EXAMINING 'SALAMI-SLICING' IN ENVIRONMENTAL IMPACT ASSESSMENT: TOWARDS A CONCEPTUAL MODEL

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Abstract

Environmental Impact Assessment (EIA) is recognized as a tool and process carried out prior to project initiation to identify significant environmental impacts, with the aim of preventing, minimising, or rectifying said impacts. The effectiveness of EIA in reaching its purpose has, however, been subject to scrutiny and is threatened by a tactic used for EIA circumvention widely known as Salami-slicing (SS), project splitting, or project fragmentation. This tactic has been described as the splitting of a project into smaller segments (i.e. into phases or through territory), such that it does not meet the need for an EIA. While the literature on SS has noticeably increased over recent years, its occurrence within the Maltese Islands has not been documented. This research thus aims to characterize SS in the local context, drawing on inputs of various EIA stakeholders, to identify deficiencies and factors enabling its occurrence, and potential solutions for eradicating or minimising SS. To this end, 10 semi-structured interviews were conducted across four stakeholder groups, namely the competent authority, EIA practitioners and technical experts, developers and legal advisors, and ENGOs. Systems Thinking (ST) was used to frame the analysis, by outlining the different perspectives, distinctions, and relationships leading to SS. Through a hybrid approach of Thematic Analysis (combining deductive and inductive analysis), a thematic framework was developed and contributed to the establishment of a conceptual model, which was visualised using Plectica software. Four overarching themes were identified: understanding of SS (characterization, occurrence), factors or deficiencies enabling its occurrence, perceptions on informal discussions between authorities and developers, and means of addressing SS. The second theme was the most prominent and encompassed sub-themes including resistance from developers to EIA, issues in EIA practice, governance-related issues, weak public participation, political influence and culture, as well as a context-specific weakness pertaining to Local Plans. Recommendations for addressing SS and aforementioned deficiencies were centred on improving governance and regulation, increasing the effectiveness of screening, and enhancing the public participation process. This research identifies several avenues for further research, such as addressing public participation barriers, the application of SEA and its potential in enhancing cumulative impact assessment

and reducing SS, and establishing criteria for SS detection and prevention during the screening phase of EIA.

Dedication

To those pushing through anxiety and depression, and those who unwaveringly support them.

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Lists of Figures, Tables, and Abbreviations

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Abbreviations

CEA	Cumulative Effect Assessment
CIA	Cumulative Impact Assessment
DSRP	Distinctions, Systems, Relationships, and Perspectives
DPA	Development Planning Act
EC	European Commission
ECJ	European Court of Justice
EIA	Environmental Impact Assessment
ENGO/NGO	Environmental/non-governmental organisation
ERA	Environment and Resources Authority
GFA	Gross Floor Area
IAIA	International Association for Impact Assessment
LCA	Life Cycle Assessment
LPs	Local Plans
MEPA	Malta Environment and Planning Authority
MI	Maltese Islands
MS	Member State
NEPA	National Environment Policy Act
ODZ	Outside of Development Zone
PDS	Project Description Statement
SEA	Strategic Environmental Assessment
SPED	Strategic Plan for the Environment and Development
SS	Salami-slicing
ST	Systems Thinking
TA	Thematic Analysis
TIA	Traffic Impact Assessment
TOR	Terms of Reference

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1. Introduction

"Development consent for public and private projects which are likely to have significant effects on the environment should be granted only after an assessment of the likely significant environmental effects of those projects has been carried out."

(Directive 2011/92/EU).

Environmental Impact Assessment (EIA) has repeatedly been described as a multidisciplinary decision-making tool (comprised of scientific, administrative, political, social, and legal aspects) and as a systematic process employed with the purpose of identifying apprehended environmental impacts of developments and projects, ranging from implications on social to biophysical elements, to address minimising, avoiding, or mitigating said impacts (Cashmore et al., 2004b; Glasson & Therivel, 2013; IAIA, 2009; Loomis & Dziedzic, 2018; Morgan, 2012; Morrison-Saunders, 2018). The inception of EIA is associated with enactment of the National Environmental Policy Act (NEPA) in the United States (1970), which established the first formal inclusion of impact assessment (IA) in legislation and led to the later adoption of the EIA Directive in 1985 by the EC, thus accelerating its application by EU Member States (MSs) (Glasson & Therivel, 2013; Morgan, 2012; Noble, 2020). The EIA Directive is rooted in principles of precaution, prevention, rectification, and polluter pays. However, substantial literature exists on the effectiveness of EIA, with particular concerns over its substantive effectiveness (whether it achieves its purpose in mitigating environmental impacts) and its procedural effectiveness (whether there is adherence to regulations and established expectations) (Cashmore et al., 2004b; Loomis & Dziedzic, 2018; Van Claster & Reins, 2017).

The substantive effectiveness and lawful aspect of EIA are threatened particularly by a tactic noted in a review by the European Commission (EC) (2003) and widely referred to as "Salami-slicing" (SS), often interchanged with the terms "project fragmentation" and "project splitting". SS is defined by the EC (2003) as:

> "The practice of splitting an initial project into a number of separate projects, which individually do not exceed the threshold set or do not have significant

effects on a case-by-case examination and therefore do not require an impact assessment but may, taken together, have significant environmental effect".

In Maltese Legislation S.L. 549.46 (the Environmental Impact Assessment Regulations), the act of SS is acknowledged and referred to specifically as "project fragmentation", meaning "piecemeal splitting of a project into smaller developments, such that the proper comprehensive evaluation of the overall project and its environmental impacts is impeded…". Additionally, the EC (2009) recognizes SS to occur through different means, with the first involving slicing of territory (i.e. through neighbouring plots by the same developer), the second through developers (i.e. the same project occurring in two separate locations belonging to different owners who are closely linked to each other), the third method occuring over time (i.e. through extensions resulting in threshold exceedances), and the fourth attributed to slicing of modifications (whereby substantial modifications are broken down into smaller ones).

Discussions within the literature and case law examples have associated SS with lack of consideration of cumulative impacts, with changes and extensions, and with the screening phase of EIA (e.g. EC, 2009; Glasson & Therivel, 2013; Pouikli & Tsakalogianni, 2022). In brief, cumulative effects are described by the European Environment Agency (EEA, 1999) as "the impacts…arising from a range of activities throughout an area or region, where each individual effect may not be significant if taken in isolation". Discussions on screening and SS have been centred on the two existing approaches to screening; the first approach applies thresholds (referred to as the development-centred approach), namely inclusion and exclusion thresholds, which have been noted as arbitrary and associated with EIA evasion by maintaining project size just below and resorting to the use of changes and extensions following operation of the project (Weston, 2004). The second approach entails case-by-case examination (environment-centred) whereby site-specific information is taken into consideration; however, one of the noted disadvantages of this approach is ambiguity and room for discretionary abuse or poor judgement (Glasson & Therivel, 2013).

Furthermore, factors such as informal discussions and proponents' attitudes and intent have received recognition as potential contributors to the occurrence of SS.

Informal discussions, in certain accounts referred to as 'grey impact assessment', refer to the informal discussion of EIA prior to or during the screening phase through which projects may experience adjustments (Bidstrup, 2017; Morrison-Saunders, 2015). Mixed perspectives surround such discussions in the literature, with some identifying them as complementing and improving EIA (i.e. Martin & Morrison-Saunders, 2015; Nielsen et al., 2015) while others acknowledge their potential contribution to EIA evasion, particularly dependent on the rationale of the proponent (i.e. Bidstrup, 2017; Morrison-Saunders, 2018).

1.1 Relevance

While literature on SS is emerging (e.g. Enríquez-de-Salamanca, 2016; Morrison-Saunders, 2018; Pouikli & Tsakalogianni, 2022), there is a gap on its occurrence within the local context. Additionally, as noted by Enríquez-de-Salamanca (2016), this issue is likely much more common than accepted and while the main efforts have focused on preventing this tactic, it remains to be a complex issue, warranting greater recognition among the weaknesses and threats associated with EIA. Moreover, the literature has noted a lack of research revolving around both the dynamics of the initial screening process which determines the need for EIA, and the forces acting against impact assessments (Bidstrup, 2015). This research, therefore, seeks to address the gaps in both the wide EIA literature, and in relation to SS in the Maltese Islands (MI). This is pertinent given that SS poses a threat to EIA effectiveness and concerningly counters obligations of the Directive (EC, 2003).

Given the complex nature of this issue, as acknowledged by both Enríquez-de-Salamanca (2016) and Pouikli and Tsakalogianni (2022), and given the systematic nature of EIA, this research provides an opportunity for utilization of Systems Thinking (ST), which addresses a crucial question, "What is the root crisis?" (Cabrera & Cabrera, 2015). Additionally, ST has been noted as a means of addressing 'wicked' problems, which comprise several interlinked issues, multiple agencies, numerous and varying views on a problem and its potential solutions, and a variety of power relations (Cabrera & Cabrera, 2015). The use of ST thus presents a new and holistic means of approaching SS by improving understanding of it and facilitating problem-solving

through conceptualization of the distinctions, systems, relationships, and perspectives involved.

1.2 Aims and objectives

In consideration of the above-mentioned points, this study aims to examine SS in EIA by addressing the following research questions:

- What constitutes SS and what are its associated characteristics and potential indicators according to different EIA stakeholders?
- What are the deficiencies or factors favouring project splitting and enabling its occurrence?
- What role (if any) does screening play in SS occurrence or prevention?
- How might SS be addressed?
- Are informal discussions conducive to SS or do they contribute to EIA improvement?

To address the aforementioned questions, the objectives of this research included:

- Identifying and interviewing different EIA stakeholders (competent authority, practitioners, technical experts, developers, and ENGOs) in Malta to explore different perspectives on what constitutes SS, the deficiencies enabling it, and how it can be addressed.
- Conducting Thematic Analysis (TA) of interviews to identify prevalent themes and categories, as well as emergent or context-specific themes.
- Creating a conceptual model using ST and Plectica (ST mapping software) to present important distinctions, systems, relationships, and perspectives pertaining to SS.

1.3 Synopsis

Chapter 1: Introduces the research area by defining EIA and its purpose, following which the main topic of research, SS, is defined. Subsequently, the relevance of this research is highlighted with emphasis on the threat posed by SS to EIA effectiveness

and lack of knowledge on the issue within the local context. Furthermore, the use of ST is justified, and the aims, objectives, and research questions of this study are listed.

Chapter 2: Reviews relevant literature (academic papers, case-law, and grey literature) on EIA (definitions, origins, and prevalent themes in the literature) and the SS tactic. The SS tactic is explored in terms of definitions and different types identified within the literature, its observed occurrence, and existing methods of prevention or good practices.

Chapter 3: Outlines the methodology and different stages of the study, providing insights on the use of ST and 'cognitive jigs' used when mapping in Plectica (ST software). Details pertaining to qualitative data collection, sampling methods, and data analysis are presented, followed by discussion of associated limitations.

Chapter 4: Presents the outcomes of TA of interviews in terms of overarching themes, categories contained within said themes, and codes comprising the categories. Outlines of themes and categories identified are accompanied and illustrated by relevant quotes by participants.

Chapter 5: Contains a comprehensive discussion of the results presented in Chapter 4, with appropriate reference to the literature. The discussion is accompanied and facilitated by the conceptual model created through Plectica, created based on the findings of this study.

Chapter 6: Summarizes concluding remarks and presents recommendations for future research and for EIA practice.

2. Literature Review

This chapter provides an overview of the topic of study, EIA and SS, through relevant literature varying from academic papers, case law, and 'grey' literature (i.e. government documents). The chapter commences with an overview of EIA in terms of its definitions, origins, the process itself, and prominent themes discussed in the literature, such as effectiveness. The issue of SS is then presented with definitions and distinctions between varying types of SS, its observed occurrence, and examples identified within the literature, case law, and cases specific to the Maltese context. Finally, existing methods of SS prevention and good practices conducive to eliminating SS occurrence are presented.

2.1 Environmental Impact Assessment (EIA)

2.1.1 Definitions of EIA

Examining existing definitions of EIA, as noted by Morrison-Saunders (2018), is a significant step in establishing the importance and understanding the purpose of this process. Cashmore et al. (2004b) described EIA as a tool and process specifically employed for projects to identify environmental impacts with the aim of informing better decision-making (prior to initiation of the development), and to ensure minimisation, avoidance, or mitigation of foreseeable impacts. In addition to this, Morrison-Saunders (2018) highlights EIA as being comprised of scientific, administrative, political, social, and legal aspects, making it inherently multi-dimensional in nature, while Partidario (2012) identifies it as a dual-natured technical and procedural tool, and Cashmore (2004a) notes the combination of science and arts aspects. Comparable to Cashmore et al. (2004b), and with particular reference to the process emerging from the NEPA in the USA, Morgan (2012, p.1) defines EIA as:

"…the essential idea of assessing proposed actions for their likely implications for all aspects of the environment, from social through to biophysical, before decisions are made to commit to those actions and developing appropriate responses to the issues identified in that assessment."

Similarly, the International Association for Impact Assessment (IAIA) reiterates the identification, prediction, and mitigation elements of EIA, likewise noting biophysical factors and additionally referring to social and other relevant effects inflicted by a proposed development. In tandem, Beanlands and Dunker (1983) include potential social, as well as economic impacts, of proposed developments within the context of EIA. The importance of integrating social, economic, and cultural dimensions with the biophysical is further emphasized by Partidario et al. (2012) and Gibson (1992), with the latter calling for the need of a broader definition of 'environment' which highlights all the aforementioned factors and their interrelations.

The characteristics of EIA being an *a priori* assessment of the environmental implications of a development and a tool aimed at reducing such repercussions are thus common and notable themes among most definitions in the literature (e.g. Cashmore et al., 2004b; Glasson & Therivel, 2013; IAIA, 2009; Morgan, 1998; Noble, 2020). It is also worth noting the recognition of EIA as a 'process', characterised by Glasson and Therivel (2013) as a systematic one with particular emphasis on prevention, which can be linked to a fundamental principle of environmental law, science, and management discussed by Kingston et al. (2017) known as the precautionary principle. In addition to being identified as a process, some have also labelled EIA as a tool or instrument with particular reference to sustainable development (Morrison-Saunders, 2018; Partidario, 2012). Furthermore, others have identified EIA as a 'technical-rational model' of decision-making based on underlying principles of technical information prior to approval, relating again to the principle of precaution (Cashmore, 2004a; Noble, 2020; Partidario, 2012). Despite the several definitions referred to, there remains no single and universal definition of EIA, although what can be ascertained is the assessment carried out is that for a 'proposal' which is a broad term representing a variety of applications such as 'developments' and 'projects' (Morrison-Saunders, 2018). On this note, Petts (1999) highlights the distinctive nature of EIA due to the variety of definitions of environment and development and attributes this characteristic to a lack of uniformity among EIA systems, which Morgan (1998) supports by referring to the necessity of reflecting local and cultural scenarios and factors when applying EIA. However, it is worth noting that

the EIA Directive Article 1 (2)(a) provides a definition for the term 'project' as "the execution of construction works or of other installations or schemes, [as well as] other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources".

2.1.2 Origins

The notion of environmental assessment and EIA is believed to have originated in the Unites States as a result of the NEPA which was transposed into law in 1970, stemming from growing awareness on the relationship between environmental change and intense industrial and economic pressures (Glasson & Therivel, 2013; Morgan, 2012; Morrison-Saunders, 2018; Noble, 2020). A Directive issued by the Council of the European Economic Community (EEC) (the progenitor of the EU) in 1985 acted as the impetus for EIA application in the EU, with the process gradually adopted worldwide (Glasson & Therivel, 2013). EIA was introduced in the EEC through Directive 85/337/EEC (original EIA Directive), which was amended three times and codified by Directive 2011/92/EU, with its fourth and latest amendment in 2014. This Directive was deemed essential in institutionalising and assessing potential negative environmental implications of EU-wide developments *a priori*, and providing a foundation for designing projects, with the scope of EIA continuously widening (Glasson & Therivel, 2013; Jiricka, & Pröbstl, 2009; Morrison-Saunders, 2018).

2.1.3 The EIA Directive: scope and vagueness

As previously noted, the EIA Directive first came into force in the EU in 1985 with several updates in the following years to incorporate fundamental principles such as that of precaution, prevention, rectification, and polluter pays (Van Calster & Reins, 2017). The scope and purpose are identified in Article 2(1) of the Directive and essentially entail that Member States (MS) should "adopt all necessary measures to ensure that, before development consent is given, projects likely to have significant effects on the environment by virtue of their…nature, size or location are made subject to a requirement for development consent…" (Kingston et al., 2017, p. 386). While the scope of EIA has been noted as continuously growing and widening by Glasson and Therivel (2013), others such as Arabadjieva (2017) have observed its

persistent vagueness and openness to discretion. This is discussed by Arabadjieva (2017), with reference to work by Endicott (1997) on vagueness in legal theory, whereby 'vagueness' refers to the clear application of legal standards in some cases but lack of clarity in others, which is identified to be the case for Article 2(1). One specific example discussed is that of determining 'significant' environmental impact which allows for wide discretionary judgement for decision makers when considering Annex II projects (Arabadjieva, 2017), whereby clarity in one case and lack in another described by Endicott (1997) is evident for Annex I and II, respectively.

2.1.4 The EIA procedure

EIA is defined as a process which is systematic and iterative and thus is comprised of several steps (Glasson & Therivel, 2013; Kingston et al., 2017), as illustrated in Figure 2.1. Under the Directive itself, the procedure is clearly split into four stages. The preliminary stage involves a screening phase in which the need, or lack thereof, for an EIA is determined through Articles 2(1), with projects under Annex I automatically deemed as having significant environmental impacts and requiring an EIA, while those under Annex II are subject to further examination by MSs through two potential screening approaches, namely case-by-case analysis or threshold criteria (notable exceptions include projects serving national defence purposes and civil emergency projects) (Arabadjieva, 2017; EC, 2015; Glasson et al., 2013; Van Calster & reins, 2017). According to the EC (2015), reference to rulings of the European Court of Justice (ECJ) is recommended for the interpretation of Annex I and II projects and for understanding the term 'project' itself. The advantages and disadvantages associated with the two screening approaches noted are discussed in greater detail in Section 2.2.3.

The second stage following screening, for projects subject to an EIA, is scoping, which is where significant environmental impacts (environmental, social, and economic) associated with the proposed development are identified, together with relevant information relating to environmental features at risk of negative implications and accompanying potential alternatives that should be addressed (i.e. the extent of the study) (EC, 2015; Glasson & Therivel, 2013; Manitoba Law Reform Commission, 2014, Van Claster & Reins, 2017). Enríquez-de-Salamanca (2021) frames the scoping phase

as a filter since it establishes the level of detail expected in the EIA report and identifies environmental concerns at an early stage, which is especially crucial for protected and sensitive areas, areas of archaeological or historical value, those containing important biodiversity, and areas facing water scarcity. The importance of this stage and its acknowledgement as perhaps one of the most significant aspects of EIA is further emphasised by the Manitoba Law Reform Commission (2014). Expectations from proponents and practitioners when carrying out the EIA (i.e. description of the project, major issues and likely impacts identified through scoping, expected commencement date and time limit, budget limit, and reporting requirements) are established namely through the Terms of Reference (TOR) (Ogola, 2007). Additionally, baseline data collection may be conducted during the scoping stage, whereby background information on biophysical, social, and economic aspects of the area proposed for development is compiled with the aim of providing a description of the current status of the area to be compared to expected changes and evaluated in terms of significance, and for the purpose of monitoring following implementation of the project to identify actual change (Ogola, 2007). Said baseline data subsequently contributes to the prediction of impacts, which are described both in quantitative and qualitative terms, and in determining the magnitude, extent, duration, and significance of impacts. As noted by Ogola (2007), several methodologies exist for impact prediction which can be based on the following: experiments or tests, economic valuation, risk assessment, physical or visual analysis, mathematical models, past experience, or professional judgement.

The third stage is the presentation of the EIA report by the project proponent covering the information established in the preceding stage, ensued by consultation with stakeholders, such as authorities and the public, on the report produced and the proposed development (Arabadjieva, 2017; Van Claster & Reins, 2017). According to Annex IV of Directive 2014/52/EU (EC, 2014) the EIA report should, in brief, be comprised of a description of the project, a description of reasonable alternatives relevant to the project proposed by the developer, a baseline scenario, a description of factors likely to be significantly influenced by the proposed project (i.e. human health, biodiversity, soil, water, material assets, among others), a description of the

likely effects emanating from factors such as construction, demolition, emission, cumulation of effects among others, a description of evidence and forecasting used to analyse significant effects, a description of measures envisaged for the avoidance, prevention, reduction, and offsetting of significant effects accompanied by monitoring programmes, a non-technical summary, and a reference list. Requirements for compilation of an EIA report in the MI are outlined in subsidiary legislation on EIA Regulations (S.L. 549.46) and summarised by the competent authority for EIA, the Environment and Resources Authority (ERA) as 1) a coordinated assessment report assessing the project in its entirety, 2) a separate Appendix containing technical studies and survey reports, 3) a separate non-technical summary of the EIA both in Maltese and English, 4) a declaration of conformity in terms of consultants, contributors, and conflict of interests, and 5) feedback received from stakeholders, the public, and ERA during consultation stages and how this was addressed (ERA, 2019). The 'final' stage of EIA pertains to decision-making wherein all relevant material (i.e., the EIA report, public consultation & other material responses) is taken into consideration by the competent authority (Arabadjieva, 2017; Glasson & Therivel, 2013). While the Directive identifies four distinct stages, other such as Glasson and Therivel (2013) list a total of 15 steps, although they clarify that these should be considered in a cyclical manner as opposed to linear, additionally highlighting the international variations in the process and order of steps in EIA.

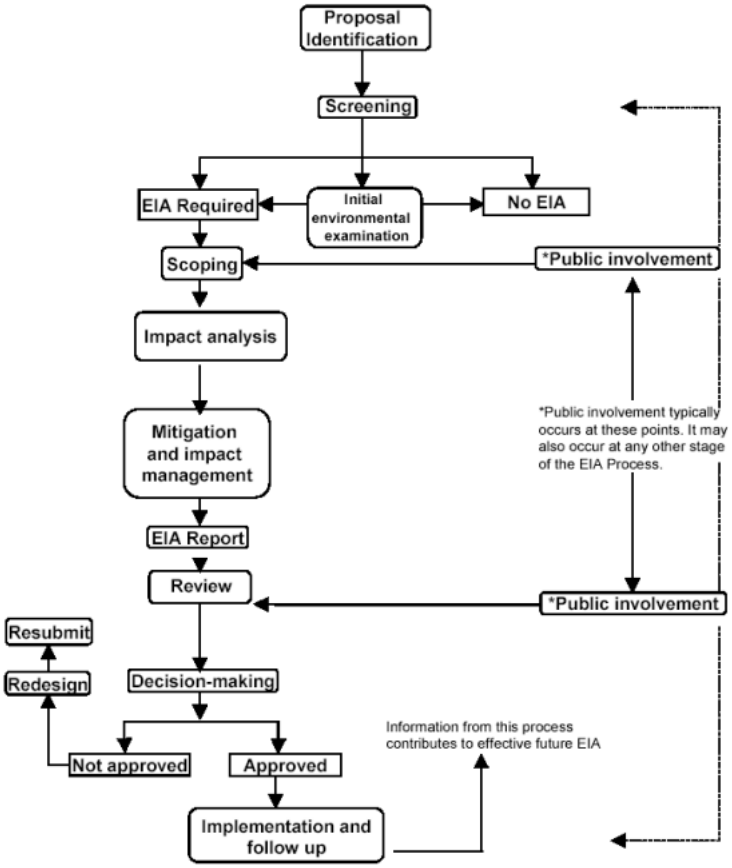

Figure 2. 1 Generalized EIA process (Ogola, 2007, p. 6).

2.1.5 EIA procedures in different jurisdictions

In tandem with Glasson and Therivel's (2013) views on disparity in the EIA process, Enríquez-de-Salamanca (2021b) analyses 55 EIA processes across an international context (25 jurisdictions), focusing particularly on the streamlining and simplification of the EIA process, with findings summarised in Table 2.1. An observation from this analysis notes the components essential to an EIA process, namely, the compilation of an EIA report, universal public participation, direction by government agencies, technical documents, and the process being formal and regulated. Other noteworthy results emerging from this study identify that approximately half of the cases studied (50.8%) entailed a 'formal' screening stage (involving the submission of a preliminary report), while the other half (49.2%) utilise 'non-formal' screening such as lists and thresholds. When screening stages are non-formal (carried out by the developers themselves) Enríquez-de-Salamanca (2021b) notes that the result is 'simplified EIA' due to lack of public participation and external involvement, thus resulting in

elimination of the remainder of the EIA process. This case mirrors a similar issue identified by Kirchhoff et al. (2007) in Brazil where Preliminary Environmental Reports (PERs) were introduced with the intent of replacing EIA to improve time efficiency for environmental licensing.

In terms of formal scoping, this stage appears to be voluntary particularly in EU cases, despite its previously established importance (Enríquez-de-Salamanca, 2021; Manitoba Law Reform Commission, 2014). Despite the importance of public participation indicated by Glasson and Therivel (2013) and Ogola (2007) in the EIA process (Figure 2.1), Enríquez-de-Salamanca (2021) observed 28.6% of the processes as disregarding public participation. On a similar note, public involvement is noted to be absent in the Netherlands during the preliminary stages of planning up until the EIA Report is completed by developers and professional consultants and following the consideration of alternatives, neglecting a formal scoping stage with public consultation (Enserink, 2000). Overall, Enríquez-de-Salamanca (2021) observes that simplified EIA processes lacking public participation (non-existent or limited) experience a greater percentage of problems (77%), while ordinary EIA processes without a formal scoping stage (or a voluntary one) and at times in the case of limited public participation, experience problems almost half of the time (45%) (Enríquez-de-Salamanca, 2021).

Table 2. 1 EIA procedures across different jurisdictions synthesised by Enríquez-de-Salamanca (2021b), whereby Sc = formal screening, V = voluntary formal scoping, C = compulsory formal scoping, P = preliminary EIA report, O = Ordinary EIA report, L = participation limited to some stakeholders, P = open to public, N = need of EIA, A = approval, Sc = screening, S = simplified EIA, O = ordinary EIA, and the green indicated non-problematic stages while red indicates problematic processes.

