

Article

Testing and Enhancing the 8R Framework of Responsible Land Management with Documented Strategies and Effects of Land Reclamation Projects in Indonesia

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Abstract: Whereas most contemporary frameworks evaluating land management aspects focus on institutional settings at a national level, the 8R framework of responsible land management aims at evaluating individual land management projects or interventions. This 8R framework is, however, still under development and needs testing, validation and further detailing, such that specific operational characteristics and internal and external effects can be included in the evaluation. This article addresses this need by demonstrating how the 8R framework could improve when knowing both the operational details and external effects of a land management intervention. By reviewing the documented implementation strategies and effects of eight different types of land reclamation cases in Indonesia, the article derives adaptations and extensions of the 8R framework assessment, such that the framework can better detect whether a specific project is sufficiently responsible in any of the 8R aspects. The induction shows that the number of types of systematic prompts needs to be extended and further detailed if it aims to capture and detect specific problems of structures, processes and impacts. Zooming in to documented reclamation projects in Indonesia shows that there are various types of such projects, which are oftentimes contested, yet each requires integrated land management and development strategies. Furthermore, they draw on dissimilar, mostly contextual, justifications and legal frameworks, which makes it difficult to compare the generic relevancy and sustainability of reclamation as a land management intervention tool. Nevertheless, testing the 8R framework for reclamation cases in Indonesia can improve its methodology and extent or specify the use of the systematic prompts designed to qualify and quantify the respective aspects.

Keywords: land management; responsible land management; land interventions; 8R framework for responsible land management; reclamation; mining



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1. Introduction

Land management interventions are practical implementations of changing land rights and land use, in the context of a formal decision to execute a spatial development plan or are the result of an informal process of gradual occupation (or change thereof) of land. There are diverse types of interventions in existing land structures and land rights. Land consolidation is, for example, a comprehensive intervention, which rearranges the distribution of land rights alongside changes in the landscape and (re-)construction of roads and waterways [1]. Similarly, the construction of a new railway or motorway is a land intervention because it requires land for its realization, which somehow needs to be compensated [2]. These interventions rely on institutional and organizational structures and processes and aim at societal and economic improvements. In general, land interventions can be systematic or sporadic, planned or unplanned, regulated or unregulated, and they can alter the formality and security of land tenure, land rights, land use, land claims, land interests, land shapes, land sizes, land value and land development opportunities. Alongside and because of interventions in the land, typically socio-economic, as well as

biophysical changes occur [3]. Stakeholders can decide to invest in land or take credits in relation to land, tenants may need to relocate, be relocated or evicted, landscape and soil characteristics may change, or certain rights, restrictions and responsibilities may emerge affecting and changing existing power and dependency relations.

Despite the institutional framework within which practitioners can design and implement such land interventions, it is often still unclear if these are executed according to the plans and if the plans themselves are sufficiently embedded in societal needs and benefits. Actually, many land management projects fail to meet their objectives or fail to benefit from other opportunities that exist in the context of the projects [4–6]. The challenges in contemporary land management are furthermore planning land interventions needs to go alongside pre-and post-evaluation [7]. There are indeed various frameworks and guidelines available within the land management domain to support better designs and results. Yet many of such frameworks do not assess the relevancy, appropriateness, or impacts of individual projects and interventions, but instead assess the overall characteristics of the institutional context in which the land interventions take place, or are not complemented with compliance or control measures stating responsibility or accountabilities [7]. The Land Governance Assessment (LGov) Framework, used by the World Bank, is, for example, a “diagnostic instrument to assess the state of land governance at the national or sub-national level”¹. The goal of the framework is to evaluate whether the institutional environment of land interventions fosters strong or weak land governance in general. It is, in other words, an overall normative judgment of the entire country and not of specific land intervention projects. A similar type of framework concerns the s the property rights index (Prindex). This index relies on surveys, which collect perceptions of landowners and users vis-a-vis political (and legal) rights, physical property, intellectual property and access to loans. It is similar to the LGov because it provides a static characteristic of the institutional performance of an entire system and not of an individual design, intervention, or process execution. Project or process-related frameworks, such as the life cycle assessment (LCA) is indeed more oriented towards individual projects but not specifically aiming at land management aspects. It typically assesses environmental impacts, which may or may not relate to land use choices, but often also disregards specific aspects of land tenure changes and impacts [8–10]. Although all of these frameworks are relevant to compare generic aspects of land management at a national or sub-national level, they tend to be less explicit on the preparation, execution and impacts of specific land interventions and the connections between different land management aspects. There is therefore a scope to develop such an integrative descriptive and prescriptive framework, which bridges the institutional, and operational context within land management takes place to the intended and unintended outcomes and impacts.

In contrast to these frameworks, the 8R framework of responsible land management was designed to assess the quality, quantity or relevance of activities and effects of individual land interventions [11]. The framework was intended to help practitioners and policymakers if their project intervention is sufficiently sustainable, tenure responsive, and effective. The normative perspective taken for this framework was relying on the notion of “responsible”. This notion often occurs in many land-related publications but is seldom made very concrete or practical. The original design of the 8R framework of responsible land management constructed the ontology and epistemology of “responsible” with eight concepts, each starting with the letter R. For each of these eight concepts one can evaluate if a specific land intervention fits a particular purpose, by using systematic questions and prompts and assessing whether these can be responded to. The original design of the 8R framework of responsible land management is still relatively basic and needs therefore further testing and validation. In light of this need, this article.

This (methodology-oriented) article aims at testing which parts of the existing 8R framework help to understand the background and impacts of specific land interventions, and where, how and why the framework can be improved. This improvement should lead to a better operational and analytical framework for responsible land management. This

article first introduces the specifics of the 8R framework of responsible land management, followed by a methodological description of how this framework can be enhanced. The subsequent section explains with which documented case and project studies this enhancement can be done. The final section discusses the general implications for the improved 8R framework and formulates how the research in responsible land management and assessing the suitability of specific land interventions could continue.

