges of transforming from the conventional governance approach. Political and social acceptance, stakeholders buy-in, and ownership are the internal forces driving such transformation.

The ability of the demonstration sites to continue ICM efforts supports the fact that the robustness and resilience of the ICMS equip local practitioners with the capability to continue disrupting conventional management approaches and reduce sectoral/interagency conflicts and resistance to change. While ICM should factor in institutional “wicked problems” when initiating ICM programs, it should be noted that integrated governance and management does not mean reducing the role of line agencies, but instead strengthening them. The ICMS helps to reduce duplication of agency functions and increase cost-effectiveness through better interagency coordination of related activities. In Xiamen, for example, joint monitoring of water quality with concerned agencies (e.g., fisheries, marine, and environment) helped to standardize water quality criteria, share responsibility and enable wider coverage in terms of areas and sampling sites. Joint enforcement of legislation/regulation in the coastal waters of Xiamen between the Maritime Agency, Fisheries and Ocean Bureau, Port and Harbor is another example made possible through the ICMS.⁵⁶

In order to reap long-term benefits, it is essential to translate or internalize integrated governance and management policy to an implementable policy and administrative agenda of the concerned local government.⁵⁷ With regular budgetary support, institutional and management capacity will be further enhanced, and progressive and scalable planning and management interventions or solutions could be pursued. Such proactive governance and management

55 Chua et al., n. 1 above.

56 PEMSEA, *Xiamen: An ICM Journey*, PEMSEA Technical Report No. 18 (Quezon City: GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), 2006).

57 Chua and Bonga, n. 6 above.

measures are even more urgent now than before with the increasing impacts of climate change.

The ICMS is Equally Applicable and Effective Irrespective of Political Systems or Level of Economic Development

The ICM demonstration sites in the EAS region were and still are operating in countries under varying political, social, cultural, and economic conditions, namely those operating under a socialist system characterized by a top-down approach in terms of governance and management practices represented by Xiamen (China), Danang (Vietnam), and Nampo (DPRK); and those operating under a more democratic system represented by Batangas (the Philippines), Chonburi (Thailand), Preah Sihanouk (Cambodia), Bali (Indonesia), and Klang (Malaysia), which generally allow greater involvement and participation of people. Both the ICM concept and the operational methodology are equally applicable, although varied in terms of effectiveness, outputs, and visible outcomes.

The ICM approach was also adopted in some developed nations in the region, though at a later stage. It was previously perceived that the ICMS was only relevant to developing economies and demonstration sites were from these States. In developed nations such as Japan and Singapore, the management of coastal and marine areas is traditionally the function of specific line agencies such as fisheries, conservation, construction, ports and harbors, etc. Except for South Korea, which enacted ICM legislation as early as 1999,⁵⁸ integrated management was not part of the national policy of Japan or Singapore. However, the need for structural change came about from a better economic development that has been increasingly coupled with increasing population, higher demand for improved living standards, and increasing interagency conflicts in budgets and functions. Singapore adopted the integrated management approach by implementing integrated coastal urban management in 2009.⁵⁹

58 In South Korea, the *Coastal Zone Management Act* was enacted in 1999. The integration of land and ocean management programs in 2008 created the Ministry of Land, Transport and Maritime Affairs, and enabled improved implementation of integrated land and ocean policies. One significant consequence of the integration has been demonstrated by the revision of the *Coastal Zone Management Act* in 2009, which now includes a coastal zoning scheme. Since the enactment of the *Coastal Zone Management Act* (1999), almost all coastal-located local governments have completed the development of their coastal management plans covering approximately 11,025 km of coastline, which accounts for about 91.5 percent of the total coastline of the Republic of Korea. Local governments are currently implementing their coastal management plans.

59 Chou, n. 44 above.

Japan began to adopt the ICM approach after the enactment of the *Basic Act on Ocean Policy* in 2007.⁶⁰

The “Scale down to Scale up” Approach Ensures ICM Sustainability and Expands Management Coverage

It will be extremely difficult for central line agencies to become the driver and immediately implement a nationwide ICM practice, partly because the types and level of socioeconomic and environmental challenges are complicated. They might not be able to competently address them. They need to contend with the complexity of “wicked” problems as well as the enormous management pressures arising from a huge coastal population with different ethnic compositions, cultural and religious practices, and various types and levels of economic activities. It would be an overwhelming responsibility when interventions are attempted where organizational, financial, and managerial capacities are not yet ready.