Jurisdiction	Process name	Sc	Scoping		Documents		Participation		Resolution		Process type		
			V	C	P	O	L	P	N	A	Sc	S	O
Australia: NSW[1]	Env. Imp. Statement												
Australia: NT[2]	Referral												
	Suppl. Env. Report												
	Env. Imp. Statement												
Australia: WA[3]	Referral												
	Assessment												
Canada[4]	Initial Proj. Description												
	Env. Imp. Statement												
Chile[5]	Env. Imp. Statement							b				c	
	Env. Imp. Study												d
China[6]	Little effects				a							c, e	
	Mild effects											c	
	High effects												d
Egypt[7]	Category A				a							c, e	
	Category B											c	
	Category C												d
EU: General[8]	Discretionary												
	Mandatory												f
EU: Estonia[9]	Initiation												
	EIA												f
EU: Germany[10]	Preliminary												
	Full												f
EU: Spain[11]	Simplified												
	Ordinary												f
Inter-American Develop. Bank[12]	Category A												g
	Category B											g	
India[13]	Category A												
	Category B1												
	Category B2											c	
Irán[14]	EIA												c, d
Japan[15]	Class 2												
	Class 1												
Kenya[16]	Project report												
	EIA												
Mexico[17]	Preventive report											c	
	Regional EIA							b					c, d
	Particular EIA							b					c, d
Nepal[18]	Initial Env. Examination												
	EIA												
New Zealand[19]	Assess. Env. Effects												d
Peru[20]	Cat. 1 EIS						b					c	
	Cat. 2 Detailed EIA						b						
	Cat. 3 Semi-detailed EIA						b						
South Africa[21]	Basic assessment												
	EIA												
Thailand[22]	Initial Env. Examination												
	EIA												
	Env. Health Imp. Asses.												
Turkey[23]	Annex II												
	Annex I												
United States[24]	Categorical Exclusion												
	Env. Assessment												
	Env. Imp. Statement												
World Bank[25]	Category A												g
	Category B											g	

2.1.6 EIA in Malta

The Directive and its amendment (2014/52/EU) were transposed into Maltese Legislation through Subsidiary Legislation 549.46, with EIA regulations introduced in the MI in 1991 through the enactment of the Environment Protection Act, and initiation of EIAs in 1993 (Galea, 2004; Ghita, 2020). According to a personal interview conducted by Ghita (2020) with a member of the Maltese Environmental Assessment Unit, prior to the 2017 amendment of the Directive, scoping was lengthy and less efficient with longer public consultation periods and EIA available only in hard copies. Additionally, prior to 2016, the Malta Environmental and Planning Authority (MEPA) was the body responsible for EIA, while ERA is now responsible for this process (ERA, 2023; Ghita, 2020; Sciberras, 2013). The impetus for EIA procedures in Malta was provided by Wagner (1993), a UN consultant, through the compilation of guidelines in a document titled 'Environmental Impact Assessment Procedures in Malta' issued by the Ministry for the Environment. In addition to this, a report titled 'Environmental Impact Assessment in Malta: Policy and Design Guidelines' provided further guidance for developers and other stakeholders by explaining details such as when EIA is needed, developer responsibilities, and content of an EIA Report (Galea, 2004). The aforementioned, while largely compliant with the EU EIA Directive, were then superseded by the new EIA regulations (LN 204 of 2001) (Axiak et al., 2002). According to Axiak et al. (2002), the new regulations were robust and exceeded requirements of the EU Directive by setting more stringent thresholds given the small size of the MI, particularly when concerning proposals for quarries, husbandry farms, and power stations. Furthermore, the new regulations were better aligned with the Espoo Convention and provisions of the Aarhus Convention (i.e., on public participation) (Figure 2.2). The current procedure and vetting carried out by ERA, should a project qualify for an EIA or further screening, entails the requirement of a Project Description Statement (PDS) whereby the project proposal is described alongside onsite operations and a preliminary assessment of environmental impacts (ERA, 2022). This is followed by the request for a full EIA if the project falls within Category I of Schedule I (S.L. 549.46) while those within Category II undergo detailed screening based on EC guidelines, subsequently leading to a decision by the competent authority (ERA, 2022)

on whether the project requires an EIA. ERA may at is discretion decide to take the decision during a public hearing.

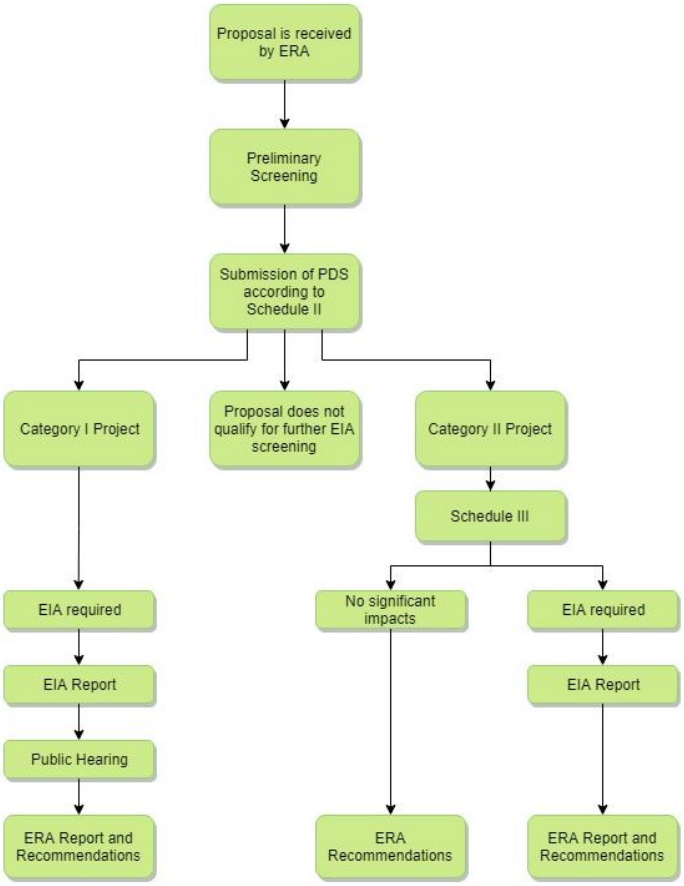

Figure 2. 2 EIA process in Malta (ERA, 2023).

2.1.7 EIA effectiveness

A notable amount of literature revolves around the theme of 'effectiveness' of EIA and its application both as an environmental management tool in general and in different local contexts (i.e. Arts et al., 2016; Cashmore et al., 2004b; Lhyne et al., 2017; Loomis & Dziedzic, 2018; Pölönen et al., 2011; Sadler, 1996; Sciberras, 2013; Wilson et al., 2017). Petts (1999) describes 'effectiveness' according to Sadler's definition (1996, p. 37), specifically as something which works as intended and meets its design purpose. According to Loomis and Dziedzic (2018) in their evaluation of 64 studies for EIA systems, the term 'effectiveness' can be delineated into four dimensions, namely procedural, transactive, normative, and substantive (Table 2.2), with much of the

literature originating from Europe and Asia, and only few from North America (where EIA originated), South America, and Australia. The procedural aspect of effectiveness was noted as the most discussed although multidimensional studies were also identified, while the need for further research on the substantive contributions of EIA is highlighted, particularly for empirical measurement of the direct influence that EIA has on decision-making (Loomis & Dziedzic, 2018).

Table 2. 2 The four facets of EIA effectiveness and their respective explications, modified from Loomis and Dziedzic (2018).

Dimension	*Explication*
Procedural	• Policy and institutional infrastructure • Level of adherence to applicable regulations (federal, state, and local) • Focused on actual practices
Substantive	• Degree to which EIA mitigates negative environmental impacts • Degree to which EIA affects the decision-making progress • Attainment of EIA policy objectives
Transactive	• Degree to which EIA avoids delays and cost overturns • Clarity of stakeholder roles • Personnel with adequate skills readily available
Normative	• Level of wider goal or policy achievements, e.g., sustainable development and a democratic participatory process • Minimizing trade-offs

Substantive effectiveness

The 'substantive' aspect noted by Loomis and Dziedzic (2018) was explored by Cashmore et al. (2004b) and the importance of assessing substantive outcome as well as the current lack of related research was likewise underlined; however, it was considered difficult to determine definable outcomes and, for example, whether the decision of approval of a development is truly correct. On a similar note, Emmelin (2006) highlights the variety of claims in the literature pertaining to the effect of EIA on sustainable development and environmental protection, with some identifying the process to be a success and others identifying system deficiencies such as the lack of functionality of alternatives and uncertainty with regards to what is being evaluated.

Petts (1999, p.5) expressed similar apprehensions, stating that it is questionable whether EIA is "fulfilling potential or wasting opportunity". Key questions in a process contributing to sustainable development thus entail whether alternatives are properly identified and analysed, as well as whether the project in question has undergone alterations as a result of the process, which reflects whether the process has indeed contributed to improving environmental quality, with much literature existing on this topic (i.e. Geneletti, 2014; Jalava et al., 2010; Jiricka-Pürrer et al., 2018; Kruopienė et al., 2009; Rathi, 2022).

Public participation in relation to EIA effectiveness

Effectiveness of EIA and the role of public participation are explored in several contexts; for example, Lhyne et al. (2017) address EIA effectiveness in Denmark and aim to contribute to theory-building within this area of research by evaluating substantive effectiveness through a survey with Danish EIA practitioners. It was determined through a nation-wide survey and expert interviews that when EIA reporting is carried out by the competent authority, as is the case in Denmark, EIA effectiveness is greater. It was also observed that almost half of the survey respondents (46%) perceived public participation as being of 'high' or 'very high' importance for EIA effectiveness, in particular, for its substantive effectiveness (Lhyne et al., 2017). The issue of effective EIA implementation and weak public participation resurfaces in the MI, as Sciberras (2013) notes public participation to be limited namely due to a reluctance to consider the public's concerns and due to infringements relating to public accessibility to information.

Arts et al. (2016) explored EIA effectiveness in the Netherlands and the UK through a combination of literature review, surveys with EIA actors, and interviews with EIA experts, thus their evaluation was based primarily on perceptions of individuals in the field. As opposed to Lhyne et al.'s (2017) emphasis on strengthening public participation and subsequently EIA effectiveness, Arts et al. (2016) did not observe reduced environmental awareness in decision-making as a result of deficient public participation and consultation provisions within the UK. Meanwhile in the Netherlands, public participation is not viewed as highly influential for EIA and

consideration of alternatives is considered more influential and essential to EIA effectiveness (Arts et al., 2016). Additionally, Pölönen et al. (2010) conclude that the main constraint to effective EIA is not inadequate public participation, rather, insufficient mechanisms for monitoring following EIA, subsequently recommending strengthened legal provisions on decision-making for improving Finnish EIA.

Procedural effectiveness and practice of EIA

An important source on the effectiveness of EIA implementation among MSs is a report published by the EC (2003) in which best practices and weak commitments are highlighted. The principle of subsidiarity appeared to be well applied in transposition of EIA; particularly in screening and scoping, the split between projects in Annex I and Annex II has been tackled by the traffic light approach (See Section 2.2.6.1), and MSs seem to be increasingly aware of the issue of SS and the importance of cumulative impacts and assessment of changes and extensions, with many endorsing appropriate procedures and practices (EC, 2003). In terms of weaknesses, these primarily revolved around the disparity in thresholds and screening procedures among MSs, with little evidence of screening in certain instances and exclusion of public participation at this stage. Furthermore, an apparent lack of scoping and weak assessment on the quality and completeness of EIA was identified, along with room for improvement of formal and informal public participation. Other key information gaps were identified in relation to SS and cumulative impacts (EC, 2003). Morgan (2012) discussed similar points in his SWOT framework of EIA following a review of EIA literature, notably reiterating the concern of the quality of EIA, attributing concerns over poor quality to low levels of commitment by proponents and poor decisions, highlighting a gap between what is expected to be best practice and actual application of EIA. Opposing observations on increased awareness of cumulative impacts noted by the EC (2003), Sciberras (2013) observes that cumulative impact assessment as executed within the MI is perceived as generally ineffective by EIA practitioners and especially by NGO interviewees. Said participants highlight the complete disregard of cumulative impacts in compilation of the Maltese Local Plans (LPs) and suggest that cumulative impact assessments are taken into account throughout the whole decision-making

process as otherwise, should EIAs of multiple projects be considered individually, cumulative impacts are at risk of being disregarded (Sciberras, 2013).

2.2 Salami-slicing

2.2.1 Definitions of Salami-slicing

The EIA process, being comprised of scientific, administrative, political, social, and legal aspects, is inherently multi-dimensional (Morrison-Saunders, 2018); however, its effectiveness, transparency, and legal aspect were noted in a review by the European Commission (2009) to be impeded by an issue widely referred to as SS. This term is often used interchangeably with project 'fragmentation', 'splitting', and 'division', and has been defined in the literature as splitting a project into two or more components which, separately, are not deemed to require an EIA during the process of screening; however, when considered collectively these would have significant environmental impact and necessitate appropriate assessment; or the practice whereby a project which initially did not exceed the EIA threshold is permitted and later subjected to extensions which exceed limitations (EC, 2009; Enríquez-de-Salamanca, 2016; Morrison-Saunders, 2018). In tandem with the latter, cases of SS have often been linked by MSs to consideration of 'changes and extensions' to projects and cumulative impacts (EC, 2009). In Maltese Legislation S.L. 549.46 (the Environmental Impact Assessment Regulations), the act of SS is referred to specifically as project fragmentation, meaning "piecemeal splitting of a project into smaller developments, such that the proper comprehensive evaluation of the overall project and its environmental impacts is impeded…".

2.2.2 Types of Salami-slicing

The European Commission identifies four types of SS: a) territory slicing, b) developer slicing, c) slicing in time, and d) slicing of modifications. The EC (2009) defines the first a) as resulting from activity on two neighbouring pieces of land by the same developer, the second b) as the division of projects into two parts and operating them in two separate locations generally belonging to different owners who are typically, however, closely related to each other, the third c) resulting from initiation of a

development below thresholds and not requiring an EIA with extensions submitted later on that would then collectively exceed thresholds, and fourth d) involving the avoidance of a new EIA when significant modifications are required by splitting these into smaller modifications. The third type (slicing in time) is briefly discussed by Enríquez-de-Salamanca (2016) in a systematic analysis of the different types of manipulation potentially used by stakeholders during EIAs, as a form of manipulation categorized particularly under administrative manipulation of EIA.

2.2.3 Occurrence of Salami-slicing: Screening and proponents' intentionality

Concerningly, studies have shown that the screening phase in particular witnesses the most instances of EIA circumvention through SS with the EC (2009) noting it as a means for the developer to facilitate project approval and abuse their discretion relating to Annex II. In tandem, Enríquez-de-Salamanca (2018) notes the occurrence of SS issues associated with the screening phase, recognizing the splitting of a project into homogeneous (e.g. dividing a road section into several smaller projects) or heterogeneous parts as a form of stakeholders' administrative manipulation. Conversely, Nielsen et al. (2005) identified positive changes through investigation of 98 EIA screenings combined with interviews with developers and consultants in Denmark, noting that approximately 45% of projects (mainly livestock projects) had been adjusted (the nature of changes varied from reduced size, location of the project, type of technology/machinery used) prior to, or during the process, or following dialog with developers and the authority concerned with EIA. Empirical quantitative research conducted by Bidstrup (2017) explores what Nielsen et al. (2005) referred to previously as 'dialog', and refers to it as 'grey IA', described as the process in which IA is discussed informally with stakeholders during or before the process of screening and whereby project proposals are adjusted with the intent of saving resources by avoiding EIA, motivated by an economic rationale. The prevalence and influence of 'grey' IA was investigated through a questionnaire conducted among 121 practitioners within the field of both EIA and SEA; however, contrasting Nielsen et al.'s (2005) observations, it was concluded that this practice is a common occurrence which weakens EIA effectiveness, although this may depend on the practitioners' rationale, which could alternatively be that referred to as 'green' (Bidstrup, 2017). 'Green'

rationale is discussed by Bidstrup (2017) as the facilitation and improvement of developments through early dialogue, whereby significant impacts are reduced and resources are saved; thus, as opposed to saving economic resources, this rationale is motivated by pro-active environmental improvement and resonates with the positive change noted by Nielsen et al. (2005). Therefore, Bidstrup (2017) established that the influence of 'grey' IA on the overall effectiveness of the screening process was dependent on the rationale behind the occurrence. Martin and Morrison-Saunders (2015) also investigated informal strategic advice in Western Australia; however, as opposed to observations made by Bidstrup (2017) in the Danish context, this was framed as a means to complement formal EIA and not as a potential mode of avoidance, despite that one of the perceived benefits noted by respondents (EIA practitioners) of such a strategy was to "avoid need for formal assessment". Thus, according to Martin and Morrison-Saunders (2015), when informal discussions (Western Australian context) occurring prior to proposal submission are based on the green rationale, discussed further by Bidstrup (2017), they are recognized as contributing to earlier planning and consideration of alternatives leading to better outcomes.

On this note, the literature identifies that while project splitting can be premeditated (intentional), as previously noted, it may also be involuntary i.e. as a result of unanticipated changes (Bidstrup, 2017; Enríquez-de-Salamanca, 2018). While intentionality is generally of little significance in these instances, it is important from a judiciary point of view (Marsden, 2011). As opposed to Bidstrup's (2017) beliefs on rationale, whereby changes prior to EIA were perceived to be attributed to potential instances of SS and posed a threat to its effectiveness, Nielsen et al. (2005) frame such changes resulting from screening more positively, complementing Martin and Morrison-Saunders (2015), and as a tool for prevention of environmental pollution. On the topic of rationale and intentions, Morrison-Saunders (2018) discusses types of project proponents who, as defined by Noble (2020), are the parties (may be private, government entities, or a partnership of both) proposing the development and responsible for its "implementation, operations, and impact management". Morrison-Saunders (2018) notes that different types of proponents and their perceptions

towards EIA may result in project splitting; for example, a proponent who views EIA as an “administrative hurdle” takes a different approach to an “enlightened” proponent who applies a sustainability-oriented approach at the early stages of the development proposal by consulting with stakeholders and investigating alternatives for locations and designs. Weston (2011) observed a “culture of resistance” to EIA particularly among planners in England who used the previously mentioned discretion allowed by this Directive in their decision-making to avoid an EIA. Similarly, Wood and Becker (2005) observe that discretionary judgement and decision-making during screening and concerning identification of significant impacts can lead to serious inconsistencies when determining when an EIA is required and henceforth in environmental protection and land-use planning.

Additionally, the approach employed for screening has been noted as an influencing factor. Two approaches are identified in the literature, namely, threshold values (which is development-centred), and case-by-case analysis (environmental-centred) (Enríquez-de-Salamanca, 2018; Jiricka, & Pröbstl, 2009; Morrison-Saunders, 2018). The former applies the use of screening lists to determine which development types require an EIA, also referred to as ‘inclusion lists’, based on the size of the activity proposed, with examples such as number of animals in an intensive farming operation or tonnes per annum of chemicals manufactured in a factory (Morrison-Saunders, 2018; Noble, 2015). The latter prioritises pre-established environmental values and anticipates the requirement for an EIA for almost all types of development where particularly sensitive environments and communities are threatened or for an area with protection status (e.g. heritage classification) (Morrison-Saunders, 2018). The advantages and disadvantages of both approaches are respectively summarised by Glasson and Thievel (2013) and displayed in Table 2.3.

Table 2. 3 Thresholds vs. Case-by-case analysis screening approaches: advantages and disadvantages (Glasson &Thievel, 2013, pp. 84).

Advantages	**Disadvantages**
Thresholds	
Simple to use	Place arbitrary, inflexible rules on a variable environment (unless tiered)
Quick to use; more certainty	Less room for common sense or good judgement
Consistent between locations	May be or become inconsistent with relevant neighbours
Consistent between decisions within locations	Difficult to set and, once set, difficult to change
Consistent between project types	Lead to a proliferation of projects lying just below the thresholds
Case-by-case	
Allows common sense and good judgement	Likely to be complex and ambiguous
Flexible – can incorporate variety in project and environment	Likely to be slow and costly
Can evolve (and improve) easily	Open to abuse by decision-makers because of political or financial interests
	Open to poor judgement of decision-makers and likely to be swayed by precedent and therefore lose flexibility

Screening thresholds, namely inclusion and exclusion thresholds, were noted in another study by Weston (2004) as subject to the discretion provided by EIA and as contributors to weakening its overall effectiveness. Additionally, Pinho et al. (2010) identify the main weaknesses of thresholds as potential exclusion of projects which may have significant impacts, and unnecessary inclusion of projects which do not require an EIA. Exclusion thresholds have been noted as the main facilitators for threshold exceedance as they allow developers to apply for developments below thresholds to later be exceeded through request for an extension once the project is operational (Noble, 2020; Weston, 2004). As defined by the EC (2003), exclusion thresholds are parameters that exempt a project from an EIA, namely projects below a given size or based on particular locational characteristics, while inclusion thresholds identify projects requiring a mandatory EIA if they are of a certain size or have particular locational factors. An example of the discretion allowed by the Directive in this regard is provided by the EC (2003), specifically referring to inclusion thresholds on turbines in the Dutch system which allows for development of less than 10 turbines without the need for an EIA; once the project is operational an extension may be

granted to exceed the original size. However, despite the project as a whole then requiring an EIA in principle, as it exceeds the thresholds, the request for an extension to a within-threshold project leads to the EIA requirement being circumvented. The drawbacks of such lists are discussed further by Morrison-Saunders (2018), particularly that some new forms of development excluded from the list may still have significant adverse environmental impacts while others that trigger an EIA may be situated in a low-value environmental setting or may have adopted suitable and sustainable designs that minimise their environmental impact. Thus, this approach tends to overlook the actual quality of the development and instead facilitates project splitting by encouraging proponents to submit several smaller-scale projects below thresholds and later apply for changes or extensions (Noble, 2020) with additional examples discussed further in Section 2.2.5. An amendment was introduced by Directive 97/11/EC, which made EIA a requirement for changes and extensions that were expected to inflict negative environmental impacts (Annex II, 13). While this was central to environmental policy principles, Weston (2004) notes its weak application in practice, particularly in the UK.

A combined (hybrid) approach (Table 2.4) is considered to be ideal, as the development-centred approach has been linked to the SS tactic, which ultimately influences alternatives and their wider scope, underestimating environmental impacts and the provision of adequate mitigation measures (Enríquez-de-Salamanca, 2018; Jiricka & Pröbstl, 2009; Morrison-Saunders, 2018; Noble, 2020). This approach involves an initial screening list for developments triggering an EIA but excludes specific size thresholds and therefore allows for a discretionary case-by-case decision that considers both the scale and effect on environmental resources (Morrison-Saunders, 2018; Noble, 2020). According to Pinho et al. (2010), most EU countries use a combination of both screening tools (case-by-case & thresholds) in one of three instances: for projects 1) falling below thresholds, 2) lying in between inclusion and exclusion thresholds, or 3) falling within descriptive lists. However, case-by-case analysis for all project types is employed by very few MSs, according to an EC report (EC, 2003). An example of the significant variations in threshold values across different European countries is discussed by Jiricka and Pröbstl (2009), specifically in alpine

countries such as Austria and Germany and in relation to hotels, whereby thresholds in the former are almost double those of the latter despite most of these hotels being developed in sensitive environments. Such national and regional differences lead to complications, particularly in cases of cross-border projects. Pinho et al. (2010) likewise highlight that while the Directive presents a common screening approach for Member States, there are inevitably differences in screening practices across EU countries which they proceed to characterize and present conventional solutions which would specifically tackle SS, such as introducing Strategic Environmental Assessment (SEA), improving EIA training, and opting for case-by-case analysis rather than thresholds, as also noted by Enríquez-de-Salamanca (2016). Additionally, interpreting the term 'project' as the development for which consent is being sought, without considering linkages with other existing, approved, or planned developments (including the infrastructure that services *inter alia* the project) could also lead to only partial consideration of the project's effects on the environment and hence a less effective assessment. This practice can thus be construed as "project splitting" even though it is not driven by the intention to completely avert assessment.

Table 2. 4 Hybrid screening model (Noble, 2020).

Inclusion threshold	**EIA always required**
[EIA more likely to be required, but test remains likelihood of significant adverse effect]	
Case-by-case consideration	**Indicative threshold**
[EIA less likely to be required, but test remains likelihood of significant adverse effect]	
EIA not required	**Exclusion threshold (except projects in sensitive areas)**

2.2.4 Projects susceptible to splitting

As established in Section 2.2.3 the development-centred approach of thresholds can increase instances of project splitting and favours projects that do not exceed them (Enríquez-de-Salamanca, 2016). It is therefore observed that certain project types can be split into homogenous or heterogenous parts or can be designed in such a way that they are just below said thresholds, or may later be extended, generally with the

intention of avoiding EIA (Enríquez-de-Salamanca, 2016; Glasson & Therivel, 2013). Enríquez-de-Salamanca (2016) refers to this commonly occurring for projects relating to land use change, mining, livestock, dams, wind farms, and roads (see Table 2.5). A report by the EC (2009) containing results from surveys among both old and new MSs[1] also revealed cases in which SS was observed, namely for projects relating to pig farms and wind farm construction (Romania), poultry farms (Hungary and Romania), commercial/housing estates and heat production (Hungary), waste management (Hungary and Slovenia), petroleum product terminal (Estonia), for proposals relating to holiday villages, ski-runs and ski-lifts in Bulgaria, and for road constructions, high-ways, infrastructure projects and division of related plots in several MSs including Cyprus, Latvia, Poland, Romania, and the Czech Republic. Jaeger (2015) brings further attention to the deficiencies of EIAs concerning road projects, especially that the inappropriate splitting of cumulative effects and insufficient coverage of landscape-scale effects results in a poor-quality assessment. Therefore, ecological effects of roads are significantly underestimated when cumulative effects are not considered and when taking into account only the EIAs of single projects; thus, given these deficiencies it is rarely the case that such projects are not granted permission (Jaeger, 2015).