2. 8R Framework of Responsible Land Management

The 8R framework of responsible land management draws on the notion of ‘responsible’. It suggests that “responsible” land management is a specific type of land management, different from other types, norms or approaches of land management. The term ‘responsible’ is therefore both a normative term, referring to preferred outcomes and unpreferred pre-existing conditions and axiologies, as well as an operational term, referring to the clarification of who is formally responsible for the decisions, the execution, and the subsequent implementation activities, and who or what guarantees exist in terms of accountabilities in case something differs from the original plans. It is furthermore crucial to be able to trace back the responsibilities if there are changes or adaptations in the execution. “Responsible” encompasses therefore several principles and perspectives: a normative political one, a public information management one and an operational one. In the land management context one can translate the political perspective into the normative values with which decision-making actors can influence, change and enforce land rights, use and restrictions [12]. The public information management part of land management refers to the technical, institutional and executive authorities of actors collecting and providing land information [13]. The operational and executive part refers to organizational systems and processes executing the preparation and allocation of land interventions in real life [14]; and responsible land management encompasses more than just preparing and executing land use planning or executing cadastral surveys and title registration, for example.

Having to take these three perspectives into account for the development of an assessment framework for specific land interventions required relying on both theoretical and practical insights. The theoretical insights came from public administration and land administration literature (such as [15–17]). The practical insights came from assessing various types of land intervention projects, such as evaluating the land requirements and impacts when constructing new national airports, bridges, hyperloops and new capital cities [14,18–20]. The resulting 8R framework of responsible land management needed to provide a simple yet comprehensive way to assess whether newly designed land interventions would be sufficiently responsible, whether the execution of the interventions would occur in a responsible manner and whether executed interventions would lead to responsible impacts and outcomes. The resulting 8R framework for responsible land management contains eight aspects, which collectively describe and assess the degree and/or the variations in responsible land management. These eight aspects are responsiveness, robustness, respect, recognizability, resilience, reliability, reflexiveness and retraceability. For each of these aspects, one can furthermore evaluate the existing (dynamic) variations during the technical and institutional structure with which one can execute an intervention, the processes that generate the intervention and the outcomes resulting from the intervention.

Tables 1 and 2 list the issues connected to each of the 8 R aspects and the systematic prompts one can use to derive either quantitative or qualitative values connected to each of the aspects. Executing an 8R assessment results in a completed table (or matrix) that presents both the problems and opportunities before, during and after the execution of lands management interventions (Table 3).

Table 1. 8R aspects of the 8R framework of responsible land management (adapted from de Vries and Chigbu [11]).

R Aspect	Looking at Issues Such as . . .
Responsive	Type and urgency of needs, opinions and views exist among stakeholders Extent to which societal and/or technical structures of the intervention are sustainable
Resilient	Existence of tools and mechanisms to recover after major disruptions by the intervention
Robust	Presence of solid operational and technical structures and mechanisms Presence of abilities and capacities to resist fundamental change or disturbances
Reliable	Existence of trust in decisions Extent to which decisions and actions are valued in a positive manner
Respected	Extent to which stakeholders and beneficiaries regard decision makers as suitable leaders or managers Existence of documentation of all relevant actions and decisions of the intervention, so history can be reconstructed
Retraceable	Existence of documented workflows that show who has taken which steps at which time
Recognizable	Degree to which beneficiaries can identify with the relevant decisions of the intervention and feel ownership of the project or intervention
Reflexive	Presence of mechanisms in the execution with which one can re-evaluate or re-assess the rightfulness or appropriateness of the project

Table 2. The aspects against which the 8Rs are reflected (adapted from de Vries and Chigbu [11]).

R Aspect	Looking at Questions or Issues Such as . . .
Structures	Extent to which institutional, legal and technical underlying the project intervention are valid, functional and effective to
Processes	Degree to which sequence of activities related to intervention is logical Degree to which individual steps are suitable and appropriate Extent to which process steps can and must be parallel
Outcomes & impacts	Extent to which the direct results and indirect effects are appropriate Degree to which anticipated results are visible and changes are perceived in line with anticipated effects

Table 3. The 8R assessment matrix (adapted from de Vries and Chigbu [11]).

	Structures	Processes	Outcomes and Impacts
Responsive	Problem/ opportunity
Resilient	...	Problem/ opportunity	...
Robust
Reliable
Respected
Retraceable
Responsive
Robust	Problem/ opportunity

3. Methodology

As the key objective is to test and improve the original design of the 8R framework, it is necessary to rely on appropriate evaluative research methodology. A key assumption of testing and improving methodologies is that one needs to rely on a theoretical grounding, which is in line with why one chooses any normative assessment parameters in the

methodology. The normative assessment parameters in this article are the 8 Rs, whilst the theoretical grounding is the body of literature connected to responsible land management. For this article specifically, a key assumption is that the 8R framework is useful to evaluate specific land management interventions, at different phases of design and implementation, hence before, during and after the implementation. The 8R method itself builds on both the experience of practitioners, as well as several studies that have utilized the framework. The experience so far is that the 8R aspects and the combination of looking at the structures, processes and impact is relevant, but the indicators and related questions needed to derive a value or quality for each cell of the matrix are still insufficiently worked out. So, the goal is to derive better evaluation questions to be able to derive a sufficiently accurate description and assessment of how, where, when and why an intervention is responsible or not.