The reasons to drive ICM initially at the local level, such as a coastal district, municipality, or city are to: confine the management complexities within an administrative boundary; ensure manageability in addressing governance and management challenges; involve concerned local officials and stakeholders at the local level; build local participation and ownership; and build integrated management capacity and gain experiences for continual improvements. Local government involvement is absolutely necessary because the ICMS was designed to address the local socioeconomic and environmental concerns. With local governments’ proximity to and nuanced understanding of local problems, it is their primary responsibility to ensure that their constituencies are provided with services geared towards environmental protection and sustainable economic development. This is a primary force for effecting change.

The knowledge and experience learned and capacity and confidence gained, as well as visible beneficial outcomes and strong political and social acceptance, provided a sound basis and justification for concerned local governments to continue strengthening their ICM practices, improving as they progress to attain intended benefits. This has been a strong case for augmenting public administration with an ICMS after local governments began to realize that the activities being promoted are essentially those that a local government would be doing to build an empowered local constituency.⁶¹ At this level of realization, internalizing integrated governance and management becomes accepted. The successes of the ICM demonstration sites confirmed the value

60 Kojima et al., n. 44 above.

61 Bonga and Chua, n. 3 above; Chua and Bonga, n. 6 above.

of the approach that has since built a strong foundation for change at the local level and also contributed to the insights, knowhow, and experiences that were adopted in other local sites.

The accumulation of local-level ICM successes and capacity and the enhanced political and social acceptance will certainly drive national interest and actions to scale up ICM practices throughout national coastlines by replicating ICM practices horizontally across administrative boundaries to other municipalities or cities, and/or expanding ICM coverage throughout an ecological landscape, i.e., from the coastline to the related river system and watershed. A broader and nationwide collaborative governance will need to be set up.

The adoption of the approach will help the central government in achieving nationwide sustainable objectives or goals such as SDG 14 (Life below water), SDG 6 (Clean water and sanitation), SDG 13 (Climate action), SDG 11 (Sustainable cities and communities), SDG 17 (Partnerships for the goals), and others through increasing coverage of ICM practices. For example, the 25 years of ICM implementation in Xiamen has enabled the local government to completely eradicate poverty (SDG 1).⁶² With a nationwide coverage of integrated management practices, a country is expected to eventually fulfill its international commitments.

*Effective Implementation of ICM Enhances National Policy/
Legislative Development and Leverages National and International
Financial Support*

Several countries in the region which implement ICM, have, over the last 12 years, developed national ocean-related policies or ICM laws to strengthen coastal and ocean governance. Indonesia enacted the *National Act on the Management of the Coastal Zone* in 2007, followed by the National Ocean Policy in 2014. Thailand enacted the *Marine and Coastal Resource Management Act* in 2015, requiring provincial governments to establish interagency coordinating committees for coastal and marine resource management. Vietnam enacted the *Law on Marine Resources and Environment of Seas and Oceans* (2015), while Japan enacted the *Basic Act on Ocean Policy* (2013), requiring the integrated management of land and the sea and the establishment of coordinating mechanisms at local levels and led by local governments. The Philippines issued Executive Order 533 (2006) to ensure the sustainable development of national coastal and marine resources. China included integrated management and interagency coordination at the 12th session of the National People's

62 Peng, n. 33 above; Fang and Ma, n. 33 above.

Congress for the management of coasts and oceans. Almost all national ocean-related policies emphasize the application of ICM for achieving sustainable use of coastal and marine resources. Institutional coordination and integrated management form the core theme.

ICM practices have contributed to the formulation of national ocean policy and legislation in the above countries. In Xiamen, the development and implementation of marine functional zoning led to the enactment of the *Sea Space Utilization Act* of China in 1997.⁶³ The successful implementation of ICM practices in Danang has given rise to a national administrative order to extend its application to cover 14 coastal provinces in Vietnam and the subsequent national resource and environmental legislation in 2015. This is because of the increasing recognition by governments of the need to adopt a more holistic and integrated approach in addressing coastal and ocean governance challenges. Such policy and legislation facilitate and support subnational efforts to scale up ICM practices to a larger land and seascape.⁶⁴

Without a national policy and legislative support, earlier ICM initiatives had faced serious financial challenges because ICM was never included in any regular line agency's program or budget. Before, most funding for ICM initiatives came from international contributions. The inclusion of sustainable financing as a major component activity of the ICMS ensured that financial consideration was included from planning to the implementation stages. ICM practitioners are tasked to explore all available sources to secure, leverage, catalyze, and attract funding through government sources, the private sector, donations, and fund management or through collections of ecosystem services. Through the comparative advantages of the ICMS, most ICM sites were able to generate the required financial resources to sustain their ICM operation until they were internalized into the regular program of the governments.