2.2.5 Salami-slicing cases

As noted by Enríquez-de-Salamanca (2016), case-law is perhaps one of the most fundamental sources on SS and is often referred to in related studies as it establishes administrative action, while other sources include studies on EIA effectiveness. Accordingly, this section will refer to SS instances as identified and described in case-law as well as in the literature, including instances in the Maltese context.

Case-studies in the literature

Much of the literature and case studies revolving around SS and screening are in a Danish context (i.e. Bidstrup, 2017; Christensen & Kørnøv, 2011; Christensen et al.,

[1] Old MSs included in the study: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom. The new EU Member States comprise the following 12 countries: Bulgaria, Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovenia, and Slovakia

2013; Nielsen et al., 2005), Spanish context (i.e. Enríquez-de-Salamanca, 2016), some are based in England (i.e. Glasson & Therivel, 2013; Weston, 2011), with others outside of the EU (i.e. Marsden, 2011). Referring to examples in the Danish context, Lhyne et al. (2017) analyse the effectiveness of the Danish EIA system through a nation-wide survey, which is unique particularly because the competent authority undertakes EIA reporting, as opposed to the project proponent, and whereby the public plays a more influential role in quality control. Government mechanisms such as legal requirements were perceived by respondents to be an important contributor to EIA effectiveness, with the survey also highlighting the preventative effect of EIA to be highly influential, especially when relating to intense animal farming; however, increased instances of SS as a result of legal requirements were also noted (Lhyneet al., 2017). Christensen (2006) discussed EIA and livestock projects in greater detail within the Danish context, particularly noting progress in addressing environmental effects through screening decisions over the years. Initially, the Nature Protection Board of Appeal (NPBA) in Denmark deemed a full EIA to be necessary on rare occasions; in 2000 a newly established committee introduced a 14-day processing time accompanied by a checklist of fundamental information to be provided by farmers relating to location and project content, with the character of planning zones and locations becoming particularly important in 2001 and areas designated as Natura 2000, having special protection, or classified as vulnerable, resulting in a requirement for an EIA (Christensen, 2006). During this period, cumulative impacts were disregarded, and Christensen (2006) notes such exclusions as a SS method; however, in following years the NPBA underlined that sufficient information on impacts is essential in making screening decisions, therefore, effects such as leaching from a farm into any protected areas, impacts on groundwater, and evaporation of ammonia should also be assessed and considered. Thus, while several EIA shortcomings are highlighted, Christensen (2006) also observes that expansion of considerations has resulted in more thorough screening decisions and improved quality and reliability.

Examples from ECJ Case-Law

According to the EC (2009), the majority of MSs had recorded national cases of SS with project types subject to splitting highlighted in Section 2.2.4. Case-law is referred to

specifically in studies such as that by Enríquez-de-Salamanca (2016), who analysed the main judgements of both EU and Spanish courts in relation to project splitting, summarised in Table 2.5. Much of the case-law in Spain notably revolves around wind farm projects. One of the European Court of Justice (ECJ) cases (C-205/08) listed refers to a transboundary issue in 2009, similar to that discussed by Marsden (2011), involving a project comprised of an overhead power line approximately 7.4 km long in Austrian territory and 41 km long in Italian territory. An EIA requirement was not triggered since the 15 km threshold was not exceeded in Austrian territory, despite the aim of the project being to connect the two grid networks. Nevertheless, the final court ruling specified that the purpose of Directive 85/337 cannot be circumvented by the splitting of projects and that the competent authorities of a MS must subject a project referred to in point 20 of Annex I to the Directive to the EIA procedure, even where the project is transboundary in nature (ECJ, 2009).

Other cases specific to the ECJ include Case C-142/07 (ECJ, 2008) concerning refurbishment and improvement works on the entirety of the Madrid urban ring road, referred to as the “Madrid calle 30”. SS was evident through the division of the project into 15 independents sub-projects which, if considered collectively, would substantially exceed thresholds as specified in Annex I point 7 (c) of the Directive. Additionally, it was clear from the order of reference that all 15 projects fell within the larger “Madrid calle 30” project and thus by virtue of their nature, size, location, and interaction with other projects, further EIA was deemed necessary (ECJ, 2008). Another example concerning infrastructure is Case C-560/08 (ECJ, 2011), in which Spain was deemed by the Court to have failed its obligations by separating projects for widening and upgrading sections of the M-501 road and by excluding the influence of cumulative effects of the project on the environment, exemplifying deficiencies highlighted by Jaeger (2015) concerning road projects.

Table 2. 5 EU and Spanish salami-slicing case-law synthesised by Enríquez-de-Salamanca (2016). ECJ referring to the European Court of Justice, NA referring to the National Audience of Spain, SC referring to the Supreme Court of Spain, and SCJ referring to the Spanish Regional Superior Courts of Justice.

Case and reference	Subject	Key issues
C-392/96 (ECJ)	Afforestation, peat extraction (Ireland)	It is unacceptable to set thresholds without ensuring that the purpose of the legislation is not circumvented by the splitting of the projects
C-227/01 (ECJ)	Railway (Spain)	EIA Directive could be compromised if it is only necessary to split up a project into shorter sections to exclude it from the requirements
780/2001 (NA)	Wind farm	Splitting up into several independent projects is not possible, because this division makes EIA ineffective
5814/2003 (SC)	Wind farm	It is impossible to divide the activity because of the unitary nature of the project, although it is located between two autonomous communities
727/2006 (NA)	Motorway	Splitting is due to budgetary reasons and implementation priorities, not to avoid the EIA
C-142/07 (ECJ)	Motorway (Spain)	Project divided into 15 subprojects under EIA thresholds. The judgement forced a further EIA
8757/2003 (SC)	Railway	No infringement found because there is no danger of successive project splitting to circumvent EIA
542/2006 (SC)	Motorway	There is no regulation that bans the splitting of projects in large-scale actions. the parts are submitted to EIA, not trying to avoid this process
C-205/08 (ECJ)	Powerline (Austria & Italy)	EIA directive cannot be circumvented by the splitting of projects. Failure to take into account cumulative effects of projects must not mean that they all cease to be covered by the obligation to carry out an assessment
767/2008 (SCJ)	Wind farm	The project is not a wind farm, but part of one, because it is not self-sufficient. the EIA must take into account the power line and substation, and the cumulative and synergistic effects of other existing facilities
473/2007 (SC)	Power substation	It is not possible to assume that any project must be processed together, because it would be impossible when due to size or cost it must be split. It shall be determined in each case if it is a fraudulent splitting or a legitimate partial action. the most important criteria is whether the splitting appears to be artificial, to avoid conditions, or respond to a progressive planning
7523/2005 (SC)	Road	Reject the objections about splitting because the project does not hide that it is part of a major infrastructure
1537/2007 (SCJ)	Wind farms	Studies of several isolated units are not the same as a study of a unitary wind farm. In the latter case, environmental effects could be larger
891/2007 (SCJ)	Wind farms	There is only one transformer station for all the turbine groups so it should be understood that all of them constitute a single wind farm
211/2008 (SCJ)	Wind farms	Discuss if a project has been split up into five parts. accesses are different and each wind farm has its own power line linking the turbines with the substation, so they are not split artificially, but motivated by the terrain
362/2008 (SCJ)	Wind farm	It has been split up into two parts, turbines and electric infrastructure
117/2010 (SCJ)	Wind farm	The inclusion of wind farms and power lines in different epigraphs of the EIA law does not mean that they should be assessed in a split manner

C-560/08 (ECJ)	Road (Spain)	There is a splitting of a road widening project into sections, without EIA in some of them, and without a global impact assessment
4060/2009 (SC)	Hydraulic works	It is not possible to split up projects depending on regional or local jurisdictions, subject to successive assessments
4907/2010 (SC)	Wind farms	Consider that each one of three wind farms has its own access and power line so they are not split up artificially
673/2009 (SCJ)	Wind farms	It is necessary to avoid disproportionate solutions, as including in a unique project all the wind farms located in the same province
1220/2011 (SCJ)	Wind farm	A wind farm project is divided into two, with a split up of the initial project
3507/2013 (SC)	Wind farms	The need for analysing synergistic and cumulative effects of different projects does not imply that all of them have to be covered by the same EIA process. each wind farm is individual, but their effects can cumulatively affect the area where they are located
2190/2012 (SC)	Port	Reject the claim that the project has been divided into stages to reduce the importance of their impacts

Cases specific to Malta

While according to the EC (2009), at the time no cases of SS were identified in the context of the MI, some cases have since emerged in online sources (i.e. Borg, February 2, 2020) and in cases heard by the Environmental Planning and Review Tribunal (EPRT). One such case is PA/04721/20 regarding an appeal against the approval of upgrading of a junction through widening, and development of an overpass and underpass in Luqa (Costa *v*. Infrastructure Malta, 2021). The grounds of appeal on the basis of SS, project fragmentation and non-adherence to S.L. 549.46 (EIA regulations) in this case were related to an application for further widening following recent widening, which led to insufficient consideration of cumulative impacts and thus deficient mitigation and consideration of alternatives (Costa *v*. Infrastructure Malta, 2021). This case resembles C-560/08 (ECJ, 2011) and reflects an example of slicing in time as described by the EC (2009) as well as deficiencies relating to road projects, as highlighted by Jaeger (2015), particularly with regards to cumulative effects. According to two interviewees (NGO members) in Sciberras' (2013) study, lack of consideration or complete disregard of cumulative impacts in the MI when compiling LPs could be attributed towards EIA being an ineffective approach in this regard, with one interviewee suggesting that cumulative issues should be dealt with by the SEA. An exhaustive list of SS cases documented in the MI is presented in Table 2.6 accompanied by development type, case details, and sources.

Table 2. 6 Documented SS cases in Malta with accompanying project/development type, source of information, and case details.

Project/development type	Source	Details
Residential (Balzan)	EPRT (Appeal 271/22)[2]	Concerning PA 8693/20 (a residential development), in which one of the points for ground of appeal included failure of an EIA within the application process. Salami-slicing was identified by appellants who highlighted the fact that the gross floor area of the development exceeded 30,000 square meters. Given the intensification of said development and traffic generation, appellants highlighted that the precautionary principle should have been adhered to accompanied by an EIA. While the appeal resulted in revisions and requested both a traffic generation report and a rainwater and ventilation management report, the Tribunal did not identify the applicability of an EIA (EPRT, 2023a).
Road widening	EPRT (Appeal 228/21)[3]	Concerning PA 4721/20 (proposed upgrading of a junction including a new overpass, underpass, and road widening). The main grounds of appeal included project fragmentation, SS, and non-adherence to SL 549 of the EIA Regulations. The proposed road widening was deemed to be SS as it followed a recent application for sanctioning road-widening (taking up arable land) and thus a piecemeal approach was detected. Cumulative impacts were subsequently observed to have been excluded as well as consideration of alternatives and mitigation measures for said impacts (EPRT, 23). Despite the aforementioned, the appeal was rejected by the Tribunal and issued a permit for PA 0421/20 (EPRT, 2023b).
Residential (Sannat)	Times of Malta (September 7, 2022); Appeal PAB 00137/22[4]	Concerning PA 2087/21 and the development of 125 flats in Sannat, located in the vicinity of a Natura 2000 site, Special Area of Conservation, and Special Protected Area. SS was observed by NGOs due to the splitting of the project into multiple applications starting in 2020 (initially for 22 apartments, 15 garages and a pool). Following this, two separate applications were submitted by the same applicants for two large blocks adjacent to the same site. The final decision of the appeal is yet to be published as the hearing remains ongoing; in the meantime, requests for suspension of works were refused by the EPRT (Times of Malta, September 7, 2022).
Residential (Qala)	Times of Malta (January 13,	Concerning PA 8143/21 and the development of a residential complex comprising of 165 apartments, a

[2] Full appeal accessible at https://www.eprt.org.mt/wp-content/uploads/decisions/PAB_00271_22.pdf

[3] Full appeal accessible at https://www.eprt.org.mt/wp-content/uploads/decisions/PAB_00228_21.pdf

[4] Meeting minutes accessible here: http://www.eprt.org.mt/en/search-details?cno=00137&cyr=22

	2020); Times of Malta (April 19, 2021); Appeal PAB 00227/22[5]	pool area, and a large garden. News outlets report the use of a piecemeal approach through the submission of applications (a total of four) by different individuals who were all identified as connected to the developer. Online promotion of the project confirms their relation and identification as a single project. Local NGOs noted circumvention of cumulative impact assessment as a result (Times of Malta, April 10, 2021). Despite this, it was reported that the first three applications received permits (Times of Malta, January 13, 2020).
Residential (Sannat)	Times of Malta (March 21, 2022)	Concerning PA/01703/22 and the development of a block of apartments. Project critics noted salami-slicing due to the splitting of the development into three separate applications. The proposed development was identified as forming part of other already approved blocks, forming one single 'mega-block' (Times of Malta, March 21, 2022).
Mixed residential and commercial (Paceville)	Independent (January 25, 2018)	Concerning the development of 275 residential apartments and 48 hotel rooms. An EIA was not carried out as it was deemed inadequate at considering cumulative effects with projects not yet considered.
Residential (Luqa)	Flimkien ghal Ambjent Ahjar (FAA, n.d.); Times of Malta (January 30, 2017)	Concerning PA/07607/16, PA/07609/16, PA/07611/16, PA07131/16, and PA07610/16. Development of 8,700 square meters of unbuilt land, split into five separate development applications identified by an NGO as being SS. The NGO identifies the five developments as sharing 'repetitive facades', communal facilities and basic amenities. Development consent was granted for PA/07607/16 and PA/07131/16, PA/07611/16 and PA07610/16 were withdrawn, while PA/07609/16 has not been fully submitted according to the Planning Authority's (PA) official website.

2.2.6 Prevention of Salami-slicing

Provisions and good practices

While the EC (2009) recognizes the occurrence of salami-slicing among several MSs and details respective existing provisions and practices for its avoidance, there are no universal guidelines provided by the Directive to effectively eliminate this phenomenon. That being said, some core principles can be derived from ECJ Case Law, (i.e. when there is an objective link between projects), reiterating Enríquez-de-Salamanca's (2016) emphasis of case-law as a core source of knowledge on SS and the establishment of administrative action. Additionally, Enríquez-de-Salamanca (2016) synthesises measures addressing SS (Table 2.7) based on a report by IMPEL

[5] Meeting minutes accessible at https://www.eprt.org.mt/en/search-details/?cno=00227&cyr=22

(Graggaber & Pistecky, 2012), while the EC (2009) lists measures respectively as provisions and practices. Provisions generally revolve around consideration of modifications and extensions, consideration of a project as a whole even when split among several developers/applicants, considering related projects as a whole and only as independent based on whether they form a meaningful unit in their own right, and consideration of cumulative effects. Examples of good practices meanwhile comprise reviewing EIA reports for completeness and case-by-case screening (EC, 2009). The latter point on screening is discussed in detail by Jiricka and Pröbstl (2009) and Morrison-Saunders (2018) (see Section 2.2.3) with a clear emphasis on the environment-centred screening approach as enabling better prevention of project splitting or a combined 'hybrid' approach. Further to this, Pinho et al. (2010) propose policy changes to improve EIA screening, with one such suggestion entailing the introduction of a new screening procedure based on one list of project types (expanded version of Annex I) inclusive of guidance thresholds highlighting requirement of an EIA. Additionally, the 'traffic light approach' is suggested, described and illustrated (Figure 2.3) by the EC (2003) as a combination of inclusion thresholds (represented as red and signifying mandatory EIA), exclusion thresholds (represented as green and signifying the go ahead and thus elimination of an EIA), and indicative or guidance thresholds (represented as amber and signifying the potential requirement of an EIA).

Table 2. 7 Measures adopted by EU countries to avoid project splitting compiled by Enríquez-de-Salamanca (2016).

Measure to avoid project splitting	**Country that applies**
Apply EIA below thresholds if necessary	Portugal
Assess the scope of the project in the screening phase	Sweden
Consider all the associated developments part of a project	Netherlands
Consider changes approved during the previous 5 years	Austria
Consider extension of projects not previously subject to EIA	Germany
Consider projects together if they are connected with common facilities	Germany
Consider projects together if they are on the same site	Germany
Consider projects together if they serve for a comparable purpose	Germany

Consider projects together if they are connected technologically	Poland, Denmark
Low mandatory thresholds	Ireland
Requirement to consider a project as independent	Germany, United Kingdom
Treat different developers as a single one	Sweden
Use case-by-case screening	Denmark, Finland, Spain
Wider definition of the term 'project'	Austria

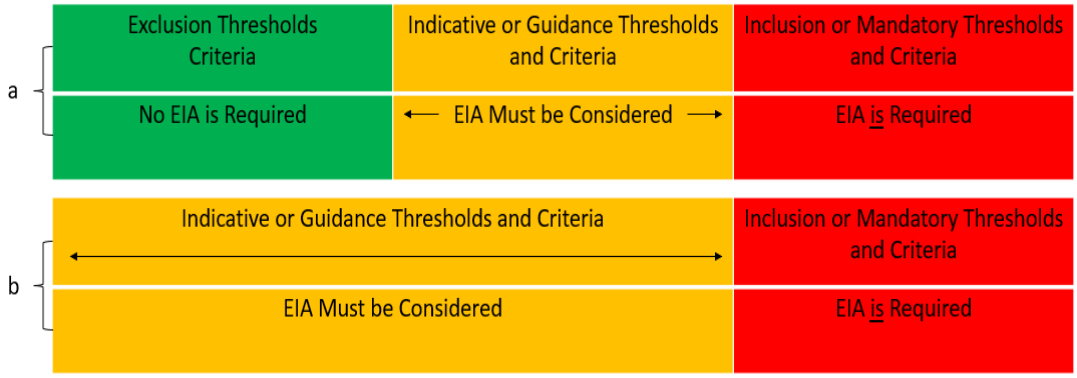

Figure 2. 3 Traffic light approach to Screening (a) and modified traffic light approach where no exclusion thresholds exist (b) (EC, 2003).

The Rochdale Envelope Approach

An approach lesser discussed in the literature is that known as the 'Rochdale Envelope approach' (or alternatively the 'project' or 'engineering' envelope) which arose from two notable cases: R. *v*. Rochdale MBC *ex parte* Milne (No. 1) and R. *v.* Rochdale MBC *ex parte* Tew [1999] and R. *v.* Rochdale MBC *ex parte* Milne (No. 2) [2000] (Infrastructure Planning Inspectorate, April 2012). This approach is most renowned and accepted by the English courts and is an acknowledged method accommodating uncertainties in EIA, particularly for developments with missing details at the time of application submission (Caine, 2018; Infrastructure Planning Inspectorate, April 2012). Therefore, it provides flexibility in EIA by catering for the assessment of both best and worst-case environmental impact scenarios through maximum and minimum descriptions when certain elements are yet to be finalised, thus reducing the risk of salami-slicing through changes or extensions (potential slicing in time or of

modifications) after permission for the development has been granted (Caine, 2018; Stephenson Harwood LLP, 2018). Despite its accepted use, Caine (2018) criticizes its application and proposes recommendations to reduce regulatory impediments, specifically when concerning offshore renewable energy with such development types previously identified as susceptible to changes and extensions (EC, 2003; EC 2009; Enríquez-de-Salamanca, 2016). Among related emerging issues, Caine (2018) identifies three: that this approach is 1) unregulated and can reduce environmental protection through developers' discretion and mentality of 'not environmentally worse than', 2) provides a less reliable assessment of cumulative impacts, and 3) inflicts time and finance-related concerns. Similarly, but in the context of UK marine EIAs, Lonsdale et al. (2017) flag a lack of clear guidance, which is essential in ensuring a robust and good quality EIA Report, with the result that the flexibility allowed by the Rochdale Envelope approach could lead to unrealistic applications despite being prepared by competent experts as required by the EIA Directive. It is thus evident that while the Rochdale Envelope approach is intended to account for uncertainties with the aim of addressing all potential environmental impacts, it can be counteractive due to developers' discretion and the responsibility of gauging its proper application then falling within the hands of stakeholders (Caine, 2018). To combat the aforementioned faults, Caine (2018) calls for a report on the appropriate use of the Rochdale Envelope approach, as well as guidance and support for developers when applying this approach, and the addition of provisions for its 'proper application' as criteria for accepting applications at a pre-emptive stage.

Multi-project EIA, SEA, and Cumulative Impact Assessment (CIA)

Multi-project environmental assessments have been discussed in the literature as a method of avoiding the SS tactic, performed in EIA when projects can be linked through common geographic, technological, and temporal characteristics (Enríquez-de-Salamanca, 2016; Vilardo, & La Rovere, 2018). While the consideration of such projects as intrinsically linked based on space and time enables a more comprehensive and realistic understanding of cumulative effects, a survey among 20 EU countries revealed that at the time, only Germany and Poland had integrated regulations on multi-project assessment (Grabber, & Pistecky, 2012; Vilardo, & La

Rovere, 2018). Additionally, multi-project assessment is more typically associated with SEA, which is based on the key element of 'tiering' environmental assessment at different planning levels, allowing for better scoping, and considers programmes and plans as opposed to projects, referring to a series of projects over time (Arts et al., 2005, September). Therefore, SEA has been recognized as addressing EIA shortcomings, particularly through prevention of foreclosure of environmental impact assessment, better assessment of alternatives and cumulative impacts, and by being better suited to the dynamic nature of decision-making through tiering (Figure 2.4) (Arts et al., 2005, September; Vilardo & La Rovere, 2018).

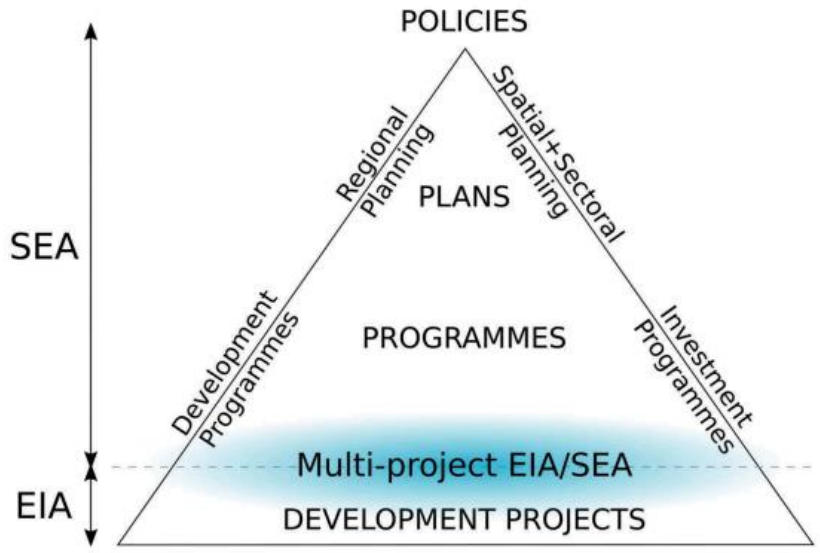

Figure 2. 4 Multi-project EIA/SEA and schematic decision-making levels (Vilardo & La Rovere, 2018).

The mention of cumulative impacts is recurring in the literature on SEA and EIA as well as SS, with the acknowledgement of regional and strategic assessments as more effective methods compared to the assessment carried out at project-level EIAs (EC, 2003; Duinker, 2013; Vilardo & La Rovere, 2018). For example, Enríquez-de-Salamanca (2016) identify a link between SS and cumulative impacts, suggesting the use of cumulative effects assessment (CEA), which Roudgarmi (2018) identifies as a sub-discipline of EIA and as a tool for eliminating constraints associated with EIA. Gunn and Noble (2010) further acknowledge the constraints associated with project-based environmental assessment and reiterate the potential benefits of a strategic approach

through CEA. On the contrary to the latter, some have argued that SEA remains more effective in assessing cumulative effects as CEA is characterised as being restricted to project level, similar to EIA (Harriman & Noble, 2008; Sciberras, 2013; Therivel & Ross, 2007). On the other hand, Vilardo and La Rovere (2018) discuss what is known as 'multi-project' EIA, whereby projects have strong connections (i.e. through location and technological attributes), and compare this approach to SEA and project-level EIA. When comparing SEA to EIA multi-project assessment in terms of efficiency, Vilardo and La Rovere (2018) perceived multi-project EIA as having greater benefits in terms of time and costs. Additionally, multi-project EIAs were recognized as a means for addressing cumulative impact shortcomings associated with project-level EIA (Vilardo & La Rovere, 2018). The multi-project EIA was further described as providing both a regional and programmatic perspective to assessment resulting in a better cumulative impact consideration and widening the scope of assessment, providing a middle ground between SEA and EIA (Vilardo & La Rovere, 2018).

3. Methodology

This chapter outlines the methods used to improve understanding of the complex issue that is SS both through cognitive skills and conceptual modelling, and through qualitative data collection. It begins with a brief description of the cognitive tool, the software and jigs used for visual modelling of the issue, followed by a description of the qualitative data collection method and relevant sampling and ethical considerations, with an overview of data analysis and treatment.

3.1 Research design

This study comprised four phases. The initial phase necessitated a desk-based approach whereby review of the literature allowed for a better understanding of the workings of EIA and the issue of SS (Figure 3.1). Several sources were referred to ranging from academic papers published by journals, local laws and regulations, local grey literature, publications by the EU, web-based sources, and ECJ case law. The literature review was essential in providing the foundations for initiating the conceptual model developed using Plectica in Phase 2 and aided subsequent primary data collection in Phase 3, particularly with the compilation of the semi-structured interview questions. The second phase of the study entailed understanding and practicing ST and conceptual modelling, as discussed in greater detail in Section 3.2. The collection of qualitative data in Phase 3 further contributed to the development of the conceptual model and ultimately to development of the main discussions and conclusions in the final phase of the study (Figure 3.1).