With regard to the logic of improving the 8R framework, one can rely on either deductive or inductive logic in methodology construction. Inductive logic recreates the rule pattern (in this case, the manner in which to derive a systematic assessment or responsible land management) when one knows (from documented evidence) how actors designed and executed the projects on the one hand, and how authors describe and judge the results and impacts on the other hand [21]. In this case, the object of the induction is a derivation of the systematic prompts of the 8R assessment. The documented evidence is largely textual and discursive. Therefore, the analysis could only rely on assembling and interpreting the documented evidence in view of the 8R assessment parameters. This interpretation is largely qualitative as the context of the cases is usually complex and plural, implying that one needs to understand the choices made in a broader context than the choices for the land intervention only [22]. In other words, the role of the cases in this study is to verify how specific elements of an environment can influence the 8R framework assessments and to evaluate if there are additional requirements in the assessment of each of the aspects (such as additional questions, use of proxies, use of indicators and qualitative/quantitative value of indicators). The choice of case studies depended on the degree of available documentation on intervention design, execution and impacts. By reviewing the documented evidence of the different types of land reclamation cases in Indonesia it should be possible to induct which systematic prompts should have been included in an 8R assessment in order to have found the possible design faults, implementation bottlenecks and unwanted effects in advance. In such a way, the systematic prompt of the 8R framework can be adapted or extended, such that a future 8R assessment is able to include an insight into possible problems better. Additionally, the intention of the usage of the 8R framework is furthermore to derive a critical (theoretical and practical) perspective, in the form of practical and theoretical contradictions, and in the form of additional prompts in the 8R assessment method.

4. Cases and Aspects of Land Reclamation in Indonesia

This evaluative study draws on documented evidence of land reclamation projects in Indonesia. The choice for this type of project is that there is not only a broad collection of documented evidence, but that land reclamation also has different types and varieties, which would explain the role of different contexts. Regardless of the type, land reclamation is usually a formally planned strategy, which not only changes the land rights and land use, but also the landscape or waterscape. Specific for land reclamation is that new land functions and land access are created by either reclaiming new land from water bodies (be it rivers, lakes or seas) or recreating new landscapes from previous coastal or mining areas (either as restoration projects or as expansion projects). For this article, we assume that reclamation is a specific type of land intervention, which comes in different shapes and types, aims at different goals and relies on different kinds of justifications. For example, in Indonesia, the justification for reclamation is often coastal area protection and coastal zone management [23,24]. There are however historically, operationally and thematically additional motives for opting for reclamation projects. Traditionally, the choice for reclamation

is related to agricultural objectives. Reclaiming land from wetlands, swamps and frequently flooded lowlands, combined with drainage and/or irrigation engineering activities and often also with land allocations, redistributions and/or consolidations helped to increase and improve the effectiveness and size of agricultural farmlands. Indonesia for long relied on either colonial Dutch, and later on, Dutch collaboration supported agricultural land reclamation projects for this specific purpose [25]. More recently, reclamation also applies to the construction and expansion of islands or territorial boundaries [26,27], restoration of sites of mining and extractive resource industries [28] or reforestation and reconstruction of forest areas [29].

There are various reasons why land use, land rights and land values may change in direct or indirect relation to the land reclamation project. In Indonesia, for example, any reclaimed land is declared a state-controlled land [30] following article 3 (2) and 4 of Minister on Land and Spatial Planning Regulation Number 18, year 2021, on Procedures for Determining Management Rights and Land Rights. This has replaced the 1996 circular letter 410-1293, Additionally, whereas previously the national land agency could allocate rights to Indonesian citizens according to article 8(1) of these former procedures to grant and annul land rights (PMNA/KBPN/9/1999-Peraturan Meteri Negara Agraria/Kepala Badan Pertanahan Nasional, Nomor 9 Tahun 1999, Tentang Tata Cara Pemberian Dan Pembatalan Hak Atas Tanah Negara Dan Hak Pengelolaan), currently this article has been revoked and declared invalid. The new regulation Permen ATR/KBPN No. 18 Tahun 2021 tentang Tata Cara Penetapan Hak Pengelolaan dan Hak Atas Tanah, part in paragraph 1 and Article 52 (1) determines how to gain the right of ownership in particular. In other words, there have been various institutional changes recently.

Yet, evaluating the degree to which a land reclamation project is a responsible undertaking and whether the impact leads to a higher or lower degree of responsible land management is often not transparent or documented. Part of the reason for this is that justifications for land reclamation projects are either economic [31], political-ideological and symbolical [32–34]. Specific to reclamation there have been various publications aiming to assess a sustainability index for reclamation areas [35], which focus on balancing multiple policy, environmental and social impacts [23].

Reclamation consists practically of various steps and of associated changes that come with this land intervention. The associated activities for each type of project vary in accordance with the respective purposes, but generally include removing former aspects of landscape, watershed or waterscape elements, constructing new land using and compacting sandy soils, constructing new facilities and services and land consolidation, land redistribution or allocation of new spatial (land and/or water) rights. Specific for coastal areas is the combined landfill and drainage of surplus water, and the legal requirement to adhere to planned zoning areas, coastal zoning licensing and having to acquire permissions from the Indonesian Ministry of Maritime Affairs and Fisheries [23]. The associated changes and serious problems or challenges with land reclamation include liquefaction hazards [36], ecological hazards [37], conflicts over rights and land claims [38], and compensation of lost incomes [39], amongst others.

For the testing of the 8R methodology in the context of land reclamation interventions specifically, this article selected 8 cases of land reclamation in Indonesia. The selection process relied on three criteria. First, there needed to be sufficient documented evidence—both in academic and in grey literature (including websites, opinion pieces and newspaper articles)—on the decision-making process, the design, process and impacts on each of the projects. The second selection criterion was the difference in type and context. Thirdly, we tried to select cases from different locations. This selection process resulted in the following four types of reclamation projects and eight specific cases:

1. Urban expansion reclamation projects:
 - a. The Jakarta Bay reclamation. In fact, this reclamation is not just one project, but contains many subsequent projects, following the DKI Jakarta Spatial planning General plan 1985–2005. There is a broad set of perspectives on this project and