*ICM Strengthens Collaborative Governance and Management
Leadership and Improves Institutional Capacity and Managerial/
Leader Expertise*

The biggest challenge in implementing and sustaining ICM practices is the difficult process of transforming the conventional governance and management approach to a more holistic, collaborative, and integrative form of governance and management which require not only management competency and the setting up of a new and authoritative coordinating mechanism but also management strategy and action plans to achieve common vision and targets.

63 Fang and Ma, n. 33 above.

64 Chua and Bonga, n. 6 above.

Many new challenges need to be overcome, including conflicts of interest between line agencies and sectors, securing political and social acceptance as well as the needed management leadership and expertise. This will entail time, capacity, and resources. Through the process and frameworks of the ICMS, the transformation to collaborative governance can be achieved.

The effectiveness of ICM practices depends to a large extent on the ability to develop the needed management leadership to plan and execute a comprehensive but complex management action strategy. The management leadership is expected to guide the transformation of conventional governance and management; build diplomacy, political, and social acceptance; strengthen the policy-science interface in mobilizing scientific inputs to justify policy reforms; build partnerships to solicit cooperation and collaboration with all stakeholders and cause the realization of sustainable financing. Such desirable quality of management leadership could not be attained through conventional training courses or from educational institutions. Such leadership development can be made available through the process of the ICMS. Similarly, institutional capacity and expertise in ICM can also be developed through direct, on-the-ground practice.

PEMSEA's contribution to the creation of change agents and leaders in integrated coastal governance is becoming very evident. The case studies have contributed to unpacking a set of skills by ICM change agents that helped them navigate through collaborative and integrative governance.⁶⁵ When reframed through the lens of leader/leadership development and using it as a unit of analysis, the particular case studies have added depth to integrated and collaborative governance narratives. To quote:⁶⁶

Experiences have shown that what drives and influences leaders are both transactional and transformational competencies to steer their actions

65 These case studies from *“Local Contributions to Global Sustainable Development Agenda”* are instructive: Chua and Bonga, n. 6 above; Bermas and Chua, n. 35 above; Cardinal et al., n. 42 above; D. Factuar, “Building and Maintaining a Critical Mass of ICM Leaders and Practitioners at the Local Level,” 139–1146; N. Wiwekwin and P. Barnette, “Community-based Crab Conservation Initiative in Chonburi, Thailand: Engaging Local Fishers and Communities in Marine Conservation,” 357–365; I.K. Sudiarta, “Harmonizing Spiritual and Economic Uses of Gangga Beach in Tabanan Regency, Bali, Indonesia through ICM Approaches,” 303–310; and Rafael, n. 19 above.

66 D. Bonga, “Leadership and Leader Development: Sustaining the Engagement of Change Agents through ICM,” (March 2019), available online: <<http://www.pemsea.org/news/leadership-and-leader-development-sustaining-engagement-change-agents-through-icm>>.

under varied situations [as based upon and enumerated in Table 2]. The need for transactional competencies is imposed largely by the existing bureaucracy/institutional structure in operation and partly by the ICMS a local government has committed to implement. Under this condition, leaders need strong coordination skills to efficiently orchestrate activities agreed upon by actors and stakeholders.

In turn, leaders that have become adept at transactional competencies are expected to use them to augment additional competencies needed to navigate with ease through more complex situations. This calls for transformational competencies. This is especially true in conditions when leaders are asked to weave through varied relationships and interactions, partnerships and leverages, and power struggles in the context of scaling up ocean and coastal governance. An ability to instill strong cooperation is now needed to underpin cooperative and collaborative programs in anticipation of additional risks, larger coverage areas and various stakeholders with different priorities and agenda.

To further the leaders/leadership development under continuing challenges in East Asia, PEMSEA have recently developed the ICM Manager Certification envisaged not only to recognize excellent ICM professional but also to underscore sustaining high standards of competence, professional growth and ethical conduct of leaders in the practice of integrated coastal and ocean governance.

ICM Enables the Realization of Sustainable Development Goals and That of Other Related Conventions

The implementation of the ICMS had prevented or at least minimized social, ecological, and economic disasters or losses caused by the impacts of typhoons or human activities, as demonstrated in several ICM demonstration sites: proactive planning against natural disasters (Danang, Xiamen, Batangas, Bataan), oil spills (Batangas, Guimaras, Chonburi), land-based pollution (Xiamen, Danang), and mangrove destruction (Preah Sihanouk, Klang). Some demonstration sites were able to sustain their GDP growth even with strict environmental controls (Xiamen, Dongying, Preah Sihanouk, and Danang). In fact, in most demonstration sites, economic growth was enhanced particularly through environmentally friendly economic development such as the tourism industry and sustainable aquaculture.