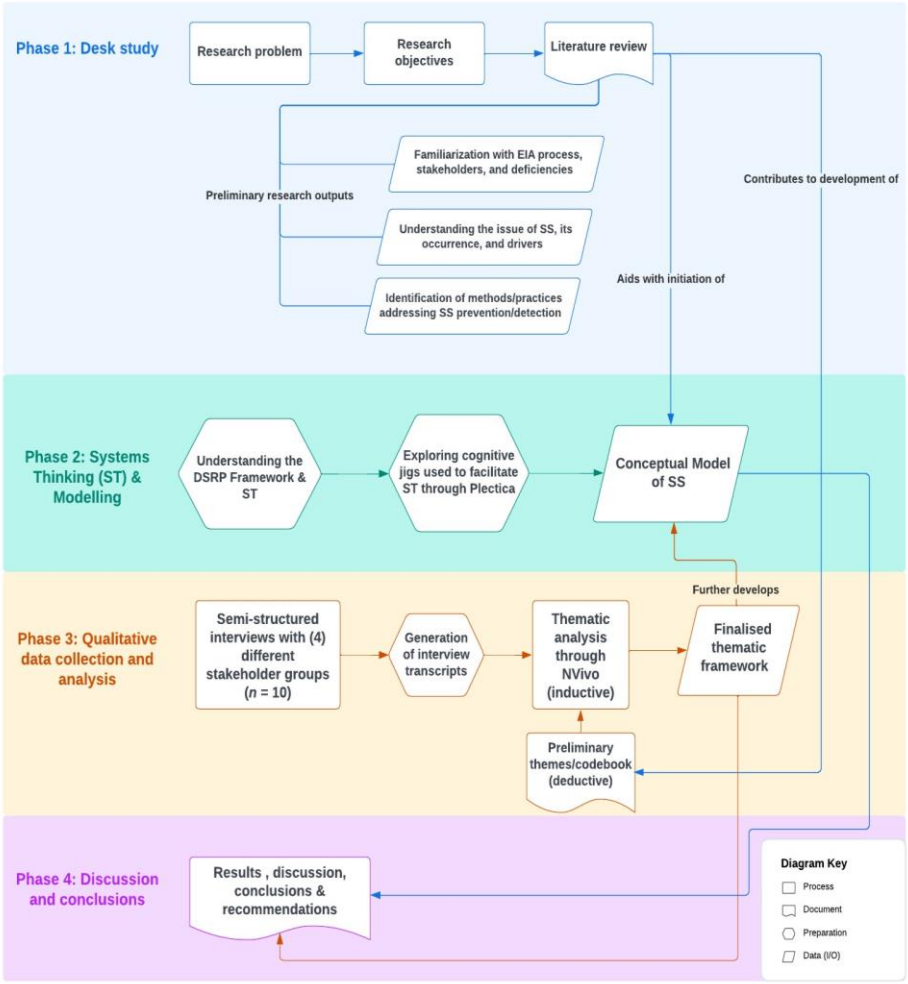

Figure 3. 1 Schematic representation of research methodology.

3.2 Systems Thinking

3.2.1 Paradigm, definitions, and core concepts

This study utilised ST as a tool for holistically assessing the issue of SS, in combination with qualitative methods, to better understand the issue in the context of the MI. ST has been described as an approach employed to understand and reason out real-world, and sometimes "wicked", problems with the aim of finding resolutions (Amissah et al., 2020). Conversely, Arnold and Wade (2015) initially describe ST as a system in itself of thinking about systems, generating a more elaborate definition through review of related literature, ultimately characterising ST as a "set of synergistic analytical skills" which are applied with the aim of "identifying and

understanding systems, predicting their behaviours, and devising modifications…to produce desired effects". Similarly, Grohs et al. (2018) and Hung (2008) refer to ST as a cognitive skill which allows a deeper understanding of a given topic through systemic and conceptual lenses that facilitate addressing complex and interdependent societal issues. Meanwhile, Cabrera and Cabrera (2021a) describe it as a complex adaptive system (CAS), which can be useful as a conceptual framework for cognition and human organization. Additionally, Cabrera and Cabrera (2015) describe the purpose of ST as building mental models that better represent and align with real-world systems; hence, ST is not only a means but also an end with an outcome. Despite the several definitions of ST, the fundamental and universal notion of 'system' refers to an assembly of components or parts and relationships which can lead to intended or unintended system outcomes; thus, ST emphasises perceiving a situation through all its parts and their relationships as opposed to viewing its parts in isolation (siloed thinking) (Allen & Kilyington, 2021; Amissah et al., 2020). Characteristics of interconnectedness and interdependency are further highlighted as central to ST due to the important consideration that the properties of parts and the whole determine the behaviours and emergent properties of the system itself (Hung, 2008). EIA is systematic in nature and highly dynamic, having multiple stages, stakeholders, disciplines, and interdependent relationships; assessing the unintended outcome, in this case SS, is therefore complex and requires a holistic approach which is facilitated through ST and conceptual modelling.

3.2.2 The emerging application of ST in environmental management

The acknowledgement of complexity within our world, particularly in relation to environmental issues and sustainability, has been noted as the cause of a paradigm shift from mechanistic thinking which can be likened to the workings of a clock, to a more holistic and ecological paradigm for systematically organized conceptions (Kay, 2008; Seiffert & Loch, 2005; Zhang et al., 2013). This paradigm shift is evident with emerging literature on the application of ST in environmental contexts (i.e. Ehrlich, 2022; Lundberg, 2011; Onat et al, 2017; Seiffert & Loch, 2005; Zhang et al., 2013). Onat et al. (2017) reiterate the importance of a ST approach in addressing wicked problems related to sustainability, with particular reference to research gaps in life

cycle assessments (LCAs). One of the purposes of LCAs entails development of strategies to improve the overall social, environmental, and economical performance of a product, which is not possible without consideration of their interconnectedness. Therefore, to properly identify indirect effects (which increase system complexity) and understand the environmental consequences of actions, systems dynamic modelling was deemed necessary with additional emphasis made on the utility of system-based methods for dealing with uncertainties and revealing complex interconnections and causal relationships between several indicators (Onat et al., 2017). Seiffert and Loch (2005) likewise highlight the necessity of ST in establishing sustainable development in environmental management, with the latter described as a process involving both formal and informal, as well as public and private organisations applying mechanisms with the aim of improving environmental quality and conserving or maintaining natural resources. The use of ST is justified due to the evaluative nature implied in management, and due to the importance of understanding relationships between the several elements comprising the environment which make it complex such as physical, social, cultural, biotic, and economic elements (Seiffert & Loch, 2005). In support of this reasoning, Lundberg (2011) applies ST for analysis of environmental follow-up in a Swedish Central Public Authority with the aim of identifying weaknesses for provision of recommendations to improve effectiveness. Through ST, important tools and requirements for follow-up were identified along with weaknesses such as the lack of influence of SEA and EIA follow-up which consequently resulted in a lack of assessment on the effectiveness of proposed mitigation measures, accompanied by suitable improvements such as establishing and strengthening reporting channels for environmental follow-up and developing environmental organisational memory with records of different projects (Lundberg, 2011). Another study on ST application within EIA by Ehrlich (2022) addresses collective impacts arising from a project while also referring to impact splitting and project splitting. Given that the fundamental principles of ST entail looking at a system's parts and how these interact, applying siloed thinking (described as being the opposite of ST as it isolates the parts in a system) by assessing the multiple impacts of a project individually as opposed to collectively (in which case a significant impact may be identified) disregards these essential properties (Amissah et al., 2020; Ehrlich, 2022). Furthermore, Ehrlich (2022)

identifies this as ‘impact reductionism’ or ‘impact splitting’ which is closely related to project splitting. Therefore, ST has been established as an important tool for tackling issues of this nature such as SS.

3.2.3 DSRP Framework

The ST framework employed in this study is that labelled by Cabrera and Cabrera (2015) as universal to all ST methods and referred to as the DSRP framework (Figure 3.2), which was also identified by Cabrera et al. (2021a) as emergent in the fourth wave of ST. Cabrera and Cabrera (2015) identify four patterns, at times also referred to as rules, to the DSRP framework which are represented in the acronym as Distinctions (D), Systems (S), Relationships (R), and Perspectives (P). Each pattern is a base pair of two elements which interact and imply each other in complex and dynamic ways (Figure 3.2) and so, as opposed to ‘rules’, DSRP should be considered as more of a theoretical framework (Cabrera & Colosi, 2008). The first pattern of Distinctions (D) entails making distinctions among several things, concepts, or ideas and therefore the existence of a thing co-implies the existence of an ‘other’ which can be conceptualised by setting boundaries that determine what falls within part of a system and what falls outside of it (Cabrera & Cabrera, 2015; Cabrera & Cabrera, 2022). The Systems (S) rule refers to an idea or thing that can be split into parts or can be considered as a whole, thus it entails breaking things down and identifying several constituents, accordingly assuming that one cannot consider a part without considering the whole (Behl & Ferreira, 2014). The Relationships (R) rule considers that ideas or things can relate to other things or ideas, while the Perspectives (P) rule identifies that a thing or idea can be the point or view of a perspective allowing us to see an object from the perspective of another (Cabrera & Cabrera, 2015; Cabrera & Cabrera, 2022; Cabrera & Colosi, 2008).

The Identity-Other Distinctions Rule	
D := (i↔o)	A Distinction (D) is defined as *identity* (i) co-implying an *other* (o)
The Part-Whole Systems Rule	
S := (p↔w)	A System (S) is defined as *part* (p) co-implying a *whole* (w)
The Action-Reaction Relationships Rule	
R := (a↔r)	A Relationship (R) is defined as *action* (a) co-implying a *reaction*(r)
The Point-View Perspectives Rule	
P := ($\dot{p}$↔v)	A Perspective (P) is defined as *point* ($\dot{p}$) co-implying a *view* (v)

Figure 3. 2 DSPR structural rules (Cabrera & Cabrera, 2021b).

3.2.4 Plectica: Cognitive jigs and conceptual modelling

It has been noted that the most effective way of understanding ST and complex issues is through visually mapping mental models and constructing an external visual representation of a system or phenomenon which facilitates dealing with properties that are abstract or not immediately perceivable while additionally allowing the researcher to assess the accuracy and representativeness of their mental model (Cabrera & Cabrera, 2019; Hung, 2008). In order to facilitate ST, Cabrera and Cabrera (2015), in partnership with the National Science Foundation, created an applied tool in the form of software called Plectica, which acts as a mapping canvas for capturing, clarifying, and communicating ideas more efficiently. This is achieved particularly through the use of cognitive jigs, which were noted as the underlying structures of systematic thoughts (Cabrera & Cabrera, 2015; Cabrera & Cabrera, 2019). Jigs are described as "content-free molecular structures that can be combined and recombined (modularity) to create new bespoke models of understanding and problem solving" and the benefits of their use have been noted, namely that they can fit any given problem and are content agnostic, and that they can increase speed of thought thus improving time efficiency (Cabrera & Cabrera, 2021b, p. 15). While a total of 44 jigs have been identified (Cabrera & Cabrera, 2021b) this study utilized four which were recognized by Cabrera and Cabrera (2015) and referred to as 'new jigs'.

The first jig, referred to as a P-circle, is a simple common structure used to depict perspective and is thus comprised of a view and can include multiple points (Cabrera

& Cabrera, 2015). It is represented in Plectica by an eyeball on any square (thing/idea) indicating that a thing/idea is viewing another thing/idea, as represented in Figure 3.3. This jig is essential for understanding that an issue does not have a singular view, thus it was useful in highlighting the multiple perspectives and sub-perspectives of different stakeholders within EIA on the different parts of the system. The second jig, called Part-Parties (Figure 3.4), is used to break down a thing or idea into parts and highlights relationships among those parts (Cabrera & Cabrera, 2015). This jig therefore allows the comparison of parts of a whole, proving particularly useful when looking at the different parts of EIA as well as the issue of SS.

Figure 3. 3 P-circle with Point and View as visualised in Plectica (Cabrera & Cabrera, 2015, p. 93).

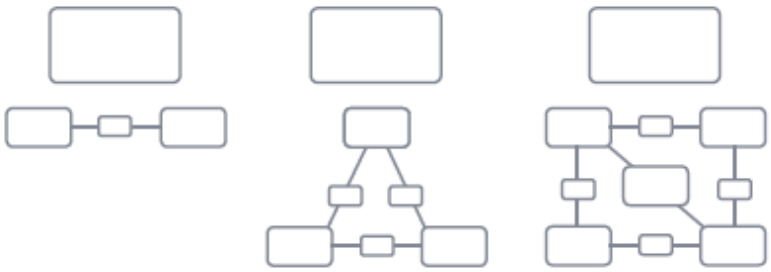

Figure 3. 4 Part-parties jig with different numbers of parts and distinguished relationships (Cabrera & Cabrera, 2015, p. 102).

The third cognitive jig is referred to as a Barbell, used to depict two ideas or things and the relationship between them thus acting as an important structure for relationships (Cabrera & Cabrera, 2015). Barbells can be simple, whereby they connect one idea/thing to another, or they can evolve into RDS Barbells (Figure 3.5) used to relate, distinguish, and systemize (Cabrera & Cabrera, 2015). This jig is particularly important in identifying the interrelationships between things/ideas which often lead to complexity and wicked problems. The fourth jig is described as a subtype of RDS and is referred to as an R-channel, used to visualise relationships

between multiple parts of two systems (Figure 3.6) thus making it appropriate to relate parts of EIA, stakeholders, and remedies to SS and its enabling factors (Cabrera & Cabrera, 2015).

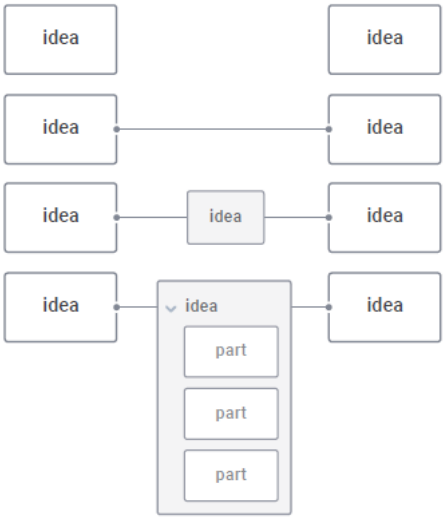

Figure 3. 5 The evolution of an RDS Barbell (Cabrera & Cabrera, 2015, p. 104).

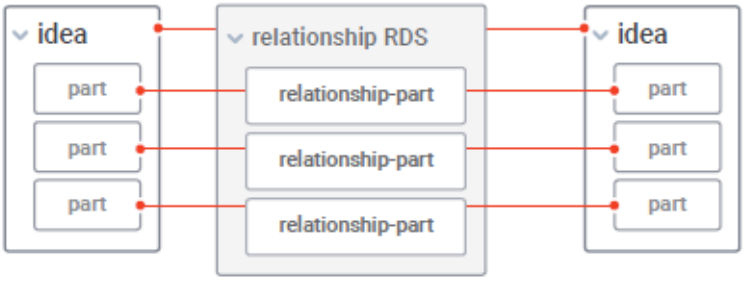

Figure 3. 6 R-channel comprised of two systems made of multiple parts and their respective relationships (Cabrera & Cabrera, 2015, p. 107).

3.3 Qualitative Data Collection: Interviews

This study necessitated qualitative data collection given that it would allow for analysing and thoroughly understanding the phenomenon of SS within the field of EIA, particularly its occurrence in Malta, and lead to a better description of the issue, with one of the primary aims of qualitative research being to better understand an issue or process that is not yet adequately understood (Flick, 2017; Walliman, 2022). Interviews have been noted as the most common qualitative data collection method within social science studies (Gill et al., 2008; Islam et al., 2022; Merriam & Tisdell,

2015), described by DeMarrais and Lapan (2003, as cited in Merriam & Tisdell, 2015, p. 108) as “a process in which a researcher and participant engage in a conversation focused on questions related to a research study”. Additionally, interviews were deemed appropriate for this study for the deeper understanding they provide where little is known about the study phenomenon, in this case SS, by exploring experiences, opinions, and ideas, and for their appropriateness in exploring topics which may be difficult to discuss in a group setting (Gill et al., 2008; Merriam & Tisdell, 2015). On the latter note, individual settings are conducive to in-depth interviews, yielding richer results and better exploring personal experiences or opinions (Adhabi & Blash Anozie, 2017).

The interviews were carried out synchronously (in real time); however, they varied from in-person to online. On the one hand, while in-person interviews can be time-consuming and expensive, they have several benefits such as eliminated risks of technical delays due to the interactions being directly between the interviewer and participant, and considerable evidence indicating that they yield richer and more detailed results (Johnson et al., 2021; Saarijärvi & Bratt, 2021). On the other hand, online interviews in social science research have been gaining momentum over the last decade especially with the existing and growing trend of digitalization and with the sudden shift in interviewing that was required with the onset of COVID-19 (Fielding et al., 2008; Willemsen et al., 2022). The latter resulted in increased familiarity with different types of conferencing software such as Zoom and Microsoft Teams, with the former recognised for being user-friendly due to features such as screen sharing as well as the ability to record the interview (Archibald et al., 2019). The use of synchronous online interviewing has been noted to closely resemble face-to-face interviews as it still allows the researcher to observe body and facial expressions while enjoying additional benefits such as an expanded study population by allowing participants to partake regardless of where they live, and reducing the need for considerations such as travel, distance, and safety (Fielding et al., 2008; Saarijärvi & Bratt, 2021). Moreover, several benefits have been noted among both participants and researchers when collecting qualitative data through Zoom video conferencing, with the first and major factor being convenience and time

effectiveness, noting that time is precious and some participants have extremely busy schedules or may work in noisy or distracting environments (Archibald et al., 2019). Therefore, participants were provided with both options to increase ease and willingness of participation, depending on respective personal preference. That being said, when interviews were conducted online, several considerations, such as those shown in Table 3.1, were taken into account to ensure the quality of the interviews and data collected.

Table 3. 1 Practical details and considerations when performing video interviews (adapted from Saarijärvi & Bratt, 2021, p. 395).

Before the interview	***During the interview***
• Send information and consent forms to interviewees in advance. • Re-send information and reminder at least 1 day before the scheduled interview. • Information to interviewee should state, among others, link to the meeting, the need for a stable internet connection and calm environment, and the preferred use of headphones to enhance audio quality.	• Conduct interview in a calm and undisturbed environment. • Test audio device. • Open video link at least 15 minutes prior to planned interview. • Introduce yourself and reiterate the purpose of the interview. • Repeat previous information sent to participants. • Ensure that participants are able to hear you and vice versa. • Avoid talking over participants.

The study specifically called for semi-structured interviews (Figure 3.7) which consist of several open-ended questions that facilitate eliciting information on the area of interest while allowing flexibility to pursue additional detail on an idea or response through follow-up questions, also known as probes (Flick, 2017; Gill et al., 2008; Merriam & Tisdell, 2015). Thus, while a set of guiding questions was developed, the nature of semi-structured interviews still allows the researcher flexibility to pose additional questions different to the initially drafted ones depending on the participants' response (Adhabi & Blash Anozie, 2017). The semi-structured interview guide (Appendix A) therefore comprised of open-ended questions aimed at different

groups (discussed further in Section 3.3.1). The questions aimed at EIA practitioners and technical experts, the competent authority, and developers and legal advisors addressed the main issue of SS (particularly relating to its definition, occurrence, and identification), screening (with reference to different screening approaches and informal discussions or grey EIA), and some general queries on EIA. Conversely, the questions compiled for ENGOs and those involved in public participation were less exhaustive given that the public is not as heavily involved in the technical aspects of EIA. The estimated length for the interviews was approximated to vary from 30 minutes to an hour, although this is dependent on the individual being interviewed (Hofman et al., 2018).

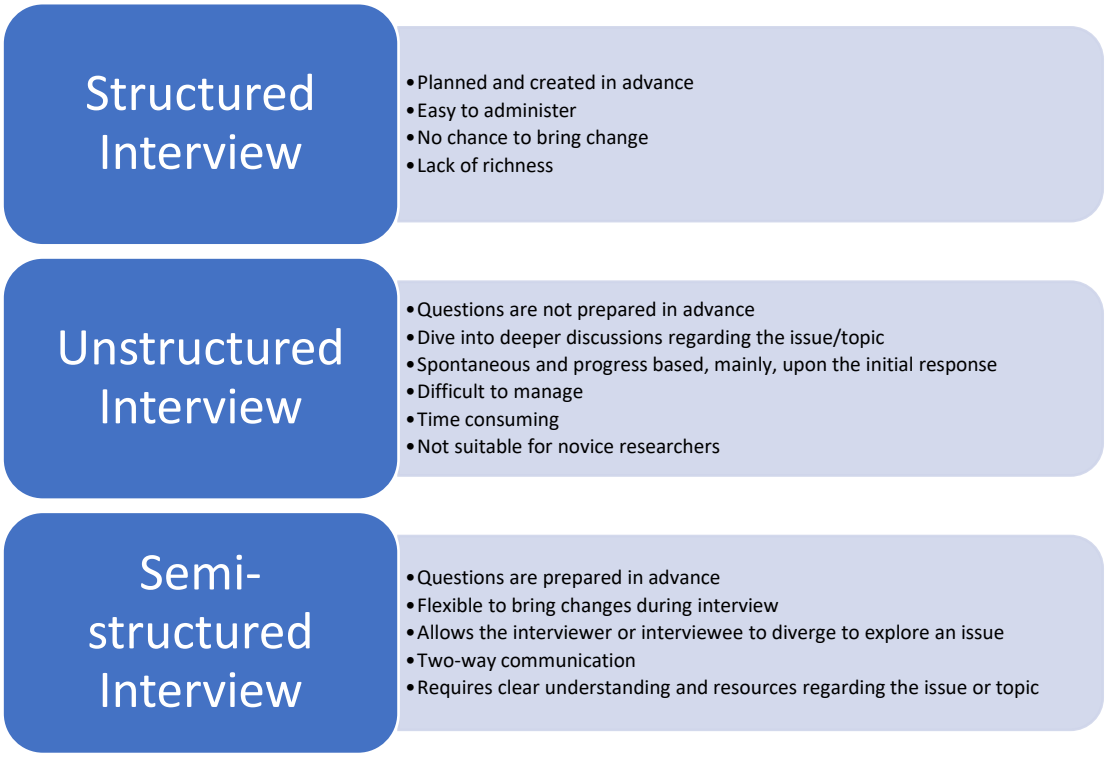

Figure 3. 7 The three types of interviews (Islam et al., 2022, p. 6).

3.3.1 Interview demographic and sampling strategy

The interviews aimed at gaining insights on the issue of SS from those involved in the EIA process (stakeholders) and thus most likely to have encountered related instances. Types of stakeholders were identified through the literature and split into four groups; (i) the competent authority for EIA in the MI, (ii) EIA practitioners and technical experts (i.e. those having experience with EIA and those in professions such as law,

spatial planning, and architecture), (iii) developers and legal advisors, and (iv) Environmental Non-Governmental Organisations (ENGOs) or entities representing the public and involved in public participation/consultation. Purposive sampling (sometimes referred to as purposeful sampling) is a non-probability technique widely used in qualitative research and has been deemed appropriate in such instances when the researcher deliberately chooses a participant due to the qualities they possess and based on their willingness to share their insights on an area of interest or phenomenon gained through knowledge or experience, thus selecting information-rich participants (Etikan et al., 2016; Palinkas et al., 2015; Merriam & Tisdell, 2015). Accordingly, Patton (2014, p. 402) define purposeful or purposive sampling as "strategically selecting information-rich cases to study, cases that by their nature and substance will illuminate the inquiry question being investigated". As noted by Flick (2017), there exist several methods of purposive sampling; however, the method employed in this study is that referred to as criterion sampling. Criterion sampling is used when cases meeting a predetermined criterion of importance are studied, in this case the stakeholders identified within EIA and those who may have encountered SS (Patton, 2002; Suri, 2011). The use of criterion sampling is further reinforced by Patton (2014) who identifies its purpose as encompassing information-rich cases which can reveal weaknesses in a system (in this case EIA and the 'weakness' that is SS) and consequently create an opportunity for improvement of the system and its outcomes. Recruitment thus entailed the identification of those working within the EIA field through their profession (i.e. through the competent authority, environmental consultancies, spatial planning, and those having experience with environmental law), those who have dealt with projects and developments directly (i.e. developers and architects), and those citizens or entities who are actively involved in the public participation aspect of EIA in the MI. According to Patton (2014), given that its aim is to maximize information and not to represent numbers as in quantitative research, sample size in purposeful sampling is determined by redundancy, implying that the number of interviews depends on sources of information available. The notion of saturation has also been discussed as a determining factor of sample size, namely referring to the point at which no new information or insights are being generated on the study phenomenon or whereby robust themes have already been produced

through ongoing analysis of data collected (Merriam & Tisdell, 2015; Patton, 2014); however, Braun and Clarke (2013) were among a few in the literature to recommend a sample size according to the type of project and data required (Table 3.2), suggesting between 6 to 15 participants for a 'medium project' employing interviews. While the aforementioned points were considered when determining sample size for this study, other factors controlled the final number of participants, namely the limited number of people familiar with EIA and SS, and willingness of said individuals to participate or discuss what can be considered a sensitive topic. A total of 19 participants were identified and contacted; however, the final number of participants was 10.

Table 3. 2 Sample size recommendations for TA studies (Smith, 2015, p. 229).

Data type	Small project (e.g., u/g project)	Medium project (e.g., Master's, Prof Doc)	Large project (e.g., PhD)
Interviews	5/6–10	6–15	15–20 (one study); 30+ (sole data source)
Focus groups	1–3	3–6	3–6 (one study); 10+ (sole data source)
Qualitative surveys	20–30	30–100	50+ (one study); 200+ (sole data source)
Story completion tasks	20–40	40–100	100+ (one study); 400+ (sole data source)
Secondary sources (e.g., media texts)	1–100	1–200	3/4–400+

3.3.2 Research ethics

The importance of research ethics, informed consent, and appropriate review by an institutional ethics committee have been highlighted as crucial for the assurance of research quality, credibility, and researcher responsibility towards participants (Flick, 2017). Accordingly, this study employed all necessary measures prior to, during, and following conduction of the study to ensure protection of participants (see Appendices A-C) and adherence with the UM Research Code of Conduct. To ascertain confidentiality, the semi-structured interview transcripts were stored on an encrypted file on a password-protected computer, and data analysis entailed the use of pseudonyms followed by the aggregation of results into four stakeholder groups. Moreover, interviewees were provided with an information and consent form

clarifying details of their participation and disclosing the slight risk of identifiability due to the limited number of people working with EIA, particularly with the competent authority. Participants were also given the choice to opt out of being recorded and were reminded of their rights under the General Data Protection Regulations (GDPR). Most importantly, a research ethics self-assessment was submitted to the Institute of Earth Systems Research Ethics Committee and approved prior to initiation of data collection. This process included a review of semi-structured interview questions, information and consent forms to be provided to participants, and a data management plan specifying the nature of the data to be collected and data storage measures (Appendix C).