- the role of reclamation [23,40–42]. The reclamation of the former landfill area (Pluit Reservoir) was initiated by the Jakarta city administration and executed by a private developer, Dharmala Group (currently known as the PT Intiland Development Tbk).
- b. The reclamation of the Central Business District (CBD) BAM in Manado Bay. Unlike the Jakarta Bay reclamation, this project is less documented in the literature but also relevant to discuss multiple perspectives [43–45]. Different from the Jakarta Bay project was the explicit co-management strategy from the onset [46].
 - c. The Centre Point Indonesia (CPI) off the coast of Makassar. This reclamation project derived from Regional Regulation No. 2 of 2019 South Sulawesi Government, which created Zoning Plans for Coastal Areas and Small Islands (Perda RZWP3K Sulse) and provided construction companies with licenses to extract sea sand and reclaim the areas at the coast of South Sulawesi. These activities resulted however also in public unrest in South Sulawesi, in particular from environmental activists and affected community groups. The CPI reclamation is similar to the Manado Bay reclamation, yet different in character and objective. [47–49]. The Indonesian government awarded the project to KSO Ciputra Yasmin, which in turn outsourced the land reclamation to the Dutch company Boskalis ².
2. Infrastructure-related reclamation projects:
 - a. Reclamation for the construction of the 12.7 km toll road crossing the Benoa Bay in Bali, and connecting Denpasar with Nusa Dua and the Gusti Ngurah Rai airport [50,51]. The Bali Mandara Toll Road (also referred to as the Nusa Dua-Ngurah Rai-Benoa Toll Road) crosses the Gulf of Benoa in Bali. The developer of the reclamation project is The developer of this reclamation project is PT TirtaWahana Bali Internasional (PT TWBI), a property development and management company based in Bali [52].
 - b. Gusti Ngurah Rai airport, Nusa Dua region, in Bali [36]. This reclamation relates to the development of the toll road. For Bali, both developments are part of the tourism development [53,54]. The management company responsible for the reclamation in Benoa Bay received the permit in 2018 from the Indonesian Marine and Fisheries Ministry but had to reduce the original request by almost 25% (i.e., by 12 hectares, from 47.9 hectares to 35.75 hectares) given that the area crossed a conservation area.
 3. Mining (restoration) related reclamation projects
 - a. In Eastern Kalimantan, based on studies from [55,56]. Amanah and Yunanto [57] describe that mining reclamation needs to adhere to the 2018 Good Mining Practice Implementation Guidelines of the Ministry of Energy and Mineral Resources (i.e., the Decree No. 1827.K/30/MEM/2018 regarding Implementation of the Good Mining Practices and Supervision of the Mineral and Coal Mining). These guidelines determine that mine reclamation should restore and improve the environmental quality and ecosystem of a former mining area in accordance with its land use, commencing during the mining operation phase. Prasetyo [58] describe the legal regulations for mine reclamation. The actors in mining activities are very diverse. By 2017, 1404 mining business licenses (IUP and IUPK) and 33 large-scale PKP2B mining contracts had been issued across East Kalimantan [59]. Although each of these companies is also responsible for the restoration, many of them went bankrupt and thus did no restoration work at all.
 4. Agricultural development-oriented reclamation projects:
 - a. In Lampung, Sumatra, one of the most acclaimed reclamation projects is the Rawa Sragi project, which reclaimed a swamp area of 23,400 ha over the period

1978–1990 in order to create agricultural activities and foster rural development [60]. The project started was carried out in four phases, whereby the technical design of the reclamation was combined with a set of socio-legal activities, including land reform and land consolidation. A main player in the execution of this project was the engineering company Euroconsult (currently known as Arcadis), a Dutch company.

- b. The large areas of reclamation of peatlands, or peat swamp forests (PSF), in Riau, Sumatra, reported by [61–63]. For a long time, the PSF areas in Riau were unused and did not have any population, yet gradually immigrants and transmigrants started to reclaim the PSF lands, mainly for commercial coconut plantations. This changed the landscape dramatically, with the introduction of rice fields for local consumption and cash crops for exports.

5. Testing the 8Rs for Land Reclamation Projects in Indonesia

5.1. Responsiveness

This aspect refers to the degree to which a land intervention includes the needs, requests and long-term views of stakeholders, as well as addresses the urgency of the need.

The documented evidence from the land reclamation cases shows that the decision to opt for land reclamation is often generated by a top-down policy process. This characteristic results in conflicting perceptions of needs and interests, especially on the side of local people who live in the area surrounding the designated area, as, for example, in Manado, Makassar and Jakarta. Any justification to go ahead with reclamation projects stresses a specific need for a specific perspective and often does not address how to cope with or compensate for the interests of opposite parties. Adharani, Nurlinda, Nadia and Yusuf [23] question whether the Jakarta Bay reclamation “benefits the interests of the public or those of the owners of capital”. Additionally, this reclamation project came with many ecological objections, such as damage to mangrove ecological systems and loss of livelihood of fishermen and communities on the North Coast of Jakarta.

In all land reclamation examples, the aspect of responsiveness is insufficiently addressed prior to the project implementation as well as during and after the project. Some critical literature claims that the main beneficiaries are primarily larger developers and investors rather than society or local residents. For the peatland reclamation in most parts of Sumatra, there was no clear assessment of whether this was in line with the needs of local populations, as in many cases these were absent in the decision. Ecologically, much of the main harm is not directly in the adjacency of the projects, but in the ecological systems surrounding the reclamation areas. For urban expansion reclamation, mostly mangrove coastal systems are in danger as sand is extracted for the coastal expansion projects. When reclaiming coastal peatlands, there may be salt-water intrusion and land may suddenly lose fertility [61].

Some mining reclamation projects on the other hand directly benefit reforestation and thus contribute to ecological benefits and services (in all fairness, after having destroyed the original ecological landscape). Kamim [64] argues that various types of reclamation activities occur in Indonesia, which supports the expansion of urban capital in Indonesia, often burdening the ecology and the livelihood of fishermen. Ambari [65] adds that reclamation projects threaten the livelihoods of a large number of fishermen and threaten the sustainability of coastal ecosystems that are home to a wide variety of marine life. The People’s Coalition for Justice Fisheries (Koalisi Rakyat untuk Keadilan Perikanan-KIARA) noted that up to date there are 41 reclamation projects in Indonesia for investment purposes that have ecological damage in coastal areas and marine waters. coastal and marine waters. The government sees the great potential of coastal areas for property development which is seen to become the new economic centers [58]. Data from the Ministry of Maritime Affairs and Fisheries noted that there are 37 locations that will be developed through reclamation, of which 17 projects are already underway [64,66].