The ICM demonstration sites have shown remarkable progress towards achieving sustainable development objectives especially in terms of natural disaster response and management (SDG 13), better control of manmade

disasters, such as oil spills and algal blooms (SDG 14.1 in Xiamen, Batangas, and Danang), protection, restoration, and management of natural habitats (SDG 14.5), such as mangroves (Klang, Xiamen, Preah Sihanouk, Bataan) and conservation of endangered species (Xiamen, Chonburi, Sukabumi); improved management of water supply (Xiamen, PDR Lao); effective management of land and sea-based pollution (SDG 14.1), such as reduction of solid waste and improvement of sewage treatment (Xiamen, Danang, Batangas, Chonburi); strengthened management of fisheries and aquaculture (SDG 14.4) and improvement of livelihoods of fishing communities and coastal communities (SDG 14.b in Danang and Xiamen). The design of the ICMS sets achieving sustainable development objectives as the primary goals through a comprehensive, process-oriented, and scaling-up approach. ICM therefore is a continuous undertaking. It also contributes to the implementation of several international conventions, such as the Convention on Biological Diversity (Aichi Biodiversity Targets),⁶⁷ UNEP convention on land-based pollution or IMO convention on oil spills, initially conducted at a local level, but eventually scaled up nationwide (e.g., Xiamen, Batangas).

Implementing international conventions is the primary role of the national government and not of the local government. However, the demonstration sites have changed this conventional perception and have shown that a local government: can be more proactive and effective on the ground level; is able to reap visible benefits more readily; and serves to generate valuable lessons for nationwide implementation. The achievements of the demonstration sites opened up a new direction or approach for increasing the effectiveness of international conventions. It brought the objectives of international conventions to be realized and appreciated at the ground level.

The ICMS Remains Relevant in Coping with Climate Challenges

Experts have always placed a premium on institutional and governance arrangements to address current and future threats and risks: “governance arrangement plays an important role in increasing vulnerability threshold of marine social-ecological system to future regime shifts and promoting systems resilience.”⁶⁸ In this connection, the ICMS can be looked at through different

67 Secretariat of the Convention on Biological Diversity, *Practical Guidance on Implementing Integrated Coastal Management in the Context of Achieving Aichi Biodiversity Target: Using PEMSEA Experience and Lessons Learned for Coastal and Ocean Governance*, CBD Technical Series 76 (Montreal: Secretariat of the Convention of Biological Diversity, 2015).

68 S. Serrao-Neumann, J.L. Davidson, C.L. Baldwin, A. Dedekorkut-Howes, J.C. Ellison, N.J. Holbrook, M. Howes, C. Jacobson and E. Morgan, “Marine Governance to Avoid Tipping Points: Can We Adapt the Adaptability Envelope?” *Marine Policy* 65 (2016): 56–67.

lenses: resilience, climate change adaptation, poverty alleviation, and biodiversity protection. This is where the ICMS manifests its other value: “the strength of institutional design principles approach is that it allows for a complex array of context-specific implementation of such principles; much of its power comes from its ability to generalize while allowing for local-level diversity.”⁶⁹ Within the ICMS, various sectoral approaches have become operational – to quote:⁷⁰

An ICMS enables various approaches in coastal management like ecosystem-based management, climate change adaptation, disaster risk reduction, biodiversity conservation, etc., to “piggy back” into its domain. In a way, it fast tracks the prescribed planning and implementation phases of these various approaches (and their need to integrate and cross learn from various other sectors and disciplines). Studies by experts articulate a pragmatic mechanism in “mainstreaming” new sector policies within existing comprehensive policy domains.⁷¹ Other experts contend that the science to operationally implement an ecosystem-based management is currently sufficient.⁷² What is most needed is for ecosystem-based management to closely operate within the policy/administrative cycles of governments.

Several coastal management approaches need not start with a blank slate nor organically mature over a longer time. Instead, they can use institutionalized tools and administrative procedures; legal and

69 M. Schoon and M.E. Cox, “Collaboration, Adaptation and Scaling: Perspectives on Environmental Governance for Sustainability,” *Sustainability* 10 (2018), available online: <<https://www.mdpi.com/2071-1050/10/3/679>>.