3.3.3 Thematic analysis of interview data using NVivo

Clarke and Braun (2017, p. 297) describe TA as a method for "identifying, analysing, and interpreting patterns of meaning", otherwise also referred to as themes within qualitative data. The purpose of this approach is to identify prominent themes which may be used to address the research or issue being investigated; hence, it was deemed the most effective method for gathering information on SS (Maguire & Delahunt, 2017). Additionally, the benefits that distinguish TA from other qualitative methods were listed by Clarke and Braun (2017) and encompassed flexibility, varied applications, and its accessibility, particularly to those who are new to the field of qualitative research. TA may be deductive or inductive (Clarke & Braun, 2017). The themes derived from inductive analysis are data-driven, meaning grounded in the views and experiences of interviewees, with their statements contributing towards understanding the issue and creating a clearer and more holistic picture (Alhojailan, 2012; Sundler et al., 2019). While inductive analysis is primarily grounded in the interview data, pure induction is hardly possible in most qualitative research as analysis is also shaped by prior disciplinary knowledge and theoretical assumptions (Smith, 2015). On the other hand, deductive TA is theory-driven and views data through existing concepts which aid with establishing codes and themes; however, in tandem with previous observations, pure deductive and objective assumptions are not feasible (Fereday & Muir-Cochrane, 2006; Smith, 2015). A hybrid approach has been noted to demonstrate greater rigour, as it encompasses the advantages of each

with the elements of deduction allowing for the use of a template with categories established *a priori* through the literature, whereas inductive elements allow for the generation of emergent themes directly through the data collected (Costa et al., 2016; Fereday & Muir-Cochrane, 2006). Therefore, a hybrid approach was employed for interview data analysis whereby themes were recognized deductively through the existing literature and the emergence of new themes was accomplished inductively, as will be discussed in more detail below.

Conducting TA in this study was facilitated by and based on a 6-step process proposed in the literature: 1) familiarizing oneself with the data done through repeated listening of recordings and reading of the transcripts; 2) generating initial codes (grouping similar data segments); 3) searching for and developing preliminary themes; 4) reviewing the generated themes (i.e. through addition of other codes from different parts of the transcript); 5) defining and naming the final set of themes; and 6) organizing the final report/written product (Boyatzis, 1998; Braun & Clarke, 2006). Prior to initiating this 6-step thematic analysis process, interviews were transcribed and aggregated accordingly into stakeholder groups; however, each interview was analysed individually. While coding is listed as the second step, it is the first truly analytical step in TA and has been described as the "deciphering or interpretation of data and includes the naming of concepts and also explaining and discussing them in more detail" (Flick & Kardoff, 2004, p. 270). Furthermore, codes aim to reduce the data by having limited scope and focusing on the main area of analysis and are therefore characterised as having explicit boundaries and definitions, implying that they may not be interchangeable or redundant (Attride-Stirling, 2001; Stirling & Renn, 2001; Nowell et al., 2017). The coding process is essential to theme development given that themes are its ultimate outcome; therefore, ensuring accurate and reliable coding is of equal importance (Braun & Clarke, 2021; Javadi & Zarea, 2016). To achieve this and to dissect the text into manageable segments, the creation of a 'codebook', 'coding framework' or 'cording manual' has been suggested (Attride-Stirling, 2001; Braun & Clarke, 2021; Braun & Clarke, 2006; Roberts et al., 2019). DeCuir-Gunby et al. (2011, p. 138) described the codebook itself as comprising a "set of codes, definitions, and examples used as a guide to help analyse interview data". Attride-Stirling (2001)

described the process of devising a coding framework as dependent on the research question of the study, on theoretical interests, and based on predetermined topics as well as recurrent issues identified in the text (Figure 3.8). Accordingly, overarching themes identified in the literature, such as the main characteristics of SS, its occurrence, drivers, and methods for prevention or detection, provided the foundations for the preliminary coding framework to facilitate deductive TA. Meanwhile, emerging themes were identified inductively through data-driven codes; this was done by recognizing recurrent themes that had not been captured through theory-driven codes and determining whether a new code needed to be created, as described by DeCuir-Gunby et al. (2011). The final step of data-driven codes generally involves establishing reliability, which entails using multiple coders to analyse the data; however, this step was not possible due to reasons discussed hereunder (Castleberry & Nolen, 2018; DeCuir-Gunby et al., 2011). The final 'codebook' produced is presented in the form of a thematic framework in the results chapter of this study.

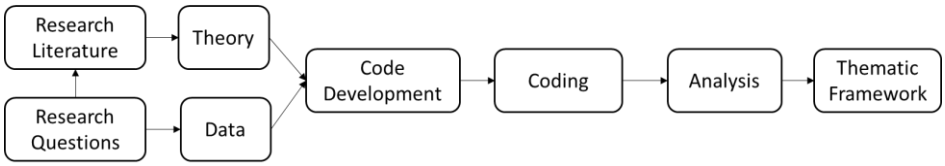

Figure 3. 8 Research analysis design (modified from Costa et al., 2016, pg. 35).

The software used to facilitate code and theme identification was NVivo; this software facilitates TA through the creation of codes, which contain segments of text selected through line-by-line coding (Roberts et al., 2019). The codes created can then be organised into categories (and sub-categories when necessary) and overarching themes by the researcher, as displayed in Figure 3.9. Using this software as opposed to manual methods of TA is recommended as it allows for a systematic coding approach which facilitates the assembly of large amounts of information into smaller ideas and themes, improving both the rigour of TA and time-efficiency (Alhojailan, 2012; Nowell et al., 2017). Establishing inter-code reliability has been noted as an additional measure to ensure rigour and credibility of the data with NVivo providing a coding comparison query which indicates a percentage agreement between researchers and a Kappa coefficient; however, this was not feasible in this study as it

may lead to unintentional oversimplification of coding in the case of unstructured or semi-structured interviews (Castleberry & Nolen, 2018) and due to the nature of an M.Sc. thesis consisting of a single researcher analysing the data.

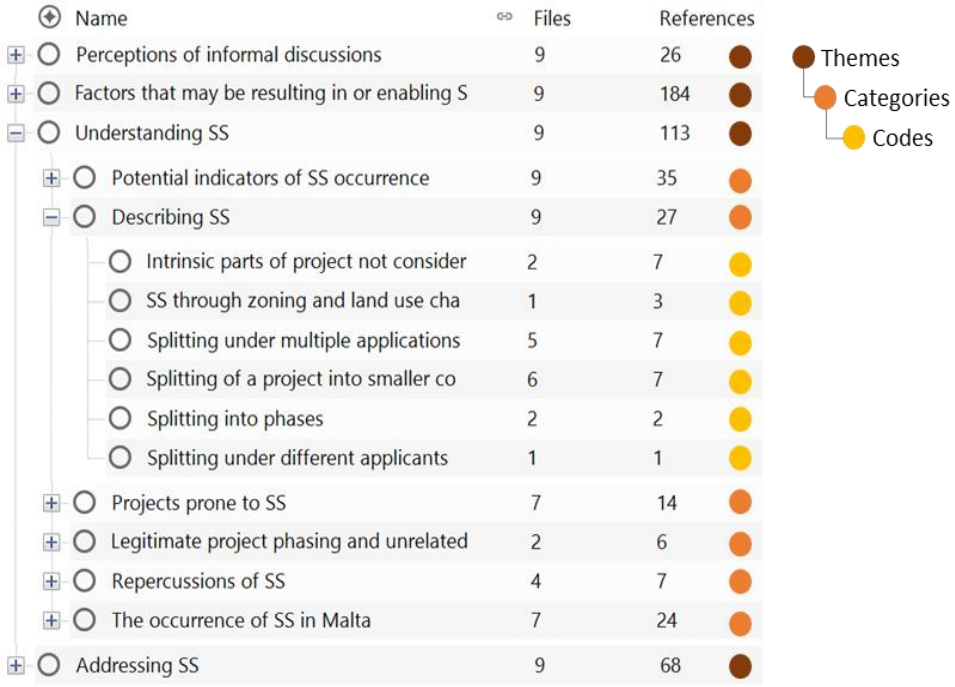

Figure 3. 9 Organisation of codes into categories and themes in NVivo.

3.4 Methodology limitations

While justification has been provided for the methods employed in this study, it is equally important to acknowledge accompanying limitations. The first set of constraints and disadvantages stem from the type of qualitative data collection applied; qualitative interviews entail the development of an interview guide, transcription of recordings, analysis of voluminous data and are therefore time-consuming for the researcher and likewise for participants thus resulting in difficulties with recruitment and willingness to participate (Cassell & Symon, 2004; Gill et al., 2008). To reduce time-related concerns, interviewees were presented with the option of meeting either in person or remotely. In-person and online interviews have varying limitations; on the one hand, in-person interviews are more time-consuming, while video interviews require reliable technology for both the researcher and interviewee, a stable internet connection and good quality audio, and may pose confidentiality

risks (Merriam & Tisdell, 2015; Saarijärvi & Bratt, 2021). It must also be noted that while video interviews have been likened to face-to-face interviews, the latter are still believed to be marginally superior (Saarijärvi & Bratt, 2021). Another important consideration is that ensuring unbiased findings requires a large number of respondents, which is difficult when conducting interviews with a small and specific sample as in this case and as is generally the case with qualitative interviews where sample size is generally not of utmost importance (Hofman et al., 2018).

The second set of limitations relate to the study sample and determining sample size in qualitative research. Firstly, selecting respondents that fall within the right criteria, especially when a range of viewpoints are being sought, can be difficult, particularly when participants are hard-to-reach. This proved to be the case in this study since a range of stakeholders were sought, with many having busy schedules and being of a high profile within the areas of EIA, environmental management, and development. Another factor that may have contributed to reduced interest or willingness to participate relates to the sensitivity of the topic being discussed. Consequently, the four stakeholder groups did not contain equal representation in terms of number of participants. It is also worth noting potential bias given that some participants within the EIA practitioners and technical experts group have represented or have worked with environmental NGOs. Thus, future studies may consider a larger sample size and more equal representation across groups. When assessing ideal sample size and referring to the guiding principle of saturation, the literature often discusses the uncertainty and equivocation that lies within deciding at what point saturation has been achieved; the cut-off point can thus be arbitrary (Alam, 2021; Mason, 2010, August; Saunders er al., 2018). Thus, the sample size was ultimately determined by willingness of potential interviewees to participate and by a cut-off date for data collection (time constraints).

TA, which was applied for qualitative data analysis, likewise involves a number of disadvantages and restrictions. While a hybrid deductive and inductive approach towards TA can increase rigour, it has been noted that issues relating to bias and replicability may still persist (Proudfoot, 2022). Additionally, and as previously noted, given the nature of the study, transcripts were analysed by a single researcher; thus,

inter-code reliability could not be determined and multiple perspectives from individuals of differing expertise could not be included (Castleberry & Nolen, 2018; Fereday & Muir-Cochrane, 2006). Finally, the creation of the Plectica model likewise experiences an element of subjectivity in the way that information is organised and presented.

4. Results and Analysis

This chapter commences with an overview of the sample size and characteristics, followed by presentation of the qualitative results obtained through thematic analysis of the interviews, accompanied by relevant summary tables and visuals of themes, categories, and descriptive codes.

4.1 Sample size and characteristics

A total of 10 individuals were interviewed for this study, across the four groups displayed in Figure 4.1. The largest representation was of those falling within the stakeholder group labelled 'EIA practitioners and technical experts' (Participants C-F). Individuals within this group provided insights based on their professions and involvement within EIA, with those acting as technical experts having a professional background in law and architecture, and others having a background in spatial planning. Insights were also obtained from two individuals within the competent authority for EIA (Participants A and B), individuals representing developers or others having worked as legal advisors to developers (Participants G and H), and individuals representing the public as environmental non-governmental organisations (Participants I and J).

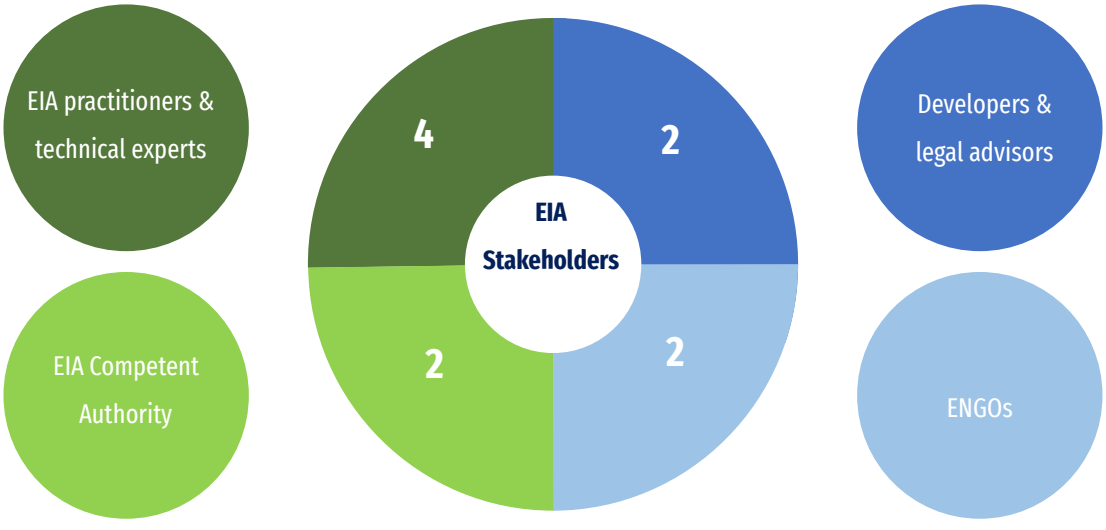

Figure 4. 1 Sample size characterised according to stakeholder groups.

4.2 Overview of thematic analysis and framework

Qualitative interviews were transcribed and analysed in NVivo Version 1.7.1. Descriptive codes were developed for each data set and organised into categories, when applicable sub-categories, and larger overarching themes to create a thematic framework (Figure 4.2). The data was categorized under four overarching themes: 1) Understanding SS, which encompasses defining SS, comprehending how it can occur by identifying factors to consider or characteristics to be observant of, among other insights, 2) factors resulting in or enabling SS, which entails investigating motivators for SS and potential deficiencies that may be cultivating an environment in which it prevails, 3) addressing SS, tackling potential solutions or recommendations for reducing or eradicating its occurrence, and 4) perceptions of informal discussions, whereby opinions are explored on their occurrence and relation to SS, particularly within the local context.

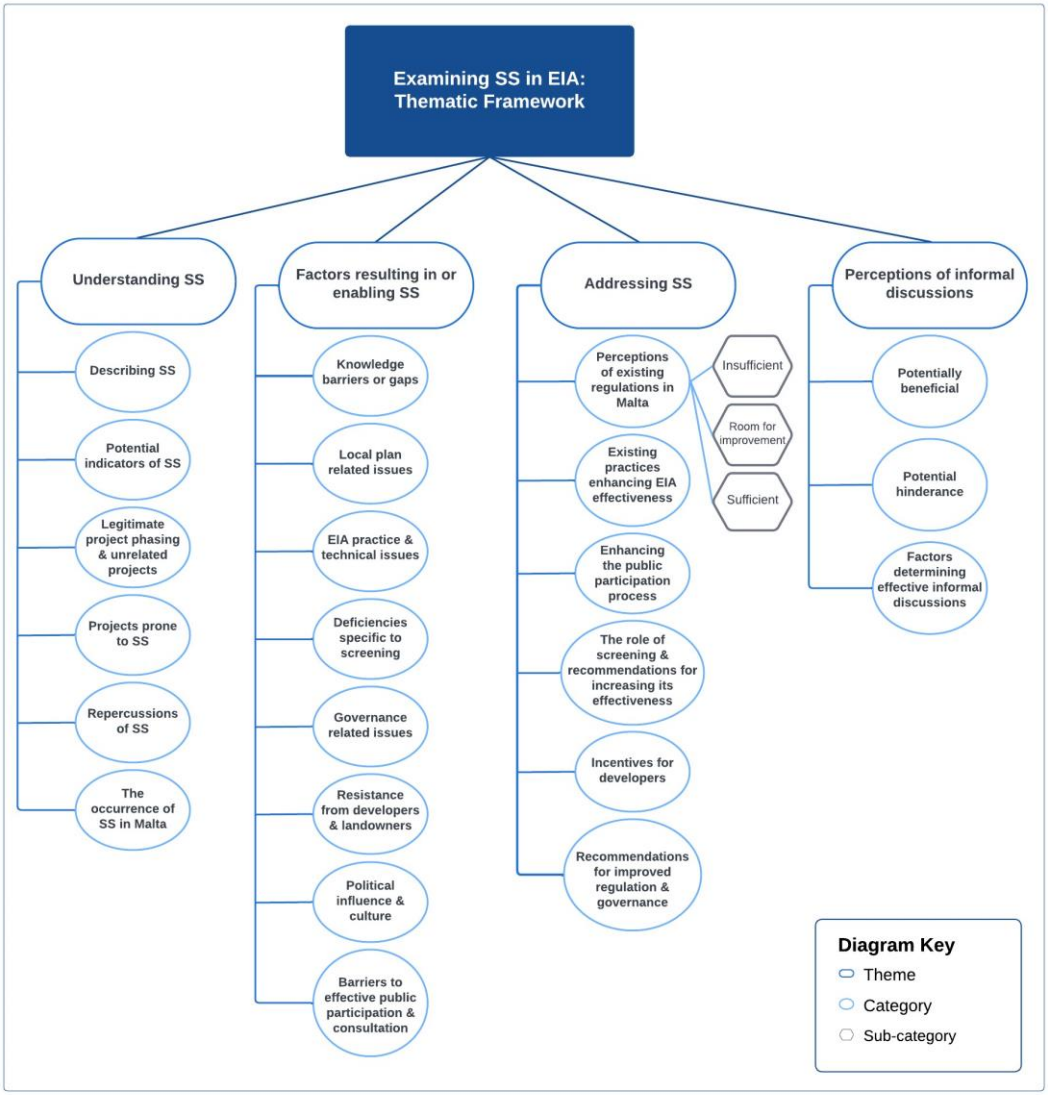

Figure 4. 2 Thematic framework for stakeholder interviews.

4.2.1 Theme 1: Understanding SS

The categories forming the basis for the theme 'Understanding SS' are 1) describing SS, 2) potential indicators of SS, 3) legitimate project phasing and unrelated projects, 4) projects prone to SS, 5) repercussions of SS, and 6) the occurrence of SS in Malta. The respective number of references for each category is displayed in Figure 4.3, with the first, second, and latter categories obtaining the highest number of references. In this context, the term 'reference' signifies an excerpt highlighted within an interview transcript and assigned to a specific code; thus, references (excerpts from interviews)

are described by codes, which can be categorised and finally contained within overarching themes.

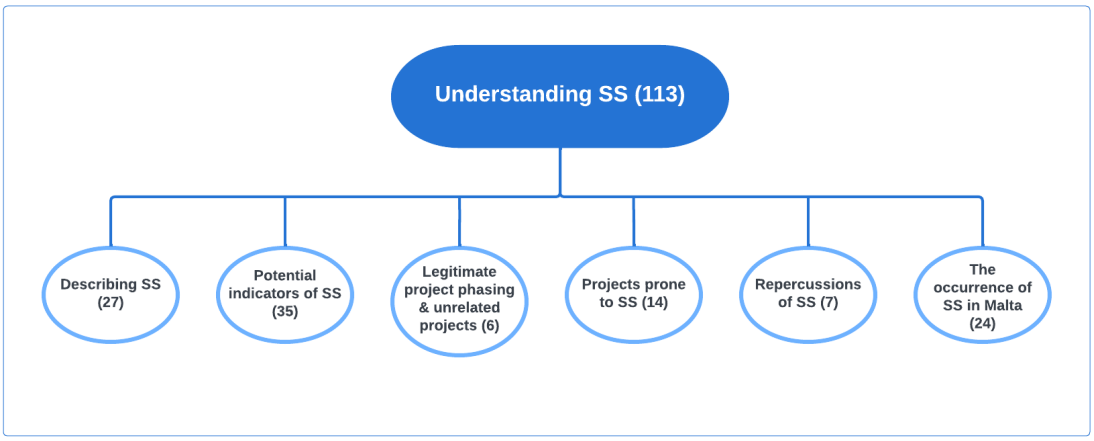

Figure 4. 3 Categories contained within Theme 1 'Understanding SS', with respective total number of references (n=10).

Describing SS

Participants were asked to describe SS and highlight what, in their opinion, would constitute SS (Table 4.1). An element that visibly underlies each code is the incomplete and insufficient holistic consideration of a particular aspect or of the development itself. This is reflected within the code 'splitting of a project into smaller components (not viewed holistically)' in which participants specifically referred to means of breaking down a project so that "the bigger picture is lost or comprised", and to "avoid comprehensive and holistic scrutiny". Subsequent codes highlight the ways in which holistic assessment can be compromised, for instance through the submission of multiple applications, with one example describing the splitting of 100 apartments of a single piece of land into 4 separate applications of 25 apartments respectively. It might be the case that applications are additionally submitted by different applicants: "they are applied for under different names…they can sign that they are not owners and are applying with the owner's written consent so that bypasses any legal obligations" (Participant I).

Table 4. 1 Codes under the category 'Describing SS' with number of references per stakeholder group.

	Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Describing SS	Splitting of a project into smaller components (not viewed holistically)	||	||	|	||
	Splitting under multiple applications	~~0~~	||||	||	~~0~~
	Splitting under different applicants	~~0~~	~~0~~	~~0~~	|
	Splitting into phases	~~0~~	~~0~~	|	|
	Intrinsic parts of a project not considered	~~0~~	~~||||~~	~~0~~	~~0~~
	SS through zoning and land use change policy[6]	~~0~~	|||	~~0~~	~~0~~

A code that is closely related to that of splitting under multiple applications is 'splitting into phases' whereby a project is split up into two or more phases such as excavation, building, etc. and each phase is covered by a separate development permit, with one participant detailing the following:

> "…it was split again in terms of excavation of the site and building of the site so first a permit was issued for excavation and then there was the application for building…it doesn't make sense to excavate a site and then actually not being sure…it does then imply that it is a foregone conclusion that the other permit will be issued." (Participant J).

Comparable to forms of fragmented assessment discussed throughout, some participants reported that SS can entail the exclusion of intrinsic parts of a project, which are not studied in conjunction with the project itself. Such components are described as being fundamental to the functioning of the project with one participant recounting a case in which changes to the road infrastructure required to accommodate a proposed development were excluded from relevant studies.

[6] To be elaborated further below (as discussed by Participant C).

Another case described by a participant referred to the proposal of a jetty utilised by a ferry in which the assessment was limited solely to the impact of the jetty and overlooked the new route generated and its potential impacts. Therefore, as summarised by one interviewee, SS can denote:

> "…that a project is actually not just that, there are other things…intrinsic to it…there are other developments that need to take place or have taken place or we know that they will take place which are not being taken into account in that particular impact assessment or where an impact assessment is not even done." (Participant J).

The final code within this category provides an interesting insight into SS within the local context and may indicate SEA related concerns (policy), namely 'SS through zoning and land use change policy'. This was referred to by a single participant who drew attention to the ways in which lobbying for land use change can result in altered zoning of an area over a number of years, thus fabricating a case of SS. This was noted to transpire through partial Local Plan reviews in which an individual can lobby the government to change the objectives and use of the site, with the negative implications of such occurrences duly noted. Such cases might equate to SS due to the following:

> "Now over time you can have several changes, on this same site, therefore I believe that this is SS from a policy perspective which is detrimental because first of all it takes place over time and resources for stakeholders are very limited and stakeholders are not aware of the long-term vision." (Participant C).

The word cloud presented in Figure 4.4 provides a visual overview of the aforementioned codes and synthesises the ways in which SS was described by participants of this study. Recurring phrases and words such as 'site', 'different', 'application', 'time', and 'developer' reflect aspects most commonly associated with SS, such as the splitting of a site or piece of land by a developer.

Figure 4. 4 Word cloud for most used words within the category 'Describing SS'.

Potential indicators of SS

This category amalgamates attributes identified by participants that may indicate attempts at SS or aid with identifying projects that have already been fragmented (Table 4.2). Submission of applications at staggered intervals or conversely in quick succession ranked among the main recurrent giveaways, with five references across three stakeholder groups. The examples referred to in this regard varied in nature and tactic; some referred to the submission of several applications by the same applicant, in which case it appears obvious to regulators; as put by one participant: "sometimes they submit them all at once and when we see them on our GeoServer, we see them exactly near each other. It's the same architect and applicant so it's on purpose– very obvious" (Participant B). As opposed to being submitted concurrently, some applications are submitted at staggered intervals to reduce the risk of being identified as a single project, thus invoking the requirement for an EIA, with such staggering occurring over months and in other cases over several years, as discussed in the case of lobbying for land use change in the previous category. In support of this, sharing similar or the same design features should be indicative of related projects, regardless

of separate applications, “The building style, façades, everything – are identical…but we got the opposite reply – technically they are different because they were applied for separately, different application numbers” (Participant I).

Table 4. 2 Codes under the category ‘Potential indicators of SS’ with number of references per stakeholder group.