Table 4 summarizes the manner to improve the qualitative inquiry of this specific aspect of responsiveness.

Table 4. The extended assessment of *responsiveness*.

Responsive	Looking at Questions Such as ...	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> • Are the institutional structures related to the intervention including “responses” from citizens, firms, various levels of State • Is there a place or forum where stakeholders can express their voices and check whether there has been a response 	<ul style="list-style-type: none"> • Are interests of all stakeholders concretely stated prior to the intervention • Are the conflicting interests comparatively mapped
Processes	<ul style="list-style-type: none"> • Do processes related to the intervention include a formal step to seek needs, or to check opinions • Do processes include a feedback step in which the actions or decisions are explained? 	<ul style="list-style-type: none"> • Are the objections and conflicting interests and claims sufficiently addressed in the process
Outcomes and impacts	<ul style="list-style-type: none"> • Is the intervention responding to and certain needs? • Is there a monitoring system to check whether and to which extent needs and requests have been responded to? 	<ul style="list-style-type: none"> • Is there a clear balance between economic and ecological claims? • Are there any shared benefits to the local people that have been impacted by the land intervention?

5.2. Resilient

The Jakarta Bay reclamation has resulted in the loss of livelihood of fishermen and environmental damages that cannot be repaired [23]. This directly affects the degree of resilience. This demonstrates that in the assessment of resilience, there is a need to make it more explicit how the intervention affects whose livelihoods and which ecological systems permanently in which manner. Additionally, Woodbury and Arbainsyah [67] report how mining activities in East Kalimantan remove all vegetation, soil, and rock, leaving behind “vast barren and polluted pits leading to erosion, polluted runoff, affecting downstream fish populations and drinking water”. As many of these effects are irreversible, it leads to a significant problem in terms of resilience.

The land reclamation cases have shown to exhibit major problems for former landowners and tenants resulting from involuntary expropriation and relocation. In some cases, this resulted in continued resistance and protests which were not directly part of the land intervention itself. Given that reported documentation is mostly dealing with both preparation and execution the major challenge is to evaluate the outcomes and impacts using the 8R framework. Hence, there is a need to substantiate the outcome resilience aspect by seeking artifacts that justify whether institutional and organizational structures are sufficiently and appropriately capable of handling major (short-term, ad-hoc) problems, crises and unforeseen circumstances which may arise from land interventions. This implies investigating for the resilience processes whether in the execution of the interventions, appropriate steps or measures are built in to check whether certain risks are dealt with and/or whether different decisions need to be taken at a given time, and if there any plan Bs considered or possible during the execution. Table 5 summarizes the possible improvements in assessing resilience.

Table 5. The extended assessment of *resilience*.

Resilient	Looking at Questions Such as ...	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> • Are institutional and organizational structures sufficiently and appropriately capable of handling major (short-term, ad-hoc) problems, crises, unforeseen circumstances which may arise from land interventions? 	<ul style="list-style-type: none"> • Do project plans explicitly state whose livelihoods and which ecological systems are affected permanently in which manner
Processes	<ul style="list-style-type: none"> • Are in the execution of the interventions appropriate steps or measures build in to check whether certain risks are dealt with and/or whether different decisions need to be taken at a given time? • A there any plan Bs considered or possible during the execution? 	<ul style="list-style-type: none"> • Does the project concretely address the reparation and restoration of affected livelihoods of all affected parties and ecosystems?
Outcomes and impacts	<ul style="list-style-type: none"> • To which extent can the socio-spatial structures “survive” after the land intervention? 	<ul style="list-style-type: none"> • Which affected communities will have to change their livelihood, and which ecosystem will require restoration or ecological compensation? • Are damages caused by the intervention irreversible?

5.3. Robustness

Legal robustness is the first requirement to make land interventions responsible. Adharani, Nurlinda, Nadia and Yusuf [23] describe how multiple legal frameworks and acts guide the compliance of the Jakarta Bay reclamation, yet these multiple frameworks are often conflicting or overlapping. There is therefore a need in practice to unveil which regulation applies at which moment in time. An assessment should take note of this quandary.

For the reclamation in Manado Bay, Wantouw, Antariksa and Tamod [43] point to the change in public and private access rights and the social consequences of these changes. They posit that the reclamation reduced the accessibility of the public to the coastal area by privatizing it, and as a result disabled previously existing social interaction.

Robustness is also needed when multiple projects are interconnected and interdependent. The reason behind the reclamation activities for both the Bali Mandara Toll Road and the Gusti Ngurah Rai airport was on the one hand to prevent traffic jams on the Ngurah Rai Bypass Road, previously the only road connecting areas of Bali south of the airport with areas north of the airport. The existing Ngurah Rai Bypass Road, which was a road over land, could not be widened because of the location of the airport runway. To optimize the access to the new airport there was no other way than to construct the Bali Mandara Toll Road over water and execute reclamation. Nevertheless, the interdependency between such activities needs to be part of a project evaluation. Therefore, such prompts must be added when assessing the degree to which the intervention is robust (Table 6).

5.4. Reliability

This aspect primarily assesses whether affected parties and other citizens can sufficiently trust the decision for any (mega-) project. The Jakarta Bay reclamation significantly suffered from a loss of trust, based on changes in government decisions. Whereas the governor of the Jakarta Provincial government had originally granted permission to build 17 reclamation islands since its inception in 1995, in September 2018 a new governor revoked the permits of 13 island developments, using the justification that the project would undergo a new spatial planning process [23]. One could see this as a good step from the perspective of reflexivity (if new insights on the intervention emerged), but also as political

opportunism to regain the trust of communities. Similar to the 8R assessment of capital cities [20], there is a thin line between responsible and opportunistic justifications, promises and changes in narratives. The new narrative is not false, but also not completely true, because in the execution of the reclamation projects new facts (on suitability, impacts, size and location of the project) arose.

Table 6. The extended assessment of *robustness*.