70 Chua and Bonga, n. 6 above.

71 Cited in the quote: H.A.C. Runhaar, “Tools for Integrating Environmental Objectives into Policy and Practice: What Works Where?” *Environmental Impact Assessment Review* 59 (2015): 1–9; C.J. Uittenbroek, “From Policy Document to Implementation: Organizational Routines as Possible Barriers to Mainstreaming Climate Adaptation,” *Journal of Environmental Policy and Planning* 18, no. 2 (2016): 161–176; C.J. Uittenbroek, L.B. Janssen-Jansen and H.A.C. Runhaar, “Mainstreaming Climate Adaptation into Urban Planning: Overcoming Barriers, Seizing Opportunities and Evaluating the Results in Two Dutch Case Studies,” *Regional Environmental Change* 13, no. 2 (2013): 399–411; C.J. Uittenbroek, L.B. Janssen-Jansen, T.J.M. Spit, W.G.M. Salet and H.A.C. Runhaar, “Political Commitment in Organising Municipal Responses to Climate Adaptation: The Dedicated Approach versus the Mainstreaming Approach,” *Environmental Politics* 23, no. 6 (2014): 1043–1063.

72 Cited in the quote: R. Cormier, C.R. Kelble, M.R. Anderson, J.I. Allen, A. Grehan and O. Gregersen, “Moving from Ecosystem-based Policy Objectives to Operational Implementation of Ecosystem-based Management Measures,” *ICES Journal of Marine Science* 74, no. 1 (2017): 406–413.

communication platforms; and partner networks, already established in ICM programs. As such, functional ICM systems have become the initial starting blocks. As demonstrated in the case studies, ICM systems are being used as leverage to starting and/or sustaining the implementation of different sector initiatives.

An ICMS undertakes risk-informed governance and management. It augments and strengthens local government capability to undertake proactive planning in the management of coastal and marine areas in terms of risk reduction from possible natural or manmade disasters. The increasing impacts of climate change caused by global warming is included as part of the sustainable development challenges. The involvement of scientific partners in ICM is to assist the local governments to assess the level of risks, which is part of the preparatory stage of the ICM cycle. The purpose is to develop appropriate responses in anticipation of possible consequences. As such, ICM practitioners should have a long-term mind-set in addressing and analyzing the vulnerability of the coasts to risks, such as sea level rise, which may result in flooding of low-lying coastal areas or landslides due to heavy precipitation.

ICM is a Continuous Process without an End as Long as Sustainable Development Challenges Continue to Exist

Over the last 25 years, all the ICM demonstration sites continued to function despite changing political, economic, social, and environmental conditions: periodic changes in local government, such as leadership change in local line agencies, turnover of personnel and change of political leadership, and new management challenges, such as increasing impacts of climate change and changing land and seascape, due to rapid economic development and increases in coastal population. Such changes require appropriate adjustments to ensure the effectiveness of governance and management interventions. The ICMS is resilient enough to cope with such changes while maintaining its objectives. That is why ICM must be a continuing exercise to adjust, modify, and increase the relevance of its operational methodology to the changing working environment.

The Xiamen ICM demonstration site is a case in point. When the project was launched in 1994, ICM was a relatively new concept and no agency had the knowhow nor the experience in integrated management. The local government was willing to take on the project implementation with technical support from PEMSEA. Concerned line agencies were deeply involved in the preparation and implementation of each of the related project activities with

a central coordinating committee composed of key line agencies and headed by the executive vice-mayor. One of the key changes undertaken by the local authority is to move the lead agency of the project from Science and Technology to a newly formed Marine Management Office with a small group of staff responsible for coordinating the execution of project activities by concerned line agencies. This includes coordinating and organizing overseas or local training of local officials in cooperation with PEMSEA and local universities and research institutions. Over time, a core group of local officials was developed as the project moved on to the next phase, at the same time experiencing several turnovers of local leadership and heads of line agencies. Continued financial support was key to continued implementation of ICM. International funding support was rather limited, even in the initial phase. Sharing of project cost can only be achieved if the local authority and participating line agencies appreciated and recognized the usefulness and the added value of the project. Initial resistance was quickly overcome as the pilot project ended four years later. Visible outputs and outcomes, such as interagency cooperation in the development of the coastal zoning scheme, banning of sand mining and greater control of coastal land reclamation, removal of pollution-causing industries from Gulangyu island, the clean-up of Yuandang Lagoon, conservation of the remaining mangroves in the city, protection of endangered species, etc.