Legend ø Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Potential indicators of SS occurrence	Project that is not self-sustaining	|	ø	ø	||
	Close vicinity of developments	|	ø	|	ø
	Contradictory or omitted information	|	ø	|	ø
	Evasive replies from applicants	|	ø	ø	ø
	No clear site plan or boundaries	|	ø	ø	ø
	Projects just below the thresholds	|	|	ø	|
	Submission of applications at staggered intervals or in quick succession	|	||	ø	||
	Track record of applicants	|	|	ø	ø
	Ownership – common, undeclared, or intent to acquire	ø	|||	ø	ø
	Same development split by schemed roads	ø	|	ø	ø
	Same architect but different applicants	ø	ø	|	ø
	Multiple applications by the same developer	ø	ø	||	ø
	Projects requiring extensions	ø	ø	ø	|
	Intentionality plays a role in proving SS	ø	|	ø	ø
	Projects sharing similar or the same design features	ø	|	ø	||

Another prominent indicator referred to by EIA practitioners and technical experts is ownership, which some participants feel warrants looking into even at a pre-planning stage. When there is common ownership "of different elements by one entity or person is usually…more likely to be SS". Investigating a site's history may pre-empt SS by observing any tactical uptake of land, as one participant articulated:

> "The first thing I would say is to look at the case history…to understand the site in terms of the history of the site… to look at whether there have been previous changes on the site, to look at the land ownership history to see whether land is being bought up incrementally…One of the first things that definitely I would do is to go into the history of the site from an ownership and from a policy perspective." (Participant C).

It is apparent that the competent authority is alert to several characteristics that may raise questions on project fragmentation, listing other alarming traits such as projects that are not self-sustaining and evidently require additional infrastructure, the close vicinity of certain developments as noted previously when referring to the use of a GeoServer, contradictory or omitted information, particularly in the Project Description Statement (PDS), and evasive replies. Additionally, applicants' track record is another important point of consideration for regulators, particularly for applicants who have attempted to or successfully managed to fragment projects. In a similar regard to the latter, intentionality was noted as a consideration "towards proving or showing that there is SS" (Participant F).

Legitimate project phasing and unrelated projects

Emerging from two participants were important distinctions between SS and the legitimate phasing of projects as well as the issue of cumulative impacts of unrelated projects (Table 4.3). Cases viewed as legitimate were those lacking the right technology due to design complexity, and which could therefore not provide all information necessary, those that have undergone legal challenges relating to land acquisition and appropriation, and those that may not be intentionally phased due to economic reasons as outlined below:

> "Somebody owns a big plot of land and at this point in time, he files an application to develop half of it … because that is all he can afford at the moment or studies show that it is economically beneficial to only develop half of it. If and then several years later he files an application to develop the rest of it I don't think there is the intentionality or the idea to avoid holistic assessment…" (Participant F).

Legitimacy appears to be an important consideration mainly from a legal standpoint in this category as intent also surfaced in discussions, namely that legitimate cases are accompanied by transparency and evidence that there is no intent to evade assessment. To this extent, it is clarified that "legitimate project phasing is different - I declare and show the bigger picture thus giving context… and these are the intentions" (Participant A).

Additionally, projects that are legitimately unrelated but fall within the same area are not considered to be cases of SS or fragmentation; however, dealing with cumulative impacts of such projects is noted to be difficult and complex, with one participant expressing that there exist differing views on whether these should be viewed holistically.

Table 4. 3 Codes under the category 'Legitimate project phasing and unrelated projects' with number of references per stakeholder group.

Legend ø Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Legitimate project phasing and unrelated projects	Information may not be readily available due to complexity	|	ø	ø	ø
	Legal challenges may necessitate project phasing	|	ø	ø	ø
	Legitimate project phasing is supported by transparency	|	ø	ø	ø
	Unrelated projects in the same area not SS if not viewed holistically	|	ø	ø	ø
	No intention to avoid holistic assessment	ø	|	ø	ø

	May not be economically beneficial to develop	~~0~~	|	~~0~~	~~0~~

Projects prone to SS

Perceptions of projects and developments susceptible to SS were diverse (Table 4.4). One respondent claimed that SS is not specific to a particular type of development or project. Meanwhile, other participants recalled local cases of SS and identified project types based on their encounters and experiences. Residential and roadwork projects were the most referred to within the local context; however, it is also worth noting that other than project type, project scale appears to play a role in susceptibility to SS. Notable quotes on the latter include: "they have to be of a certain magnitude…and common ownership", "typically controversial", and "the type of development normally would be large scale projects".

Table 4. 4 Codes under the category 'Projects prone to SS', with number of references per stakeholder group.

Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Projects prone to SS	Large or controversial projects	|	|	|	~~0~~
	Residential	|	||	|	|
	Roadworks	~~0~~	|||	~~0~~	~~0~~
	Any/not specific	~~0~~	~~0~~	|	~~0~~

Repercussions of SS

While not a direct probe within the stakeholder interviews, some repercussions of SS emerged as part of the semi-structured discussion (Table 4.5). In particular, the Competent Authority recognizes the negative implications and light shed on authorities and processing officers involved when malpractice from proponents results in successful fragmentation of projects and evasion of EIA. Additionally, the Competent Authority and some practitioners acknowledge the substantial

environmental impacts and visual impacts inflicted by SS, as one participant claims that "the worst environmental impacts are normally not caused by the large developments but by piecemeal developments" and that piecemeal developments result in "shabby looking neighbourhoods" (Participant D). An insightful comment by Participant C also highlights the loss of public amenity due to SS through policy, referring to a particular case whereby a site that was once a public green space transitioned over the span of 20 years into an area with no public amenity at all:

> "This site I was mentioning…there was a roof garden at one point actually legislated for…there was a planning obligation to actually develop a roof garden and that again with this policy-based SS was eroded into actually having no amenity to the public on the site" (Participant C).

Table 4. 5 Codes under the category 'Repercussions of SS' with number of references per stakeholder group.

	Legend ø Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Repercussions of SS	Greater environmental impacts than single large developments	|	||	ø	ø
	Greater visual impacts	ø	|	|	ø
	Bad light on competent authorities	|	ø	ø	ø
	Loss of public amenity	ø	|	ø	ø

The occurrence of SS in Malta

When participants were posed with a query on their encounters with SS cases, their subsequent responses shed light on the perceived prevalence, or lack thereof, of this issue within the local context (Table 4.6). One participant (from the developers/legal advisors' group) expressed that SS incidences have substantially decreased due to increased awareness among practitioners and that locally it is not a prevalent issue, recounting that the instances they personally encountered involved dissecting a

project into phases. Conversely, six participants (from the EIA Practitioners and Technical Experts and the ENGOs stakeholder groups) referred to several local developments and accounts of SS during their interviews, some of which have taken place within recent years, implying that the issue remains relevant.

Table 4. 6 Codes under the category 'Repercussions of SS' with number of references per stakeholder group.

	Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
The occurrence of SS in Malta	Instances have reduced substantially	~~0~~	~~0~~	|	~~0~~
	There is more awareness and knowledge	~~0~~	~~0~~	|	~~0~~
	Reference to local cases of SS	~~0~~	𝍸 𝍸 |	~~0~~	𝍸 |||

4.2.2 Theme 2: Factors that may be resulting in or enabling the occurrence of SS

The categories forming the basis for this overarching theme are 1) knowledge barriers or gaps, 2) Local Plan related issues, 3) EIA practice and technical issues, 4) deficiencies specific to screening, 5) governance related issues, 6) political influence and culture, 7) resistance from developers and landowners, and 8) barriers to effective public participation and consultation. The respective number of references for each category is displayed in Figure 4.5, with the seventh category having the greatest number of references. Several of the aforementioned categories were not queried directly but emerged repeatedly in semi-structured discussion with participants, meriting acknowledgement and revealing underlying issues within the local context that may be enabling SS.

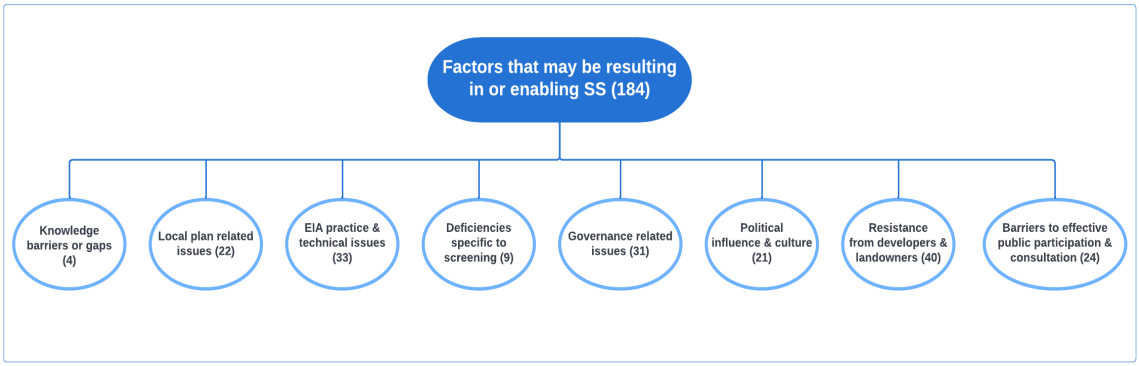

Figure 4. 5 Categories contained within Theme 2 'Factors that may be resulting in or enabling SS', with respective total number of references (n=10).

Knowledge barriers or gaps

Codes grouped within this category address statements that indicate uncertainty among participants or a lack of understanding (Table 4.7). The first two codes relate to previous themes and categories. There appears to be a "fine line between what is SS which is malpractice and another which is legitimate subdivision of a project into manageable chunks – project phasing" (Participant A). Despite the indication of this fine line and potential grey area, subsequent comments by the Competent Authority suggest that this issue is addressed adequately in Maltese law. The second code was referred to by two participants, with one referring to difficulty addressing cumulative impacts of unrelated projects and the other questioning whether projected cumulative effects by different owners should be considered as a type of SS. The underlying tones disclosed within these codes are reminiscent of the lack of holistic assessment associated with SS, as discussed in Theme 1, and raises relevant questions regarding effective EIA and planning in the MI in general. The third and last code within this category stems from a query posed by Participant G on the necessity of EIA when there exist the LPs and the Strategic Plan for the Environment and Development Policy (SPED) with the former containing indications of permitted development. This may indicate a lack of understanding of the role of EIA among other issues, such as potential incompatibilities or contradictions within LPs and EIA in Malta. Participant G articulated the following:

> "The Local Plans say this piece of land here you can build 5 floors, you can do it residential, you can do this…it's a very detailed document. The government

tells you that you can build 5 floors and everything. Once you apply the authorities are asking you for an environmental impact assessment…so why are the authorities telling you that you can build 5 floors…and asking you for an EIA?" (Participant G).

Table 4. 7 Codes under the category 'Knowledge barrier or gaps' with number of references per stakeholder group.

	Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Knowledge barriers or gaps	Fine line between SS and legitimate project phasing	|	~~0~~	~~0~~	~~0~~
	Uncertainties relating to cumulative impacts	|	|	~~0~~	~~0~~
	Unclear why EIA is needed when there are specifications in the SPED and local plans	~~0~~	~~0~~	|	~~0~~

Local plan related issues[7]

Mention of or reference to the LPs throughout interviews was substantial, noted in five of the ten interviews (Table 4.8). Reference to LPs was generally accompanied by negative associations and mention of deficiencies; for example, as noted in the previous category, there appears to be a misalignment between LPs and EIA:

> "If the plan is not assessed properly, it is set in stone even perceived entitlements and people who buy land purely because they are assured that they can develop it…at that point there are conflicting commitments…there is a contradiction – so one says you can do it but the other says first we must assess and then see whether we can do it" (Participant A).

[7] See Appendix D for background on Maltese Local Plans.

"There was one which was residential so 5 different massive blocks. The blocks were all within scheme…partly why they said that there won't be an impact because it's all provisioned for in the local plans. But that's not what the regulations say you know even if something is allowed in principle in the local plans it doesn't mean you shouldn't carry out an EIA, they're separate" (Participant E).

In one case it was even suggested that an overarching environmental impact assessment and traffic impact assessment could be carried out by local councils or other competent authorities such as the Maltese Planning Authority, with funds collected from developers. Additionally, cumulative impacts resurfaced in relation to LPs, namely, there is a perceived unfairness in carrying out impact assessments if others in the area have not done so and when the local plans outline a permitted scale of development, "so if you apply before me you will have no issue of the TIA (Transport Impact Assessment) ...my TIA will have an issue. So he can build and I cannot build, when both of us in the local plans tells us that we can build" (Participant G).

Table 4. 8 Codes under the category 'Local plan related issues' with number of references per stakeholder group.

Legend ɵ Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Local plan related issues	A large development area divided into plots can legally evade EIA	ɵ	|	ɵ	ɵ
	All local plans issued without an EIA	ɵ	||	ɵ	ɵ
	Legitimate expectations due to local plans	ɵ	|	ɵ	ɵ
	Local plans are outdated and poorly done	ɵ	||||	ɵ	ɵ
	Local plans exempt from SEA	ɵ	|	ɵ	ɵ
	Lack of alignment between local pans and EIA	|	|	|||	ɵ
	Loopholes in ODZ	ɵ	|	ɵ	ɵ

	Partial local plan review allows landowners to lobby for land use change	~~0~~	|	~~0~~	~~0~~
	Schemed roads can be used to separate developments	~~0~~	|	~~0~~	~~0~~
	Studies normally issued after objectives have already been determined	~~0~~	|	~~0~~	~~0~~
	Areas already zoned for certain scale of development	|	~~0~~	~~0~~	~~0~~
	Carrying capacity is not considered in local plans	|	~~0~~	~~0~~	~~0~~

The aforementioned code can be linked to other codes such as 'areas already zoned for certain scale of development', 'local plans are outdated and poorly done', 'legitimate expectations due to local plans', 'all local plans issued without an EIA', and 'a large development area divided into plots can legally evade EIA', with the latter carrying connotations of cumulative impacts as previously discussed and with Participant D elaborating further that:

> "You have an area where you have 20 plots for development – then you have another area the size of 20 plots for development and you have a single developer applying – the second one would fall under EIA, the other would not, and the impact of the piecemeal development – that environmental impact and everything would be much higher than the one for the so-called megaproject."

Other issues relating to LPs include perceived loopholes in Outside Development Zone (ODZ) designations, local plans being exempt from SEA and thus resulting in 'piecemeal development', and the use of schemed roads to legitimately separate developments. The latter may further highlight the aforementioned misalignment between EIA and LPs, denoting unholistic assessment:

> "They are separated by schemed roads so you know the local plans have schemed roads so every road is defined and has to be defined in the local plan

to be an official road and these projects were separated by official roads so since they were being separated by official roads they were being regarded as separate developments but they were still being carried out at the same time by the same applicant, the same architect, same façade design" (Participant E).

EIA practice and technical issues

The category of EIA practice and technical issues encompasses deficiencies perceived to be present in EIA and that may be contributing to the issue of SS (Table 4.9). Most categories address the way in which EIA is transposed and practiced within the MI, namely 'poor transposition of EIA' referring specifically to EIA not being "tailored to Malta's size and proportions", and particularly prevalent is 'malpractice or bad project management' such as bad advice from advisors, as explained by Participant D in the following excerpt: "I had a case where an architect was advising a client to SS a huge apartment block in order to avoid having a TIA…thought he was doing a good thing but he actually wasn't". Malpractice appears to be present also when interpreting provisions; for example: "we have had officers telling us – we interpret the provision according to whether that developer is to get a permit or not" (Participant I). In relation to such issues, the quality of EIAs produced was perceived to be inadequate: "one of our challenges was precisely that, the inadequacy of the EIA that it was not seeing the project and evaluating the impact of the project as a whole but only part of it" (Participant I), reverting to Theme 1 and a lack of holistic assessment.

Criticism of EIA practice in Malta addressed issues such as the fact that at instances, delays in a developer acquiring land was perceived by competent authorities as a justifiable reason for splitting of applications. Applications submitted at different times have also been regarded as legitimately separate due to the inability to foresee such instances occurring, and developers can legally divide urban land and apply under different names, meaning that one may "apply plot by plot legally…use different names for applicants and…be within the plan" (Participant D). Another important and recurrent criticism is the execution and assessment, or lack thereof, of cumulative impacts in EIA: "Cumulative impacts of unrelated developments is almost always the weakest link of EIA…and EIA becomes ineffective" (Participant A). The Competent

Authority further discusses an important consideration that first phase approval has a determining influence on second phase approval, meaning that once one half of a project has been approved by means of SS, it is difficult to address the second half that might have been undeclared.

Codes reflective of technical issues include 'Difficult to appeal when there is no EIA' which goes in tandem with the code 'Difficult to find legal provisions that prohibit splitting of applications'. These points were raised specifically by an ENGO and referred to an instance in which a case of SS prevailed and whereby the absence of an EIA posed difficulties in challenging the case:

> "There is no EIA to appeal so we cannot appeal the merits of an EIA. It is harder in this case to find the legal provisions that specifically prohibit the splitting up of applications and…it was so clear that it was split up" (Participant J).

Additionally, participants within the ENGOs stakeholder group identified difficulties involved when challenging EIAs or application permits, with these cases first presented to a planning tribunal - one "cannot go to a court of appeal immediately" - and highlighting potential conflicts of "politically appointed persons" on such boards.

Table 4. 9 Codes under the category 'EIA practice and technical issues' with number of references per stakeholder group.

Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
EIA practice & technical issues	Difficult to determine SS even when indicating ownership	~~0~~	~~0~~	|	~~0~~
	First phase approval has a determining influence on second phase approval	|	~~0~~	~~0~~	~~0~~
	Malpractice or bad project management	||||	||||	~~0~~	|
	Difficult to appeal when there is no EIA	~~0~~	~~0~~	~~0~~	|
	Delays in developer acquiring land perceived as justifiable reason for splitting applications	~~0~~	|	~~0~~	~~0~~

	EIA submitted by developers not EIA coordinators	⊖	|	⊖	⊖
	Developers can legally divide urban land and apply under different names	⊖	||	⊖	⊖
	No legal obligation for neighbouring plots to be considered as one development	⊖	⊖	|	⊖
	Flaws when challenging EIAs and application permits	⊖	⊖	⊖	|
	Difficult to find legal provisions that prohibit splitting of applications	⊖	⊖	⊖	|
	Projects considered to be unrelated due to different application numbers	⊖	⊖	⊖	||
	Poor transposition of EIA in the Maltese context	⊖	⊖	⊖	|
	Area of influence considered not wide enough	⊖	|	⊖	⊖
	Applications submitted at a different time regarded as separate	⊖	|	⊖	⊖
	EIA carried out poorly or inadequately	⊖	⊖	⊖	|
	Cumulative impacts are a weak link in EIA	|	||	⊖	⊖

Deficiencies specific to screening

Exploring the two approaches to screening and their relation to SS yielded contrasting results and opinions among participants (Table 4.10). The screening process itself is perceived to be ineffective due to the discretion accompanying it. Meanwhile, thresholds received numerous criticisms such as being arbitrary, not being tailored to Malta as previously recounted, and markedly providing a method of evasion - "people do find ways of trying to lower figures through property size or you know proposal size in order to not meet certain thresholds and therefore that constitutes SS" (Participant C). Conversely, one participant put forward an argument suggesting that case-by-case evaluation may be more conducive to SS locally, with undertones to be discussed within the category of 'Political influence and culture within the local context':

"I know that when something is written it is harder to get out of…that has been the trend…when something is ambiguous or left open to interpretation there is more abuse and often the bad interpretation takes prevalence, and it becomes the way… I don't see it working locally, I can see how academically it may sound like the better approach, but I think locally because of our habits or tendencies it would be more open to abuse." (Participant E).

Thus, consideration of the local context appears to play an important role in determining the most effective screening approach. Finally, one participant highlighted that in the case of identifying the development of neighbouring plots during the screening phase, regardless of the screening approach, the competent authorities cannot intervene if plots are owned by different individuals, relating back to weak assessment of cumulative impacts, especially of unrelated projects discussed throughout.

Table 4. 10 Codes under the category 'Deficiencies specific to screening' with number of references per stakeholder group.

Legend ø Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Deficiencies specific to screening	Thresholds have an element of arbitrariness	|	ø	ø	ø
	Screening is ineffective due to discretion accompanying it	ø	|	ø	ø
	Competent authority perceived to lack the power to effect change and intervene during the screening phase	ø	ø	|	ø
	Case-by-case screening may be more conducive to SS	ø	|	ø	ø
	Thresholds allow for an easy way out of EIA	ø	|||	ø	|
	Thresholds are not tailored to Malta's size	ø	ø	ø	|

Governance related issues

Comprising this category are issues that can be classified as governance related, referring to interpretation and law, weaknesses in upholding good governance, and other systematic issues (Table 4.11). In terms of interpretation and law, vagueness of the law is discussed as being problematic in the local context, related to the code 'bad faith accompanying interpretation of legislation' whereby a substantial number of references were made by participants to instances where the competent authorities or those governing were perceived to have been inadequate in their judgements or lacking "good will" or "good faith", particularly by interpreting the laws to their partiality: "it comes down to interpretation often so I would say perhaps how it's…interpretation of the law … wrong interpretation of the law and a failure to act like an unwillingness to act from the authorities side" (Participant E).

The aforementioned may be related with other codes within this category such as 'competent authorities perceived to be ineffective/deficient' and particularly with a perceived 'reluctance to acknowledge the occurrence of SS'. Pertaining to the latter are the following extracts: "a refusal, complete refusal to countenance that it must be effected in practice" (Participant F), "very reluctant to see you know any form of SS… to date, though not all the cases have been adjudicated in the final instance there hasn't been one final judgement about SS" (Participant F), and "they do not want to see the connection" (Participant E).

Table 4. 11 Codes under the category 'Governance related issues' with number of references per stakeholder group.

Legend 0 Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Governance related issues	Vagueness of law	0	|	0	0
	Loopholes built into the system	0	0	0	||
	Competent authorities perceived to be ineffective/deficient	0	𝍸 |||	0	𝍸

	Bad faith accompanying interpretation of legislation	0	||||	0	||
	Inadequate implementation of SEAs	0	|	0	0
	Concept of spatial planning not adopted in the MI	0	|	0	0
	Reluctance to acknowledge the occurrence of SS	0	||||	0	0
	Siloed thinking among government ministries and departments	0	|	0	0

Resistance from developers and landowners

Emanating from several interviews was a perceived resistance from developers and landowners discussed both directly and also underlying certain points of discussion (Table 4.12). Resistance to and negative perceptions of EIA were detected within interviews with developers, with relevant codes including 'EIA perceived as a form of penalty' whereby it was referred to on several accounts as penalization for larger developments: "there is Salami-slicing in the first place because there isn't a level playing field. If it was a level playing field, why would I need to consider salami slicing?" (Participant G) and "I have to do so many things just because my size is bigger in reality its not a level playing field" (Participant G). In this regard, several participants (Participants A, C, D, F, H, & I) highlight that SS occurs intentionally to evade EIA. On a similar note, cumulative impacts were likewise viewed as an unfair penalty for those last or most recent to develop, as exemplified by Participant F: "Mr A built this little house and Mr B built that little house and now I'm going to come build this whopping huge hotel near them; why should I have a study which sort of points out the cumulative impacts just because I'm coming last?". Motivations underlying EIA avoidance were also made clear and primarily involved financial and time related burdens such as the costs of an EIA and other accompanying fees. Amalgamating aforementioned points on perceived penalties and cost related burdens is the following point by Participant G:

> "the cost will go really high and then there will be issue of affordability … where people/developers salami the project for that simple reason. We

believe that a project should be amalgamated … there is more developments you know the larger they are they can be planned better… they can have a better effect on the neighbours on the locality but unfortunately you are penalized through cost through services through everything".

Table 4. 12 Codes under the category 'Resistance from developers and landowners' with number of references per stakeholder group.

	Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Resistance from developers & landowners	Cumulation of impacts viewed as an unfair penalty	~~0~~	|	~~0~~	~~0~~
	EIA perceived as a form of penalty	~~0~~	|	~~||||~~	~~0~~
	EIA perceived as a burden (financial and time)	~~0~~	|||	~~||||~~ |||	~~0~~
	A perceived uneven playing field for larger developments	~~0~~	~~0~~	||	~~0~~
	SS is done intentionally to evade EIA	||	~~||||~~ |	||	|
	Territorial attitudes	~~0~~	||||	~~0~~	~~0~~
	Unwillingness to collaborate	~~0~~	||	~~0~~	~~0~~
	EIA should not be carried out by developers	~~0~~	~~0~~	|	~~0~~

Some points of discussion delved into encouraging separate landowners or developers to collaborate and encourage the execution of an EIA simultaneously, enhancing the quality of developments; however, linked to such discussions were barriers of territorial attitudes and an unwillingness to collaborate. For example: "…and third the territoriality. For us that plot of land is our territory and no one has the right to touch it and these make it very difficult for the government of the day to change local plans.", and "there is nothing in the plans which forces people to get together and have a masterplan, a proper master plan, the plots remain separate…

the owners objected they refused totally to join together….they retained their interests so they have profits but they just refused to have a masterplan".

Political influence and culture

As already made evident through some previous codes, mention of local political influence and political relationships emerged from several interviews, primarily noted by EIA practitioners and technical experts, and ENGO stakeholder groups (Table 4.13). There appear to be strong indications of political influence and motives within the MI accompanied by close ties between developers, property owners, and politicians, with one participant articulating:

> "If SS occurs, it means that a decision maker has allowed it to occur. Now in a culture, we're speaking specifically about Malta here, where the decision makers are very close to major developers, this is an accepted fact, there are many papers written, in this culture to me it seems unlikely that the decision maker is not aware of the SS."

On this note, another participant (Participant D) describes the existence of an "incestual relationship between them [property owners and politicians]". These codes go in tandem with 'a system that accommodates developers' and with 'a lack of independence'. Additionally, indications of political motives surfaced through excerpts such as: "interpret the provision according to whether that developer is to get a permit or not – we can use the same provision and quote it in his favour or against it" (Participant I) and Participant C further elaborating that:

> "With my experience with spatial planning, it is a political decision. It is a process which is rooted in the relationship between the investor and the politician and therefore the screening process which is purely environmental, or planning is somewhat disjointed from when the decision was taken to embark on a programme which ultimately has SS at its core."

Table 4. 13 Codes under the category 'Political influence and culture' with number of references per stakeholder group.

	Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code	EIA competent authority	EIA practitioners & technical experts	Developers & legal advisors	ENGOs
Political influence & culture Political influence & culture	Lack of political will	~~0~~	||	~~0~~	~~0~~
	Lack of independence	~~0~~	~~0~~	~~0~~	||
	Bad intentions perceived to be present locally	~~0~~	|||	~~0~~	~~0~~
	Close ties between developers, property owners, & politicians	~~0~~	||||	~~0~~	|
	Political influence and motives	~~0~~	|	~~0~~	~~||||~~ ||
	A system that accommodates developers	~~0~~	~~0~~	~~0~~	|

Barriers to effective public participation

As will be discussed in the next Theme (Addressing SS), the public and those referred to as the 'watchdog' emerged as a potential tool for SS prevention; however, as part of such discussions, particularly within interviews with ENGOs, several barriers impeding public consultation and participation effectiveness were noted (Table 4.14). Among these is the lack of acknowledgement of the public's concerns and recommendations, with several accounts of instances whereby the public was ignored, and no justification was provided to address certain approvals or decisions. Also relevant is the code related to terms of reference (TOR), with criticisms that these are not exhaustive enough, especially in justifying the rejection of public recommendations. Other identified barriers are resource related, concerning time, expenses, and availability or quality of information accessible to the public. In terms of accessibility to information, issues of quality and quantity were clearly outlined, referring to either a lack of information, lack of access to more technical information, or conversely, an overwhelming amount of incomprehensible information:

> "NGO is not properly informed…information we had at the authority through the development planning process was not the information that the public

had…that is a problem because unless you have all of the information you cannot take an informed decision" (Participant C).

"We were presented with something like 10 massive files to go through…we could not carry them out… so it's a question of killing them with kindness. The attitude is you complain when we don't give you information and you complain when we give you information." (Participant I).

With regards to financial and time constraints, participants specifically referred to the costs needed to engage professionals; for example "they had to pay their consultants legal, environmental and everything…they had to pay them out of pocket", "the challenges that NGOs face in actually attending board meetings", and time required "to get this expertise on board and even showing up at meetings which are during the working day; you know there are several challenges of this administrative, if you like, and financial nature". Additionally, the disadvantaged position that the public are in was highlighted particularly in terms of understanding and education on EIA and related matters. Therefore, the process is also deemed ineffective with one participant stating that "the process is not effective because the public has been deprived systematically of information and education" and "it is two extremes, a very sketchy description in layman's terms and a huge bulk of information that is presented in the technical version which no one who does not have a PhD can absorb" (Participant I).

Table 4. 14 Codes under the category 'Barriers to effective public participation' with number of references per stakeholder group.

Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Barriers to effective public participation and consultation	Improper documentation of public hearings	~~0~~	~~0~~	~~0~~	|
	Insufficient understanding and education	~~0~~	~~0~~	~~0~~	|||
	Quality and quantity of information made available to the public	~~0~~	|||	~~0~~	|||

	Limited public participation	0	0	0	|
	Lack of acknowledgement of public concerns or recommendations	0	|||	0	||||
	Terms of reference not exhaustive enough	0	||	0	|
	Financial constraints in engaging professionals	0	|	0	|
	Time constraints	0	|	0	0

4.2.3 Theme 3: Addressing SS

The categories forming the basis for this overarching theme are 1) perceptions of existing regulations in Malta, which may be further categorized into three viewpoints, namely insufficient, sufficient, and room for improvement, 2) existing practices enhancing EIA effectiveness, 3) enhancing the public participation process, 4) the role of screening and recommendations for increasing its effectiveness, 5) incentives for developers, and 6) recommendations for improved regulation and governance. The respective number of references for each category are displayed in Figure 4.6, with the latter having the greatest number of references.

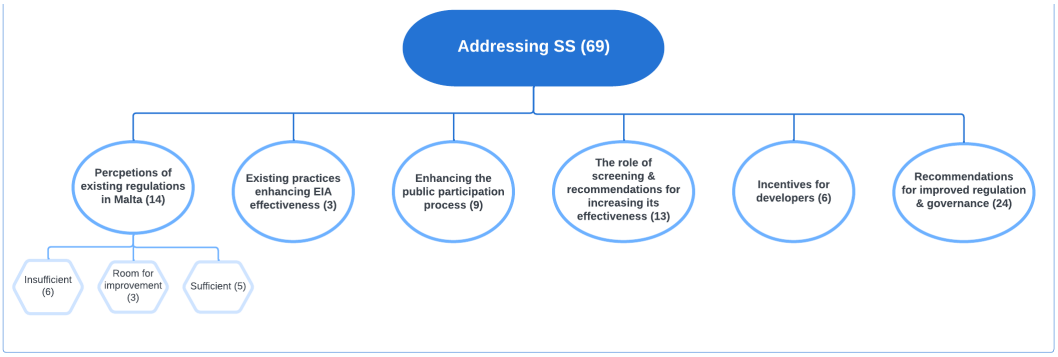

Figure 4. 6 Categories contained within Theme 3 'Addressing SS', with respective total number of references (n=10).

Perceptions of SS regulations in Malta

Discussions of existing provisions targeting SS in Malta yielded three sub-categories: 1) codes indicating regulations to be insufficient, 2) codes recognising room for improvement, and 3) codes indicating regulations to be sufficient (Table 4.15). The

latter category contains the highest number of references and was referred to by three participants. The codes contained within this sub-category suggest that existing provisions on SS are robust and clear: "it is very clear for me…I find it very clear and very good" followed by recognition of the issue of "complete refusal to countenance that it must be effected in practice" (Participant F), and another participant reiterating that "I don't think there is a legislative problem…the law is very clear" (Participant H).

Table 4. 15 Codes under the category 'Perceptions of SS regulations in Malta' with number of references per stakeholder group.

Legend ɵ Indicates no references for this code | Indicates one reference for this code			**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Perceptions of SS regulations in Malta	*Insufficient*	Fragmentation is discussed too vaguely	ɵ	||	ɵ	ɵ
		Loopholes may be present in the legislation	ɵ	|	ɵ	ɵ
		No efforts made for SS prevention	ɵ	ɵ	ɵ	|
		Weak legal safeguards against SS	ɵ	ɵ	ɵ	||
	Room for improvement	Regulations should be more specific	ɵ	|	ɵ	ɵ
		Difficult to find legal provisions that prohibit the splitting of applications	ɵ	ɵ	ɵ	||
	Sufficient	SS is clearly defined in legislation	|||	|	|	ɵ

Conversely, codes contained within the 'Insufficient' sub-category indicated different views among four other participants. Insufficiencies were related to vague discussion of fragmentation in EIA regulations: "there's the problem with the regulations they are very vague and open to so much interpretation" (Participant D). Underlying this

statement appears to be hesitance to allow excessive room for interpretation, linked to previous concerns by other participants, as discussed within the category 'Governance related issues' under Theme 2 and expressed within the code 'Bad faith and intentions accompanying interpretation'. Other participants describe legal safeguards present, particularly against the "splitting of applications", to be weak, and some also indicate that people are able to find a way around legislation. On a similar note, some points of discussion can be identified as deficiencies or areas that may be strengthened, such as tackling bad or abusive interpretation of the law; for example "I would say there could be improvements to the legislation to make it harder for this kind of interpretation so more specific and details like …abcd would still qualify rather than leaving it open to interpretation." (Participant E). Additionally, a gap was identified by one participant, as previously noted, on legal provisions specifically prohibiting the splitting of applications, further addressing the need to make regulations more detailed, stating that "when it comes to finding the legal provisions that categorically prohibit that [splitting up of applications] it becomes harder" (Participant J).

Existing practices enhancing EIA effectiveness

Reference to other measures or regulations addressing malpractice and ensuring the overall quality and effectiveness of EIA was made, particularly by the Competent Authority (Table 4.16). In discussions on SS and related provisions, attention was also drawn to other existing provisions targeting malpractice and fraudulent or misleading information, whereby permission is revoked if a declaration is deemed to be false (with reference to Regulation 33 on enforcement of S.L.549.46). Additionally, scoping is identified as contributing to the improvement of the quality of information submitted, by identifying potential environmental impacts. Quality of information is further ensured through technocrats who provide credible professionality and carry out quality control through additional questions.

Table 4. 16 Codes under the category 'Existing practices enhancing EIA effectiveness' with number of references per stakeholder group.

	Legend ø Indicates no references for this code | Indicates one reference for this code	EIA competent authority	EIA practitioners & technical experts	Developers & legal advisors	ENGOs
Existing practices enhancing EIA effectiveness	Technocrats ensure quality of environmental information provided	|	ø	ø	ø
	Scoping contributes to improvement of quality of information provided by the developer	|	ø	ø	ø
	Other existing provisions on enforcement aid with addressing malpractice	|	ø	ø	ø

Enhancing the public participation process

As has been highlighted by some participants, the public or the 'watchdog' appear to play a role in detecting SS (Table 4.17), as supported by the following:

> "The way forward is, when these things aren't taken on board by the authorities, it's dependent upon the NGOs and the public to file cases, continuous cases, so that there will be a judgement against this which can be used as a precedent. That's the only thing that can be done" (Participant F).

While barriers to effective public participation have also previously been noted, emanating from such discussions are recommendations for strengthening the public participation and consultation process. Aspects of particular importance appear to be education and increased understanding, accompanied by accessibility to the right information:

> "You can educate other stakeholders to flag up potential issues of SS, so you can educate for example members very active in ENGOs in order to be able to lobby against this issue and that is the case of education, provision of resources and so on and so forth relating to how people, we call them

objectors…how stakeholders interact with a proposal with an application for development permission" (Participant C).

"The country needs to tackle the challenges that NGOs face in knowing more and in making their submissions… So the first point is make sure that NGOs are properly informed. So processes are in place for NGOs to have the right information" (Participant C).

Table 4. 17 Codes under the category 'Enhancing the public participation process' with number of references per stakeholder group.

	Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Enhancing the public participation process	Educating the public and NGOs to flag and appeal SS cases	~~0~~	||||	~~0~~	~~0~~
	Ensuring public accessibility to relevant information	~~0~~	||	~~0~~	~~0~~
	Public plays a role in identifying SS and other shortcomings	~~0~~	||	~~0~~	|

The role of screening and recommendations for increasing its effectiveness

Perceptions of screening and its role in addressing SS were diverse (Table 4.18); for example, while one participant indicated its role in detecting SS, another claimed that SS may be inevitable regardless of the screening phase and approach used. In terms of the most suitable screening approach or one that may be the least conducive to SS, opinions were mixed. Thresholds were perceived to be necessary to maintain a "meaningful situation" and avoid subjecting every single development to scrutiny. That being said, several recommendations were proposed for thresholds and improving their use, particularly by increasing specifications tied to thresholds, and lowering current threshold values "of the area or number of units that are being subjected to an EIA". Additionally, increasing the effectiveness of screening was suggested through a "research-based approach" whereby thresholds are questioned

in certain instances and "the results of analysing impacts based on thresholds are interpreted" (Participant C). This suggestion was accompanied by the proposal of questions or a checklist part of the screening procedure that would raise awareness of the issue to environmental and planning officers and allow its detection through specific criteria. Other suggestions included requesting applicants to present past applications along with new ones to aid with more holistic assessment by examining intent and identifying linked projects.

Table 4. 18 Codes under the category 'The role of screening and recommendations for increasing its effectiveness' with number of references per stakeholder group.

	Legend ø Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
The role of screening and recommendations for increasing its effectiveness	Screening can be effective at detecting SS	ø	ø	|	ø
	Necessity of thresholds	||	ø	ø	ø
	SS may be inevitable regardless of screening approach	ø	ø	|	ø
	Thresholds and case-by-case work in tandem	||	ø	ø	ø
	Implementing a research-based approach	ø	|	ø	ø
	Request applicants to present past applications along with new ones	ø	|	ø	ø
	Increasing specifications tied to thresholds	ø	|	ø	ø
	Lowering threshold values	ø	ø	ø	|
	Allocate questions in screening specific to identifying SS	ø	||	ø	ø

Incentives for developers

A recurring topic in one interview with a developer was that of incentives and the role they may play in discouraging SS by encouraging collaboration among developers and execution of an EIA. Examples of incentives were proposed, namely, tax incentives, granting extra GFA (gross floor area), and granting extra floors (Table 4.19):

> "So imagine if you have a major project and you say you know the government or PA will allow you to build an extra floor for example so rather than…there will be the opposite effect, rather than SS many developers will join forces to have a larger area" (Participant G).

Additionally, current perceptions of EIA resurfaced in relation to incentives: "if you have incentives, everyone will join forces and will be happy to do the EIA because for now it is always from a mentality of penalizing point of view" (Participant G).

Table 4. 19 Codes under the category 'Incentives for developers' with number of references per stakeholder group.

	Legend ɵ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Incentives for developers	Extra GFA	ɵ	ɵ	|	ɵ
	Granting extra floors	ɵ	ɵ	||	ɵ
	Tax incentives	ɵ	ɵ	||	ɵ
	Incentives encouraging developers to collaborate	ɵ	ɵ	|	ɵ

Recommendations for improved regulation and governance

The recommendations contained within this category and Table 4.20 appeared alongside many issues emerging in Theme 2, such as those on EIA practice and technical issues, governance related issues, and barriers to effective public participation and consultation. In dealing with and identifying SS, referring to ECJ case

law was noted to be useful. It was also apparent that SEA is underutilised and surfaced as an important measure to target SS:

"For you to address SS, all these plans would have to pass through an SEA but in the most rigorous of ways. The way they carry out SEAs nowadays, they are so superficial… So basically what I'm pointing out is one way one can deal with this issue is through very detailed SEAs" (Participant D).

The topic of cumulative impacts also appeared as one requiring improvement and as a having the potential to address holistic assessment, thus addressing one of the cruxes of SS as discussed in Theme 1. LPs were likewise referred to, as was the need for their revision to reduce the lack of alignment between them and EIA. Furthermore, bad interpretation and political influence were addressed through recommendations of 'more stringent and specific legislation' and 'appointing independent members of integrity on planning boards'. In tandem with the indicator listed in Theme 1 of ownership, one participant recommended investigation of site history both in terms of ownership and policy.

Table 4. 20 Codes under the category 'Recommendations for improved regulation and governance' with number of references per stakeholder group.

Legend ɵ Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Recommendations for improved regulation and governance	ECJ case law as a useful reference	||	ɵ	ɵ	ɵ
	SEA can offset EIA deficiencies	|	|	ɵ	ɵ
	Identifying intentions at planning stage	ɵ	ɵ	|	ɵ
	Cumulative impact assessment can ensure holistic assessment	ɵ	ɵ	||	ɵ
	Ability to invoke an EIA if project is expected to have negative impacts on the environment or quality of life	ɵ	ɵ	ɵ	|

	All projects should be assessed holistically regardless of whether they qualify for an EIA	𝍸	𝍸	𝍸	|
	Appointing independent members of integrity on planning boards	𝍸	𝍸	𝍸	||
	EIA should be contracted by a functioning authority not developer	𝍸	𝍸	𝍸	|
	Decision makers should be attentive to loopholes used in the past	𝍸	|	𝍸	𝍸
	Adopting the concept of spatial or integrated planning	𝍸	|	𝍸	𝍸
	Collaborative approach to analysing impacts of a proposal	𝍸	|	𝍸	𝍸
	Government should identify areas of multi-ownership	𝍸	|	𝍸	𝍸
	Look into history of the site in terms of ownership and policy	𝍸	|	𝍸	𝍸
	More stringent & specific legislation to avoid misinterpretation	𝍸	||	𝍸	𝍸
	Masterplan approach to increase collaboration between property owners	𝍸	||	𝍸	𝍸
	Reducing decision-makers' discretion	𝍸	|	𝍸	𝍸
	Revision of local plans	𝍸	|	𝍸	𝍸

4.2.4 Theme 4: Perceptions of informal discussions

The categories forming the basis for this theme are 1) potentially beneficial, 2) potential hindrance, and 3) factors determining effective informal discussions (Figure 4.7). Opinions on this topic were mixed and were generally accompanied by references to the third category within this theme. Figure 4.8 shows some of the most commonly used words coded to this theme, with the size of the words indicative of

the frequency with which they were used. Phrases and words that were most commonly associated with perceptions of informal discussions notably include: 'screening', 'behind closed doors', 'regulator', 'intentions', 'advice', and 'developers'. These phrases may indicate the EIA phase which such discussions are associated with, who is generally involved in such discussions, what their purpose is, and may also reveal a common negative association implied by the phrase 'behind closed doors'.

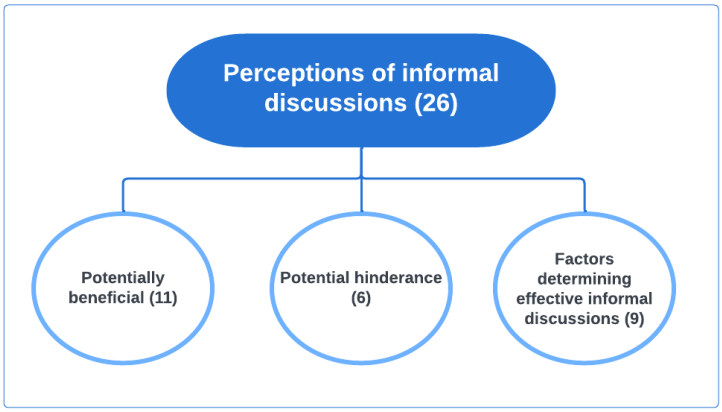

Figure 4. 7 Categories contained within Theme 4 'Perceptions of informal discussions', with respective total number of references (n=10).

Figure 4. 8 Word cloud for 'Perceptions of informal discussions'.

Potentially beneficial

Some participants perceived informal discussions to be beneficial (Table 4.21), with these associated with collaboration, which was noted to enhance the screening process by resulting in richer research:

> "In my experience when we're doing screening without having discussed the matter, I feel that the screening was done in a very shallow way so during the research phase which I believe very strongly should come before we actually fill in the screening, so that you actually know what you're talking about. If that phase is collaborative and you speak to as many stakeholders as possible and this includes even the investors and even politicians… if you are as collaborative as possible, the research is richer" (Participant C).

In addition to this, they are recognised as an opportunity to identify intentions as expressed by Participant H: "I see them as being very beneficial and they help; as I said they help identify what the real intentions are and also what the intentions of the regulator are; it's a two-way approach". They also allow the project proponent to gain better understanding and information from the regulator, thus clarifying the expectations from any studies to be carried out.

Table 4. 21 Codes under the category 'Potentially beneficial' with number of references per stakeholder group.

	Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Potentially beneficial	Informal discussions can be beneficial	|	|	||	||
	Collaboration is essential	~~0~~	|	~~0~~	~~0~~
	Informal discussions can be in good faith	~~0~~	|	~~0~~	~~0~~
	Informal discussions enhance research and screening	~~0~~	|	~~0~~	~~0~~

	Helps identify intentions	~~0~~	~~0~~	|	~~0~~
	Opportunity for the regulator to clarify expectations of the studies	~~0~~	~~0~~	|	~~0~~

Potential hindrance

On the other hand, some expressed concerns related to informal discussions (Table 4.22). Informal discussions appear problematic particularly when they are poorly documented. Additionally, concerns were generally accompanied by reference to the local context, for example, the expression of a 'lack of transparency in the local context':

> "If we were in an ethical environment, I would say that there could be benefits, but we are not. And since these informal discussions are invariably held behind closed doors as are the informal discussions of the planning board when assessing cases to be brought before it, then I tell you no, they are a hindrance." (Participant I).

It was also noted that such discussions have resulted in developers challenging informal advice by reverting to close ties with politicians, as noted in codes within previous categories, namely within Theme 2 on 'Factors resulting in or enabling SS' under the category 'Political influence and culture'.

Table 4. 22 Codes under the category 'Potential hinderance' with number of references per stakeholder group.

Legend ~~0~~ Indicates no references for this code | Indicates one reference for this code		**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Potential hinderance	Informal discussions are problematic when poorly documented	|	~~0~~	~~0~~	~~0~~

	Some developers challenge informal advice and resort to political influence	𝍸	|	𝍸	𝍸
	Wary of informal discussions	𝍸	||	𝍸	𝍸
	Uncertainties on the purpose of such discussions	𝍸	|	𝍸	𝍸
	Lack of transparency in the local context	𝍸	𝍸	𝍸	|

Factors determining effective informal discussions

It is worth noting that many discussions on informal discussions entailed clarification of or reference to factors determining their effectiveness (Table 4.23). In particular, 'Transparency and documentation' of such discussions was noted as the main determining factor of beneficial discussions:

> "Now speaking realistically, a lot goes on behind the scenes so a lot of meetings take place …that does not mean that that informality should not be part of the learning process but ultimately one would need to document the background to the results… to the understanding." (Participant C).

> "Everything should be minuted and official everything needs to be put out there, also so that if you didn't do anything wrong people know and you can prove it …so I think anything informal shouldn't happen." (Participant E).

> "Well…I can understand that a level of informal discussions takes place but I think that once something is inside the planning process, everything should be transparent so all emails, all communications - of course it needs to take place but it needs to take place through the official channels and it needs to be available to everyone for them to see because I mean we already have a big problem in Malta with people knowing each other and people being able to influence decisions." (Participant J).

The tone of informal discussions was also noted to be set by the developer or proponent's attitude and whether they are willing to accept constructive advice put forward by the competent authorities, which was noted to be sound advice in many

instances. The observed behaviour, however, was ultimately resistance and challenges from developers.

Table 4. 23 Codes under the category 'Factors determining effective informal discussions' with number of references per stakeholder group.

	Legend ~~o~~ Indicates no references for this code | Indicates one reference for this code	**EIA competent authority**	**EIA practitioners & technical experts**	**Developers & legal advisors**	**ENGOs**
Factors determining effective informal discussions	Transparency and documentation	|	||	|	||
	Developers' attitudes	~~o~~	|	~~o~~	~~o~~
	An ethical environment	~~o~~	~~o~~	~~o~~	||

4.3. Synthesis of commonalities and differences among stakeholder groups

Thematic analysis of the interviews revealed commonalities and differences among stakeholder groups, synthesised by theme and category below.

Theme 1: Understanding SS

- The first category within this theme defines SS according to descriptions provided by participants. An aspect that arises among all stakeholder groups is that SS entails the splitting or breaking down of a project in such a way that reduces the holistic picture. Further to this, stakeholder groups such as EIA practitioners and technical experts, and developers and legal advisors both note the submission of a project through several applications as a means of SS, while both ENGOs and developers and legal advisors also identify the splitting of a project through phases. Codes recurrent only among EIA practitioners and technical experts include the disregard of intrinsic parts of a project, which like the initial code in this category, entails a siloed perspective.

- The codes common among most stakeholder groups in the second category of Theme 1 (potential indicators of SS occurrence) include projects just below thresholds (surfacing among the competent authority, EIA practitioners and technical experts, and ENGOs) and the submission of applications at staggered intervals or in quick succession (surfacing among competent authority, EIA practitioners and technical experts, and ENGOs). The remainder of indicators noted varied among the groups.
- Discussions comprising category 3 (legitimate project phasing and unrelated projects) were prominent primarily among the competent authority.
- Residential projects are commonly perceived to be prone to SS within the fourth category (projects prone to SS), while large or controversial projects are noted by the first three stakeholder groups (competent authority, EIA practitioner and technical experts, and developers and legal advisors).
- In terms of the repercussions of SS, greater visual impacts were acknowledged by two groups (EIA practitioners and technical experts, and developers and legal advisors). Likewise greater environmental impacts were noted by both the competent authority and practitioners and technical experts. The bad light shed on competent authorities as a result of SS appeared to be specific to the competent authority.
- Finally, the sixth category on the occurrence of SS in Malta reveals a disparity in perspectives among groups. While those within the developers and legal advisors group noted instances of SS as less common, namely through increased awareness and knowledge, those within the EIA practitioners and technical experts, and ENGOs groups recounted several local examples and within recent years of SS.

Theme 2: Factors that may be resulting in or enabling the occurrence of SS

- The second category within this theme (Local Plan related issues) featured primarily among EIA practitioners and technical experts and very briefly among the competent authority group. One code featuring among the first three groups (competent authority, practitioners and technical experts, and

developers and legal advisors) entailed several indications that suggest EIA and the LPs are perceived as disjointed. In particular, there is a lack of understanding among developers as to why an EIA is required in certain instances when the LPs provision what can be developed.

- The most heavily featured code within the third category on EIA practice and technical issues is that whereby malpractice or bad project management was indicated. This featured particularly across the groups of the competent authority, EIA practitioners and technical experts, and ENGOs, with no mention by developers and legal advisors.
- The most repeated code in terms of screening and perceived deficiencies was that thresholds are perceived to facilitate EIA evasion (noted by practitioners and technical experts, and ENGOs).
- In terms of governance related issues, the most prominent code was that indicating the competent authorities to be ineffective or deficient (notably by EIA practitioners and technical experts, and ENGOs). Likewise, the aforementioned groups both noted that there exists bad faith accompanying interpretation of the legislation. It was also common among interviewees within the EIA practitioners and technical experts' group that there is a perceived reluctance to acknowledge SS occurrence.
- The category addressing resistance from developers and landowners was noted directly by some interviewees and detected among others through negative connotations. Primarily, EIA being perceived as a form of penalty and as a time and cost related burden was apparent among developers on several accounts and was further noted through the experience of EIA practitioners.
- Indications of political influence and culture was prominent only among two stakeholder groups; EIA practitioners and technical experts, and ENGOs.
- Barriers to effective public participation were likewise noted solely by ENGOs and EIA practitioners and technical experts.

Theme 3: Addressing SS

- Existing SS regulations were perceived sufficient primarily by the competent authority, and by some EIA practitioners and technical experts, and developers

and legal advisors. Meanwhile, ENGOs perceived regulations as insufficient or indicated room for improvement. Some EIA practitioners and technical experts likewise noted weaknesses relating to fragmentation as discussed in the regulations.

- The competent authority was the only group to refer to existing practices and provisions enhancing EIA effectiveness or tackling malpractice.
- Suggestions for improving the public participation process were made only by EIA practitioners and ENGOs.
- Mixed views were expressed on the role of screening and related recommendations across all groups.
- Incentives were noted solely by the developers and legal advisors group.
- Several governance related recommendations emerged largely from EIA practitioners and technical experts, and some from ENGOs.