Robustness	Looking at Questions Such as ...	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> To what extent can institutional, organizational and technical structures withstand and remain intact after (long-term) pressure from outside? How vulnerable are societal systems (to breaking down) because of the land intervention? 	<ul style="list-style-type: none"> Are there any legal overlaps and redundancies, which lead to contradictory rules? Are there any technical interdependencies between the constituent parts of the interventions?
Processes	<ul style="list-style-type: none"> Is the execution of processes set up in such a way that they can always be followed and not change or collapse completely during the execution? 	<ul style="list-style-type: none"> Are there multiple actors organizing compliance and enforcement based on different laws? Are the interdependent parts of the intervention sufficiently connected in the execution?
Outcomes and impacts	<ul style="list-style-type: none"> Are the interventions fundamentally changing issues in society for the better, or create a whole different set of societal dynamics (thus revolutionizing the societal landscape)? 	<ul style="list-style-type: none"> Are the changes in public and private rights derived from the land intervention creating new restrictions for the public and private citizens, which may not have been foreseen?

The reliability assessment needs therefore to be very accurate in checking whether the facts on which decisions rely as sufficiently bias-free, and whether the decisions include regular checking mechanisms on facts and/or proper evaluation of facts. In addition, the assessment takes a closer look at the existence of monitoring and evaluation systems, which check if, and how the intervention indeed resulted in what it promised (Table 7).

Table 7. The extended assessment of *reliability*.

Reliability	Looking at Questions Such as ...	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> To what extent are institutional and organisational structures sufficiently and/or appropriately including measures to check the impacts of the land intervention? To what extent are the facts on which decisions makers make decision sufficiently bias-free? 	<ul style="list-style-type: none"> To which degree are institutional arrangements transparent? Is there any evidence whether stakeholders trust authorities?
Processes	<ul style="list-style-type: none"> To which degree are decisions regularly checked and to which degree does fact-checking and evaluation of facts take place during the execution? 	<ul style="list-style-type: none"> To which extent do the organizations executing the projects rely on public or private values?
Outcomes and impacts	<ul style="list-style-type: none"> Are monitoring and evaluation systems in place to check whether the intervention indeed resulted in what it promised? 	<ul style="list-style-type: none"> Are the agencies executing evaluations and audits sufficiently independent?

On the issue of respect, the documentation of Baharuddin, Lubis, Mustafa, Arief, Gassing and Lubis [49] shows how NGOs and local communities formed an effective alliance to resist and reject the sand mining and reclaiming activities in southern Sulawesi,

which reveal a clear distrust in the government interventions. They argue that the affected communities were not only left out of the communication and information distribution channels prior to the issuance of the license but were also falsely about the possible negative effects, which might occur. Moreover, as many local stakeholders were left out of the earlier discussions, so did their potential benefits of the projects. Shared benefits could have come in various forms, such as labor, profit share and business collaboration. Table 8 shows how the original prompts on the respect aspect can be extended.

Table 8. The extended assessment of *respect*.

Respect	Looking at Questions Such as ...	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> Are the formal structures for the preparation and execution of the land interventions (sufficiently) trusted? 	<ul style="list-style-type: none"> Have information flows about the intervention been shared among local communities and advocacy groups?
Processes	<ul style="list-style-type: none"> Do the actors responsible for the intervention sufficiently take care of the acceptance and recognition of the intervention? 	<ul style="list-style-type: none"> Is there any evidence that local advocacy groups are aligned with the execution of the intervention?
Outcomes and impacts	<ul style="list-style-type: none"> Do stakeholders, citizens, firms accept the decisions and processes, and abide by the newly created status quo after the land intervention (or do they go back to the old status quo prior to the intervention?) 	<ul style="list-style-type: none"> Were the potential indirect benefits of all stakeholders identified?

5.5. Retraceability

For the issue of retraceability, political frames and justification for making reclamation decisions are important. Mahdi [68] argues that the reclamation activities of Jakarta Bay resulted in significant changes to the relationship between the community, the developer and the government, and therefore it made it difficult for the government to determine the right direction to take. This critical assessment of the project states that it appeared that the authorities decided to continue running the reclamation project, despite severe concerns on the side of all parties involved. It could continue because the economic risks were not for the government, but for both the developers and citizens. This risk was however concealed by framing the project as one for flood management, “but in essence, it is only a camouflage for the interests of the ruler” [68]. Bolqiah and Raffiuddin [69] argue in this context also that during the reformation period, oligarchs established relationships with regional heads, or in this case the Governor of DKI Jakarta, to maintain oligarchic dominance in the development of reclamation projects. As a result, oligarchs or other actors who participated in the reform period benefitted because they had taken over companies that had previously obtained development permits. Often such direct links are not traceable unless it becomes clear who is behind certain commercial take-overs. Hence, there would be a need for public registries on the specific individuals behind the commercial entities responsible for the execution of the projects (Table 9).

5.6. Recognition

The identification of residents and communities with the land reclamation fundamentally depends on the possible benefits, which they perceive. Wardana [70] observed in that context that the coastal reclamation in Manado city had both positive and negative socio-economic impacts on the community. Some residents switched jobs from fishermen to laborers and builders. Whilst this led to a decrease in the income of fishermen and an increase of laborers after coastal reclamation, it also increased land values—given that the price of houses is higher than the price of land before reclamation. Furthermore, it led to a change in land utilization from a residential function to other functions such as shops. Hence, it is important in the assessment to take both positive and negative perceptions into account and relate these to the potential benefits of losses.

Table 9. The extended assessment of *retraceability*.

Retraceable	Looking at Questions Such as . . .	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> Do laws and regulations clearly and unambiguously state where and how decisions are taken and who or which organization or person ultimately takes a decision? 	<ul style="list-style-type: none"> Which political and economic justifications and objectives are declared prior to the decision?
Processes	<ul style="list-style-type: none"> Are subsequent decisions carefully documented and are these open for all stakeholders? 	<ul style="list-style-type: none"> Are stakeholders sufficiently aware of the implication of each process step? Are the beneficiaries of the intervention sufficiently known by public registries?
Outcomes and impacts	<ul style="list-style-type: none"> Can accountabilities for disputed decisions be traced back? 	<ul style="list-style-type: none"> How are the financial burdens of the decision distributed or recovered?