More importantly is the preparation and endorsement of a long-term vision and strategy for the development of Xiamen, to guide future development and transform Xiamen into a sustainable city. As such there were buy-ins from both government and the general public who witnessed the initial change. This has laid a strong foundation for the local government to use its own financial and human resources to continue implementing programs over a longer term. Xiamen received no project funding support for ICM implementation from the second phase onwards except technical advice and overseas training of staff. The establishment of the Coastal and Ocean Management Institute (COMI) under the Xiamen University developed the needed technical and management capacity in coastal and ocean governance to provide the necessary trained personnel for the country and abroad. Xiamen ICM became a valuable on-site training ground for future ICM practitioners. For the last 25 years, Xiamen ICM has been gradually internalized and integrated into the regular activities with regular budgets of concerned line agencies. While the Marine Management Office was eventually dissolved and its functions transferred to the newly established Bureau of Fisheries and Oceans, integrated management has not only remained the norm and driving force to

sustainable coastal development and management in Xiamen, but has also been included in the national policy of the central government.⁷³

The Batangas ICM project which was initiated around the same time as Xiamen is another example of stakeholders' buy-in, leading to the incorporation of ICM program activities into regular government programs and budgets, thus ensuring continuity. The cooperation between the government and the private sector and strong involvement of the local communities contributed significantly in mobilizing local human and financial resources to support the ICM efforts. Through daily radio broadcasts and other public meetings, the stakeholders of Batangas Bay were well-informed of the challenges and opportunities. As such the governor of Batangas who serves as the chair of the coordinating committee, which included representatives from government, the private sector, communities, the scientific community, and educational institutions, received the strong backing of the communities to develop and implement the ICM program. Although the provincial government was operating on a limited budget, the contribution of the private sector group through the Batangas Coastal Management Foundation had made it possible for the ICM initiative to continue beyond international funding support. Moreover, the innovative approach in establishing the first local government-run, ISO certified Marine Monitoring Laboratory enabled a steady income generated from water quality testing services for companies operating in the bay region. Collecting of fees from foreign dive tourists in the coral reef areas also generated substantial incomes.

A major lesson learned is that for as long as sustainable development challenges exist, ICM will continue to be relevant and its operation will have to adjust to meet new challenges. Strictly speaking, ICM has a beginning but without an end-point, essentially because the robust process of the ICMS will be revitalized when circumstances of unsustainable development occur or re-surface. The prevalence of "wicked" problems cannot be underestimated. This is because of the volatility of the changing political, social, and environmental conditions in response to new forms of economic and human pressures. Thus, sustainable development remains a normative conceptual driver while attaining the SDGs is a distant destination.

73 PEMSEA, n. 56 above; PEMSEA, *A Perspective on the Environmental and Socioeconomic Benefits and Costs of ICM: The Case of Xiamen, PR. China*, PEMSEA Technical Report No. 17 (Quezon City: GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), 2006).

Sustainable development pressures will intensify with population growth, dwindling resources, and climate change impacts. East Asia's human population of 2.1 billion in 2015 is projected to increase to 2.29 billion in 2025.⁷⁴ About 77 percent of the region's population live within 100 km of the coast, much higher than the world's average coastal population of 40 percent. More than 120 million people in the region are dependent on fisheries for their livelihood. The rate of species loss is twice the global average, and this will be compounded by climate change impacts;⁷⁵ and pressures on biodiversity loss from rapid economic growth and increased resource use will remain.⁷⁶ Effective governance of the coastal area is necessary against such mounting pressures if it is to support sustainable development.

ICM is a governance system that can prepare society to embrace future concerns more holistically with equitably-shared responsibilities and benefits. The ICMS instills a common vision among all stakeholders and enables governments to respond much more swiftly and with greater efficiency. For example, the adoption of the ICMS enabled the city government of Danang to quickly implement a development program with adequate responses to climate change challenges. Xiamen was able to secure freshwater security for its growing population by extending freshwater resource management beyond its administrative boundary. Community empowerment through the ICMS has also resulted in the increase of community involvement in resource management and more sustainable and environmentally-acceptable activities to generate income. The ICMS facilitates approaches to a coastal environment that can be developed more sustainably.

The ICMS Is a Strong Continuing Case for Developing ICM Practices across the Regional Boundary

The scope and coverage of the ICMS and the systematic process in achieving sustainable development objectives are, in fact, a strong continuing case for scaling up ICM practices across the region. It is also equally important to promote ICM beyond the EAS and valuable lessons could help to reduce the time and resources of other regional efforts. The SDS-SEA has so far served as the main driver of collective regional efforts to scale up ICM practices in the EAS.⁷⁷

74 PEMSEA, *Sustainable Development Strategy for the Seas of East Asia* (Quezon City: PEMSEA, 2015).

75 UNDP, *Biodiversity for Sustainable Development: Delivering Results for Asia and the Pacific* (New York: UNDP, 2014).

76 UNEP-WCMC, *The State of Biodiversity in Asia and the Pacific: A Mid-term Review of Progress towards the Aichi Biodiversity Targets* (Cambridge: UNEP-WCMC, 2016).