For the reclamation for agricultural purposes, recognition comes from the direct benefit, which farmers perceive. Whereas in Rawa Sragi farmers received a direct benefit of obtaining land rights after the land consolidation, in the Riau case there was a direct financial benefit of connecting the global markets. These benefits did not necessarily derive from government decisions, but from indirect effects, which came alongside the reclamation activities. Recognition of a project may therefore require a broader understanding of the possible connection to other benefits than those directly derived from the reclamation itself. Table 10 shows the implications of this insight for the extension of the 8R assessment for the aspect of recognition.

Table 10. The extended assessment of *recognition*.

Recognition	Looking at Questions Such as . . .	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> Are institutional, technical and organizational structures in place where different stakeholders can be represented, and where different stakeholders can co-decide or express their views? 	<ul style="list-style-type: none"> Is the potential benefit or implication of the land intervention sufficiently clear to all affected stakeholders?
Processes	<ul style="list-style-type: none"> Do the processes systematically involve stakeholders in the decisions of the land interventions? Are contrasting opinions, views also heard and acknowledged? Can stakeholders sufficiently accept the final decision related to the interventions? 	<ul style="list-style-type: none"> Do all stakeholders have similar benefits or objections, or is there a variety?
Outcomes and impacts	<ul style="list-style-type: none"> Can people identify themselves with the achievements, goals, aims of the project/the land interventions? Do they take ownership of the land intervention? 	<ul style="list-style-type: none"> Did those stakeholders who had negative perceptions about the land intervention change their perception to a positive one?

5.7. Reflexivity

Regarding the possibility to reflect on decisions and possibly change with new evidence of new insights, Anam, Kolopaking and Kinseng [41] argue that in the case of the Jakarta reclamation, social media had an effective role in influencing public attitudes on environmental issues. This resulted not only in the issuance of an environmental impact study in 2003 but also in a change of plan. Hence, being aware of what occurs in social media and which threads are significant is crucial in all phases of these kinds of interventions. Furthermore, Syamsuddin, Sideng, Abbas, Zhiddiq and Arfan [48] argued, based on extensive surveys among stakeholders, that the management of the CPI in Makassar should

have made more effort to provide alternative solutions for socio-economic development for those who were most severely affected by the reclamation.

In the Rawa Sragi reclamation project, the project was not planned in a comprehensive way from the start [60]. It developed due to a number of extensions in the course of the project during which new ideas were formulated based on experiences in the completed phases. One of the differences between phase 1 and phase 4 of the project concerned the manner in which excess water was evacuated. New insights on environmental issues and possible consequences for land access and land use were the primary reasons for this change in technical strategy. Combined, these issues call for the following extension of the 8R assessment prompts on the aspect of reflexivity (Table 11).

Table 11. The extended assessment of *reflexivity*.

Reflexivity	Looking at Questions Such as . . .	Additional Items Based on Reclamation Experiences
Structures	<ul style="list-style-type: none"> • Are there formal procedures present to change or convert previous decisions if there are new insights related to the intervention? 	<ul style="list-style-type: none"> • Do project managers or government agencies responsible for the intervention systematically monitor opinions in media and social media? • Is the project structured in a phase-wise manner whereby after each phase new technical solutions can be designed?
Processes	<ul style="list-style-type: none"> • Do process steps systematically or regularly build in a moment at which the executors and managers re-think whether they are doing the right thing before, during and after the land intervention? 	<ul style="list-style-type: none"> • Are prominent threads in social media systematically picked up and/or addressed? • Have alternative solutions for those most severely affected been formulated?
Outcomes and impacts	<ul style="list-style-type: none"> • Are there measures in place to monitor the progress of achievements, goals, aims, and to reflect on whether achievements, goals, aims have been met? • Are the main goals of the intervention always in line with expectations, needs, opinions, views and perceptions? 	<ul style="list-style-type: none"> • Have there been or is there the possibility to re-issue and/or change licenses or permit for specific interventions?

6. Discussion

When comparing the results on each of the aspects and each of the additions to systematic prompts one can derive a number of observations and interpretations of the findings. The first issue is the completeness of the framework. In order to properly evaluate and assess the degree of responsibility for land intervention projects, one needs to understand the project in a broader societal, spatial and political context. For this reason, the systematic prompts of the 8R framework need to be expanded, in both content and breadth of the context. This requires additional questions for each of the 8Rs. The differences in land reclamation types represent however also a broad range of land intervention types in general. Consequently, one can expect that the newly formulated prompt will also be relevant for different types of land interventions, such as land restoration, land acquisition, or national land adjudication programs.

Secondly, the lack of documentation of decisions and retraceability appears to be a crucial bottleneck of many reclamation projects. There are indeed legal and government documents for providing the reclamation licenses, but who derived or negotiated these licenses on the basis of which arguments and which procedures is often not public knowledge and not carefully communicated publicly. This quandary has partly to do with inadequate prior communication strategies (or even a complete absence of such strategies). It may also be part of a culture to pursue technical and economic objectives based on quantitative figures, which may appear abstract to most people. Instead, one would also need social and societally acceptable objectives for which one needs to seek or mobilize public

support and societal recognition. Mining reclamation and urban expansion reclamation could theoretically create a larger volume of public spaces, yet their projects often lead to more private spaces and restrictions on the public in accessing these. From a technical and economic perspective, such projects may receive positive audits, yet from a responsibility perspective, they may derive critical concerns about the degree to which people can identify with the projects or perceive positive benefits.

Thirdly, despite the fact that a number of reclamation projects change operational strategies and issuance of licenses, there appears to be a limited degree of reflexivity in many reclamation projects. It is of course difficult to stop a major infrastructural work during its implementation, yet at the same time, many of the predicted problems, such as environmental damage, societal unrest and protests, loss of jobs and unforeseen technical complications, become more apparent at the time of implementation. Projects should therefore build in a phased approach whereby certain decisions can be re-evaluated on the degree of responsibility in the course of the project.

Fourthly, one could question the extent to which the design of the 8R framework itself follows principles of scientific rigor and logic. Here one could however argue that for many land-related projects and interventions, it continues to be unclear when and why certain projects fail to meet the anticipated results. This implies that a gap continues to exist between land management science (or even land management guidelines or best practices) and the broader reality of contexts in which land management practice takes place. One can only bridge this gap by critically reflecting on experiences that are properly documented in multiple documents and from multiple viewpoints. In public administrative research, applied phenomenology can bridge the theory-practice gap related to how processes and decisions of public agencies and actors in the public domain evolve rather than how they are constructed with mandates and organizations [71]. The gradual adaptation of the 8R framework through documented processes aligns with this research approach because it enables a more dynamic understanding of land management situations in connection to prior experiences, different types of contexts and prior conceptual knowledge. Hereby interpretative theories of inquiry are crucial.

7. Conclusions

Whilst the main thematic focus of the evaluation of documented evidence was on diverse reclamation projects in Indonesia, the main aim has been to critically examine, improve and expand the 8R framework of responsible land management. Overall, it can be concluded that the 8R framework is a useful framework for different land management contexts and intervention types. The existing version of the framework needs however an expansion of systematic prompts to ensure a more comprehensive insight into the relevant aspects of the land intervention. Especially a more detailed investigation of the degree of responsiveness and the extent of recognition are crucial aspects of any 8R assessment. It helps to identify how and where stakeholders, beneficiaries and victims of an intervention need to pursue a collective interest rather than choose a specific individual interest. The extended framework can be useful for practitioners, politicians, concerned citizens and stakeholder groups at all stages of a project design, implementation and evaluation.

The second issue concerns the accuracy of the data when employing the framework. It is indeed true that many of the responses to the systematic prompt will be qualitative or even binary (i.e., yes/no). Combining such results in a single matrix may therefore not be evident, let alone deriving a single value or indicator representing a good or bad judgment. On the other hand, the justification of the 8R framework is not to derive a judgment at one specific moment in time. Instead, it generates a framework for a qualitative performance assessment and a critical reflective analysis, which can be repeated multiple times. The results at different times may reveal certain improvements and may also show that improving in one aspect may be at the expense of another aspect. The precision of the responses is, therefore, less crucial than the accuracy of the results.

A third issue is location (or spatial) dependency. From the onset, one could expect locational differences in perceptions due to contextual social and organizational cultures and processes of execution. Yet the differences in decision-making processes and types of influences and agency in the reclamation projects show a fair amount of similarity. One reason may be that land reclamation projects tend to be large and thus require a significant degree of investment and organization. Only certain types of actors can actually implement such projects and can therefore influence the decision-making process considerably. It is thereby also clear that local interests may not always be at the forefront. More specifically, the reclamation context made it clear that contradicting stakeholder interests, concerns and possible negative impacts are not always taken into account and need to be taken into account at all stages of a land intervention. Too often, the projects seem to benefit a particular set of stakeholders at the expense of another set. This limits the possibility to reach a more balanced outcome, both in terms of shared benefits as well as shared responsibilities.

A fourth aspect is intervention dependency. The chosen thematic context of reclamation is indeed diverse but entails technical, operational and normative components, where contrasting claims and ideas need to be weighted and balanced against each other. For this reason, it is never possible to find an exact and all-encompassing answer of whether such individual interventions are responsible or not. The 8R framework does not aim for a quantitative assessment deriving a comparative or absolute value, but for a qualitative assessment deriving a set of concerns, possible contradictions and impending questions in the design and implementation of a specific land intervention. As such, it helps implementers, evaluators and auditors of such projects to make a detailed assessment of where exactly there are societal, political and technical paradoxes and ambiguities in the project.

Further research could look at a number of contradictions in land reclamation, which became apparent during this methodological research:

The scale of the land intervention design versus the scale of its impacts. What the evaluation of land reclamation projects has made clear is that the effects of the intervention may not directly be in the area of the project, but in the areas, which are used to provide the materials (usually sand mining) for the project. As Adharani, Nurlinda, Nadia and Yusuf [23] state, the advantage of Jakarta Bay is to relieve South Jakarta from housing pressure, but it causes environmental and ecosystem damage on the north coast of Jakarta. Assessing the degree of responsibility needs to look beyond the area of the land intervention itself.

Urban expansion versus ocean grabbing. The reclamation for urban expansion cases has made it clear that often they occur at the expense of fisheries and marine resources. One could potentially refer to this as sea or ocean grabbing, whereby rights are disproportionately converted from one to another set of stakeholders, accompanied by eviction or forced relocation of previous right holders. Several authors have hinted at this similarity with land grabbing, and the 8R framework could help to identify this potential.

Economic versus ecological and social epistemologies. Alongside with the grabbing and ecological concerns, there is a fundamental difference in the set of key value systems and normative frameworks with which land reclamation decisions are taken.

Private capital versus public capital. There is a clear disconnect between public and private capital related to land reclamation projects. Whilst all projects rely on high costs and investments, it is not always evident who pays (directly and indirectly—via taxes for example) and who benefits. Moreover, some of the projects lead to severe changes in private and public access, rights and restrictions. Many of these tend to be undocumented or implicit and therefore not always known to all stakeholders.

The sea provides symbolic unity in the Indonesian archipelago but also creates societal divisions of winners (investors, developers in reclaimed area, coastal protection) and losers (fishermen from the area before reclamation, ecology at locations where sand is extracted). In sum, reclamation creates respect and resistance. Perhaps the latter needs to be added as a ninth R.

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Notes

- ¹ <https://www.worldbank.org/en/programs/land-governance-assessment-framework> (accessed on 29 December 2022).
- ² <https://fairgreenglobal.org/stories/the-story-of-centre-point-indonesia/> (accessed on 29 December 2022).

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