77 Bonga and Chua, n. 3 above; Gonzales and Bernad, n. 32 above.

Despite this achievement, developing the needed management capacity across and beyond the region should be given top consideration.

The ICMS Opens up a New Era of Sustainability Science for Coastal Management

The experience from the EAS region in ICM has shown that interdisciplinary research towards stronger policy-science interactions can lead to more effective coastal governance and management.⁷⁸ With increased diversity and intensity of coastal and marine activities in the region, managing complexities requires the administration of appropriate and effective policies and management interventions to ensure a conducive environment for sustainable growth. Multi- and interdisciplinary research across political, social, and natural sciences as well as transboundary research need to be strengthened in order to meet increasing and difficult management challenges. A new era of sustainability science for coastal management is emerging to forge a stronger policy-science interface.

Sustainability science for coastal management is relatively new and will require much time to reach maturity. However, the rapid advancement in sciences will still need to interface with traditional knowledge and intuitive thinking to inform many management decisions. Despite the advancement of, for example, modeling science, coastal and marine management will still need to be augmented by the wisdom and experiences of the coastal and ocean managers; although, increasingly, some area-specific management decisions can be based on modeling outputs, such as regulating the carrying capacity of an ecosystem, fishing capacity, or open water stocking of a bay.

Accelerating Solutions: Scaling up Integrative Governance and Investing in Leaders in the Era of Climate Crisis

Challenges and opportunities in sustainable coastal and ocean governance, especially in the climate crisis era, are growing even more complex and uncertain. It requires a major re-think of strategies and measures to better address dire forecasts of this situation as well as ride on opportunities being offered. The impacts of global warming are being increasingly felt and the vulnerability of the coastal environment to extreme temperature variation, heavy rainfall, and flooding, and sea level rise are of concern. Coastal areas are at the forefront with coastal populations being the immediate victims of any eventual calamities.

⁷⁸ Id.

Governments need to be more committed in terms of policy and resources to implement ICM programs and its scaling up to cover their national coastline. International and regional change agents such as GEF and PEMSEA should also re-think their approaches to catalyzing greater investments in promoting the development of the institutional capacity to govern and manage as well as to facilitate/leverage sustainable financing from all sources.

In the last few decades, many efforts were devoted to developing the ICMS as the operating model and demonstration of its validity and value in addressing the various sustainable development challenges. Not much attention was given to, or in-depth analysis conducted, to assess the roles of leadership, especially the local leaders in the government, the community, and the private sector, which play a critical role in institutional reforms leading to change of governance systems and management approaches.⁷⁹

The need to give more attention to building the capacity of local governments is stronger now than before. Unfortunately, there is insufficient attention and effort devoted to the local governments in preparing them to face such challenges. The conventional management approach in most countries is largely line agency and sector-driven. As a result, local governments tend to depend on central governments and concerned line agencies for guidance and support, which in most cases, are also not well-prepared.

While the ICMS has proven to be an effective mechanism to assist local governments to cope with sustainable development challenges including those of climate change, it is restricted only to limited sites in the EAS region. ICM has been implemented only in about 19 percent of regional coastline over a span of 25 years.⁸⁰ Government commitment to scaling up ICMS implementation throughout the regional coastline, rather than just acknowledgement of its significance, has become even more imperative. There is a need to re-strategize ICM implementations for wider applications to cover national and regional coastlines. Integration into a broader, larger policy implementation arena should be further explored. International and national efforts are greatly needed to make this happen.

In scaling up ICM practices, it is an opportune time to reframe and widen the coverage encompassing the coastal-catchment connectivity. The new challenges for ICM practitioners to manage the whole ecosystem from the coast to the watershed are how to promote collaborative governance across several

79 Bonga, n. 66 above.

80 Bonga and Chua, n. 3 above.

administrative boundaries and local authorities with varying development priorities; strengthen the coordination of different management regimes, financial responsibilities, and investment opportunity; and resolve discrepancies between concerned local governments in terms of capacity and budgetary constraints and plurality of legal contexts. Such up-scaling processes will certainly require the intervention of the central government. China has made significant progress towards this direction through its river basin management program.⁸¹

Up scaling of ICM practices could also open up opportunities to collaborate with other relevant international, regional, and national partners, networks, or programs. Such cooperation is mutually beneficial. For example, integrating marine spatial planning with regional land-use plans and/or sustaining robust and comprehensive environmental monitoring programs of various organizations could add value. Predicated on greater awareness of catchment coast connectivity, such collaboration will also contribute to enhancing or leveraging new financial resources from national, bilateral, or multilateral financing mechanisms. It will enrich the scope of ICM practices and experiences of ICM practitioners who will be more competent in adjusting the implementation agenda in line with emerging challenges.

Sustaining the ICMS is another challenge as the ICM approach and operational methodology are being applied at the experimental level in the EAS region. The ICMS has yet to be internationally recognized and promoted for wider application within and across the region. Greater efforts are still needed to develop a critical mass of local governments implementing ICM so that such an approach can be confidently adopted by other local governments in other parts of the world. The Regional Network of Local Governments Implementing ICM established by PEMSEA promoting sharing of ICM experiences is a good start towards this direction. Trust in the effectiveness of the ICMS is essential to ensure the sustainability and ownership of ICM practices. More efforts are needed to convince both national and local governments of the value of the ICMS not only in achieving sustainable development goals from local to national levels, but also equally important is the need to convince them of the wider application of the ICMS in implementing several related international conventions.

81 China has made significant policy decisions promoting integrated land-sea planning (available online: <<http://www.hyzb.org/nd.jsp?id=213>>) and integrated river-basin governance with the designation of a river chief, available online: <http://www.xinhua.net.com/politics/2016-12-11/c_1120095733.htm>.

The various research institutes and universities involved in ICM in the region could contribute to the development of coastal management for sustainability science through intensifying their interdisciplinary, management-focused research in generating reliable scientific information needed to manage the coastal complexities.

The role of ICM leadership to effect change through the ICMS is worthy of further consideration pertaining to current capacity development approaches. One of the biggest challenges to ICMS sustainability is to break the “resistance-to-change” mind-set: the operational model of the ICMS disrupts the conventional governance and management approach which questions current management practices and disturbs conventional line agency interests and operational procedures and other political agenda. The ICMS needs to provide a convincing argument to ensure stronger political and social acceptance through investing in a “new breed” of coastal leaders.⁸² To quote:⁸³

Coastal leaders of today are expected to be knowledgeable of numerous disciplines as well as be enablers, facilitators, communicators and policy brokers and policy entrepreneurs.⁸⁴ To become effective – simultaneously with the maturity of ICM toward integrative, collaborative governance amid problems of sustainability, complexity and uncertainty – ICM leaders are challenged to intuitively integrate knowledge, skills and values that enable productive engagement with a governance system and an interdisciplinary team.⁸⁵

82 NRC (National Research Council of the National Academies), *Increasing Capacity for Stewardship of Oceans and Coasts: A Priority for the 21st Century* (Washington, D.C.: The National Academies Press, 2008); D. Bonga, D. Factuar, N. Afable, S. Olsen, L.-M. Chou and G. Jacinto, “Investing in Our Future by Investing in a “New Breed” of Coastal Leaders,” *Tropical Coasts* 18, no. 1 (2014): 30–37.

83 Bonga and Chua, n. 3 above.

84 Bonga et al., n. 82 above; Chua, 2015, n. 31 above.

85 W.H. Drath, “Leading Together: Complex Challenges Require a New Approach,” *LIA* 23 no. 1 (2003): 3–7; NRC, n. 78 above; R.H. Beinecke, “Introduction: Leadership for Wicked Problems,” *The Innovation Journal: The Public Sector Innovation Journal* 14, no. 1 (2009): 1–17; O. Boiral, M. Cayer and C.M. Baron, “The Action Logics of Environmental Leadership: A Developmental Perspective,” *Journal of Business Ethics* 85 (2009): 479–499; B. Doppelt, *Leading Change Toward Sustainability: A Change-management Guide for Business, Government and Civil Society* (Sheffield: Greenleaf, 2010); S.B. Olsen, P. Rubinoff, E. Ochoa and S.M. Vallejo, “A Certification Program in the Governance of Coastal Ecosystems,” *Coastal Management* 38 (2010): 262–271; Bonga et al., n. 82 above.

As such, ICM leaders should have the capability to communicate the value of the ICM with a wider spectrum of stakeholders and political leaders. ICM leaders should be able to think like scientists, work like managers, and speak like diplomats. Such a desired quality can be developed through the ICM processes. Therefore, there is a need to place greater emphasis on generating such ICM leadership for expanding ICM practices throughout and across the EAS region.