Theme 4: Perceptions of informal discussions

- The potential benefits of informal discussions were acknowledged across all groups, with several benefits noted by practitioners and technical experts, and by developers and legal advisors. Conversely, ENGOs negatively associated such discussions. Some practitioners and technical experts likewise expressed some concerns.
- Transparency and documentation were noted across all stakeholder groups as determining the effectiveness of such discussions.

5. Discussion

This chapter commences with an overview of the conceptual model created through Plectica, which amalgamates information on the topic of SS and addresses the primary research questions of this study. This model is followed by a discussion of the key findings.

5.1 Overview of the conceptual model

The data collected through interviews in this study is amalgamated in the form of a conceptual model (Figure 5.1) which will accompany subsequent discussions for better understanding of the issue of SS. The conceptual model has been organised into segments with the aim of delivering the results obtained and addressing the research questions of this study more clearly. To recapitulate, the conceptual model addresses the following research questions:

- What constitutes SS and what are its associated characteristics? Presented within the red and purple segments and discussed further in Section 5.2.1.
- What are the deficiencies favouring project splitting and enabling its occurrence? Presented within the orange segment and discussed further in Sections 5.2.2 and 5.2.3.
- How might SS be addressed? Presented within the green segment and discussed further in Section 5.2.4.

Figure 5. 1 Segments comprising the conceptual model created through Plectica (accessible at https://www.plectica.com/maps/TAABM48KX).

5.2 Key findings

5.2.1 Understanding the nature of SS and identifying its occurrence

The descriptions provided for what constitutes SS were characterised by an overarching element of reductionism, specifically referring to a fragmented and myopic perspective which contradicts holistic assessment. This frame of thought is reminiscent of that of Ehrlich (2022), who investigated the issue of impact splitting, whereby the effects of a proposed development are viewed in isolation. Ehrlich (2022) identifies 'impact splitting' and its accompanying siloed thinking as a form of impact reductionism, referring to a 'reductionist approach' which does not consider the whole picture, and closely links this to project splitting, with both containing underlying principles of "flying below the impact assessment radar" (p.134). Direct similar references were made in this regard by some participants in this study, notably referring to the avoidance of "holistic scrutiny" (Participant F) and breaking down the

project such that the “bigger picture is lost” (Participant A). Furthermore, this element of reductionism is observed within the methods of SS depicted in Figure 5.2 and contained within Theme 1, categories 1 and 2. Attempting to fragment a project or development through multiple applications for a large site, utilising different applicants, submitting applications for different project phases, and excluding any intrinsic parts, respectively denote means of reducing the bigger picture and relate back to Ehrlich’s (2022) argument of a system losing its essential properties when it is taken apart. Some of the aforementioned means of SS can be likened to the types of SS defined by the EC (2009), namely, splitting through multiple applications which can equate to territory slicing, and resorting to multiple applicants or owners which can equate to developer slicing. While SS through zoning and land use change emerged as an issue tied specifically to the local context, this practice may be related to both slicing of modifications and SS in time, with the latter discussed by the EC (2009) and Enríquez-de-Salamanca (2016) as involving administrative manipulation and multiple modifications. A case discussed by Participant C in this study exemplifies this by outlining how a piece of land offering public amenity can be transformed into a development with no amenity over several years through multiple partial local plan reviews, facilitated by the deficiency that stakeholders may not be aware of the “long-term vision” and reiterating tones of reductionism. Additionally, the splitting of a project or development according to different activities or phases is indicative of the heterogenous type of project splitting described by Enríquez-de-Salamanca (2016).

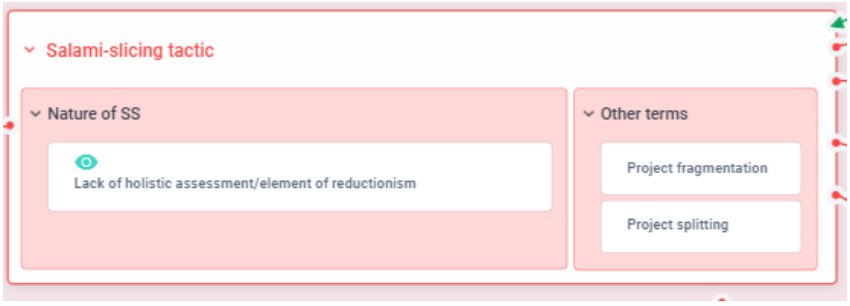

Figure 5. 2 SS described in terms of its underlying nature and recognition of alternative terms.

Furthermore, the conceptual model contains a summary of potential indicators noted by interviewees that may allow detection of SS. Several indicators in Figure 5.3 are identical to the criteria for identifying project splitting presented in a recent publication by Pouikli and Tsakalogianni (2022), namely the application of minimum thresholds, temporal coincidence (i.e. simultaneous or closely spaced submission of permits to the competent authority), the identity of persons and links between certain entities (i.e. submission by the same individuals or companies, or land registered to different but closely related owners), interdependency of installations (i.e. a functional linkage), proximity or adjacency (relating to territory slicing), and the intended bypassing of the law which may be linked to track record (establishing whether there is the intent to bypass the obligations of EIA).

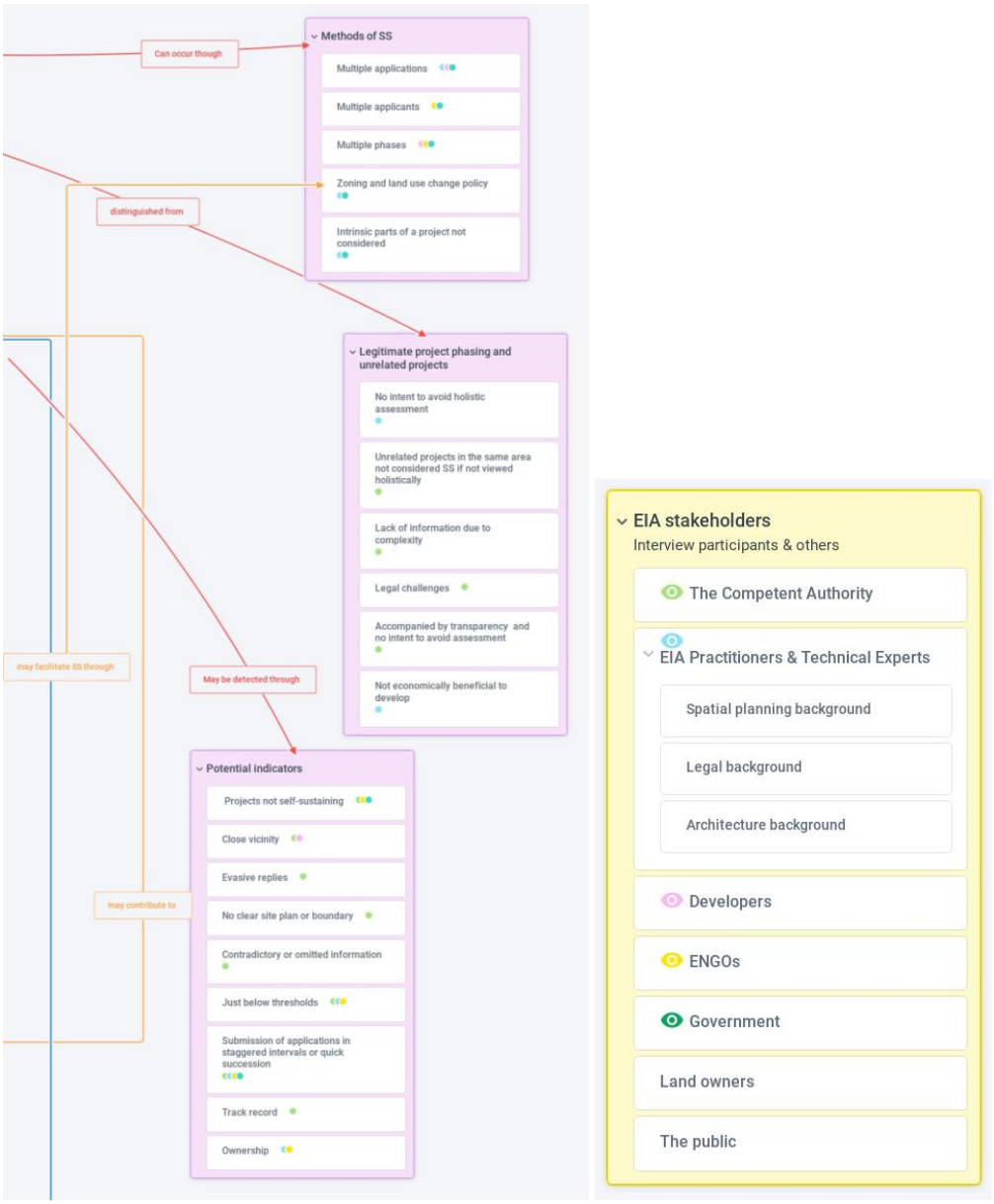

Figure 5. 3 Identification of methods of SS, detection of SS through potential indicators, and distinguishing between SS and legitimate phasing as discussed by interviewees. The P-circles jig is used to indicate perspectives of stakeholders in line with findings from interviews (coloured circles indicative of a point of view).

Legitimate project phasing vs SS

Additionally, some discussions presented perceptions of what can be considered "legitimate project phasing" and mention of projects which are 'unrelated', among other considerations that may be excluded from SS. While some participants perceive SS as absent when similar projects belonging to unrelated owners or developers are carried out in the same area, according to a Commission notice regarding the

application of the EIA Directive (2021/C 486/01)) the "failure to take account of cumulative effect of several projects must not mean in practice that they all escape the obligation to carry out an assessment". Further to this, in Case C-560/08 the ECJ/CJEU recalls Directive 85/337 and considers that, where appropriate, interaction with other projects should be taken into account and notes that Directive 85/337 clearly holds within its provisions that "the cumulative effects of all existing projects must be assessed". Even in the case that there is no direct connection among projects, in Case C-560/08 the ECJ/CJEU refers to Article 6(3) of Directive 92/43 and the accompanying obligation of assessing the impact of any other project if this is likely to affect the site significantly, whether it is individually or in combination with other projects. In terms of identifying legitimate project phasing, such cases were noted to be accompanied by transparency, no intent of avoiding assessment, legal challenges (i.e., in acquiring land), a lack of information due to complexity, and economic reasons (i.e., not economically beneficial to develop at that time). This is similarly addressed within Maltese legislation (S.L. 549.46) on the *bona fide* phasing of a project, which is permitted in the presence of transparency and withstands the fair and comprehensive indication of the full project and its implications, thus, indicating that the project would be viewed holistically and both the "assessment and all relevant decision-making…can be undertaken in their proper context…" (p. 14). Such an approach contains underlying sentiments of the Rochdale Envelope Approach which is intended to account for uncertainties and retains the bigger picture by allowing flexibility through assessment of both worst and best-case scenarios (Caine, 2018).

Projects prone to SS

The findings obtained for project types susceptible to SS presented some similarities to those noted in the literature, while others appeared to be more reflective of the local context. Participants' references to roadworks, and particularly to road extensions and widening, are identical to cases noted by Enríquez-de-Salamanca (2016), namely Commission v Spain (C-560/08), and equate to the homogenous method of project splitting defined in their study. Such findings were also reiterated in a report by the EC (2009) whereby road construction, highway, and infrastructure projects were observed to characterise some of the cases of SS identified among

several MSs such as Cyprus, Latvia, Poland, Romania and the Czech Republic. While SS cases for residential projects were not prevalent in the literature, references to several such cases were made during interviews in this study. Susceptibility of such project types to SS may be greater in the local context due to the increasing rate of urbanisation and the prevalence of residential projects in the MI. This may be reflected in statistics of approved building permits published by the NSO (2022) within recent years, whereby 357 building permits for a total of 2,064 new dwellings were approved during the fourth quarter of 2022, an increase of 33.2% from the previous years. Other than project types, scale emerged as an important characteristic when determining which projects may be more susceptible to SS, notably larger scale projects.

Repercussions of SS

Discussions on SS with participants in this study led to the identification of repercussions associated with its occurrence, such as the loss of public amenity, the bad light shed on competent authorities, greater visual impacts, and primarily, greater environmental impacts inflicted (Figure 5.4). The acknowledgement of such effects relates to a prominent theme discussed in the literature on the effectiveness of EIA as an environmental management tool and demonstrates the role of SS in weakening EIA. In particular, negative environmental and visual impacts of SS can be linked to the 'substantive' dimension of EIA effectiveness discussed by Loomis and Dziedzic (2018), which identifies the degree to which EIA successfully mitigates negative environmental impacts. Thus, the failure to identify SS and allowing its occurrence weakens the substantive dimension of EIA and goes directly against fundamental principles of the Directive such as those on precaution, prevention, and rectification as *per* Recital 2 of Directive 2011/92/EU (2011), which was reiterated numerous times by the ECJ vide cases[8], and widely discussed in the literature (i.e. Glasson & Therivel, 2013; Cashmore, 2004a; Van Claster & Reins, 2017).

[8] I.e., C-142/07, C-560/08, C-227/01, and C-205/08.

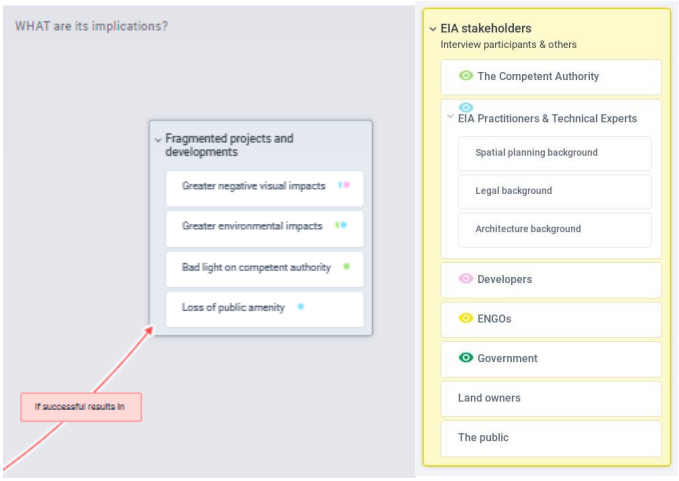

Figure 5. 4 Repercussions of SS identified through stakeholder interviews.

5.2.2 Deficiencies, underlying motivators, and factors enabling SS

Several deficiencies, underlying motivators, and factors enabling SS emerged through interviews. The most prevalent categories were those indicating resistance to EIA, EIA practice and technical issues (i.e., relating to screening, cumulative impacts, and poor interpretation or understanding of EIA), governance and political influence, and Local Plan related issues. The aforementioned are depicted in Figure 5.5 through the use of the part-parties jig in conjunction with the P-circle jig to indicate interviewee group perspectives; the Barbell jig is also used to identify relationships between respective deficiencies.

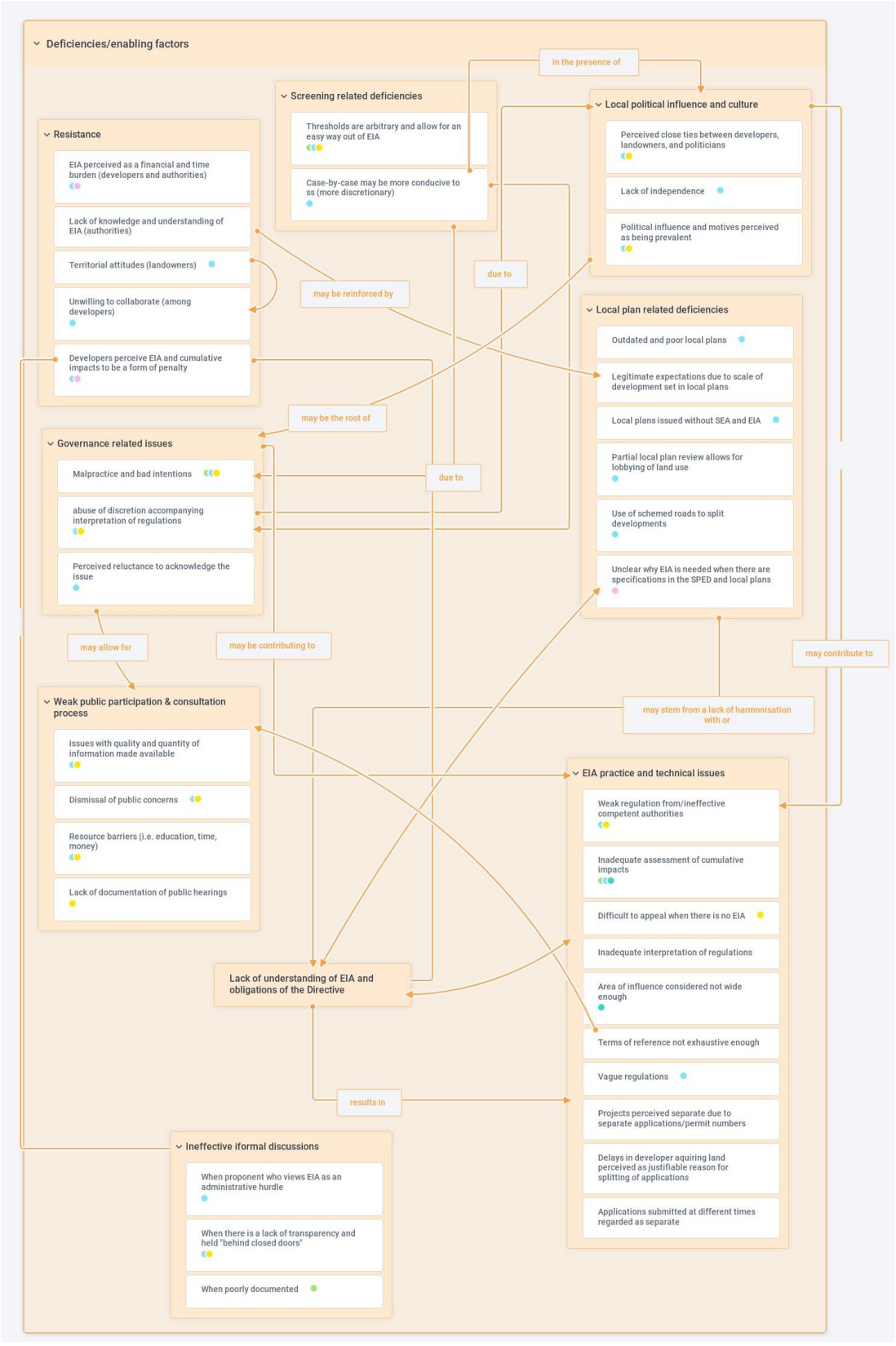

Figure 5. 5 Deficiencies and factors potentially enabling the occurrence of SS.

Local plan related deficiencies

The LPs of the MI were referred to on multiple accounts by participants in this study, thus indicating a potential fault and area for further investigation. In general, accompanying discussions entailed negative criticism with prevalent codes recognizing such plans as being outdated and poorly done, suggesting that there exists a lack of alignment between the plans and EIA, and identifying several loopholes that may be allowing for SS to occur, for example, through partial local plan reviews and lobbying for land use change, using schemed roads to split developments, and by catering to legitimate expectations, which are described by one participant as the expectations retained by landowners and developers for permitted development as set out within the LPs (discussed in Section 4.2.2). Cases subject to land use change have likewise been noted by Enríquez-de-Salamanca (2016) among the projects identified as most commonly being subjected to SS with intentions of evading EIA. Additionally, recognizing projects as separate simply due to the presence of schemed roads separating them contradicts the guidelines referred to in the literature and the EIA Directive as identifying related projects such as having comparable purpose/scope, close vicinity, and being connected technologically (Enríquez-de-Salamanca, 2016; Pouikli & Tsakalogianni, 2022). Furthermore, according to the CJEU ruling in Ecologistas en Acción (Case C-142/07):

> "The amended directive cannot be circumvented by the splitting of projects and the failure to take into account the cumulative effect of several projects must not mean in practice that they all escape the obligation to carry out an assessment, when, taken together, they are likely to have significant effects on the environment…".

Thus, it was ruled that an environmental impact assessment is required for projects, whether they are covered in Annex I or II, when by virtue of nature, size, location, and interaction with other projects, they are considered to have significant environmental effects (CJEU, C-142/07). Such reasoning of territory splitting through schemed roads also contradicts obligations set out in Annex III of the EIA Directive whereby a project's characteristics should be assessed in relation to its cumulative effects with other approved and existing projects. The aforementioned observations indicate a

perceived disregard of the obligations of the EIA Directive within decision-making and potentially in local planning.

On another note, one practitioner attributed SS to the exemption of LPs from SEA, suggesting that its proper utilization can address EIA deficiencies and effectively assess cumulative impacts, reiterating remarks made by participants in Sciberras' (2013) study in the local context. The emergence of these discussions may indicate the necessity of subjecting LPs to an SEA and clarifying that anything contained within them does not waive the requirement for an EIA should it be requested.

Factors related to EIA practice and procedure

- *EIA regulation and technical issues, knowledge barriers, and discretionary judgement*

Through the interviews, several deficiencies in conducting and regulating EIA within the MI were highlighted, many of which denote bad project management, malpractice, bad judgement, or a lack of understanding of the Directive itself, while other issues relate to potential gaps in legal provisions. Issues associated with bad management, practice or judgement can influence and be linked to EIA effectiveness and to the widely discussed theme of discretion allowed by the Directive. For example, instances of bad judgement or practice by the competent authorities are exemplified by the codes 'delays in developer acquiring land perceived as a justifiable reason for splitting of applications', 'projects considered to be unrelated due to different application numbers', and 'applications submitted at a different time regarded as separate'. The aforementioned go against good practices identified among MSs for SS prevention, whereby all associated developments are considered a part of the same project (Netherlands), extensions for projects not previously subject to EIA are still considered (Germany) and changes occurring during the previous 5 years are likewise taken into consideration (Austria), and whereby projects are assessed collectively, regardless of different application numbers and time submitted, if they are connected by common facilities, are on the same site, and/or serve comparable purposes (Enríquez-de-Salamanca, 2016). Furthermore, any project uncertainties or oversights are addressed in the UK by the Rochdale Envelope Approach, which provides flexibility

and caters for the assessment of both best and worst-case scenarios when certain elements are yet to be finalised, thus avoiding aforementioned issues and specifically SS through changes and extensions (Caine 2018). Ultimately, and based on discussions by Zhang et al. (2018) on discretionary power, EIA practitioners hold the power to deliver policy and the Directive into practice, and thus they retain throughout each step the capacity to use their professional judgement, expertise, and personal conscience or preferences in their decision-making or justifications. Nevertheless, the aforementioned instances of bad judgement reflect poor consideration of cumulative impacts and poor application of the precautionary principle enshrined in EIA which requires assessment even in case of doubt, likewise noted by Pouikli and Tsakalogianni (2022).

In terms of potential gaps in legal provisions, SS prevention was noted by an interviewee to be hindered by a lack of provisions which specifically prohibit the splitting of a project into multiple applications. However, this somewhat contradicts current local provisions on project fragmentation in S.L. 549.46 (Regulation 10) which allow for the "subdivision of the project into mutually coordinated applications for purpose of improved processing" given that "the Authority is satisfied that the relative submissions provide a reasonably comprehensive, fair and transparent indication of the full project and its actual implications". This implies that in the presence of full transparency, such fragmentation is allowed as long as it retains that "both the assessment and all relevant decision-making and consultations can be undertaken in their proper context". The recommendation for more specific legal provisions was reiterated by another interviewee accompanied by concerns on abuse of discretion within the local context; thus, such a recommendation may likewise reflect underlying apprehension relating to discretion and vagueness (as discussed by Arabadjieva, 2017) which may be allowing for the prevalence of SS. Such recommendations also raise important questions on the effectiveness of the provisions in place and of EIA, reminiscent of concerns expressed by experts in Austria who noted that EIA law in certain instances proved to be unprecise and too vague (Pröbstl-Haider, 2022). Emanating from the aforementioned concerns and supporting the need for more specific provisions is another technical issue, particularly the difficulties faced by

NGOS in appealing a development decision in the absence of an EIA. If project splitting into multiple applications results in the successful evasion of an EIA, the public cannot challenge the EIA itself. Some participants in this study therefore highlighted the necessity of more specific provisions to aid with legally challenging SS cases that go by undetected.

Other technical issues such as legally dividing urban land and applying under different names with the intention of evading EIA resonate with the previous issue of splitting under several applications and may likewise reflect poor enforcement and upholding of the principle that EIA should not be averted through SS, or a failure in understanding and meeting the obligations of the Directive. On this note, findings of EU and Spanish case-law, discussed by Enríquez-de-Salamanca (2016), sustained that splitting of a project into multiple seemingly independent projects or sections renders EIA ineffective and compromises the Directive, and that even when located in autonomous communities/locations, it is impossible to divide activity that is unitary in its nature. Furthermore, MSs such as the Netherlands, Sweden, Germany and the UK employ measures that enhance the prevention of project splitting of this nature, namely by considering all associated developments part of a project, treating different developers as a single one, and setting requirements for what classifies a project as independent from others (Enríquez-de-Salamanca, 2016). In addition to this, Pouikli and Tsakalogianni (2022) recognize, based on review of case law, that if a link can be established between certain entities and owners, notwithstanding whether land is legally divided and applications are submitted by different owners, such cases should be construed as SS. Overall, such issues may reflect ineffective interpretation, understanding, and implementation of the EIA Directive.

- *Cumulative impacts*

Cumulative impact assessment surfaced as a deficiency in EIA practice with several accounts detailing that even in instances of legitimate project phasing, cumulative impacts are not adequately considered, with one participant pinpointing them as the "weakest link of EIA", especially in the case of unrelated projects. On the latter note, effective assessment of cumulative impacts is further hindered by differing views on whether impacts emanating from unrelated projects should be viewed holistically.

Sciberras' (2013) interviewees similarly noted weak cumulative impact assessment and consideration within the MI, while also noting that these issues may be addressed more adequately by SEA. It is worth noting however, that the LPs were at the time exempt from SEA according to an interviewee in this study, who attributed piecemeal development to this gap. However, poor cumulative impact consideration may not necessarily be addressed by SEA and may indicate weak holistic assessment of environmental impacts. On this note, Annex III of the EIA Directive (Directive 2011/92/EU) outlines that a project's characteristics should be assessed in relation to its cumulative effects with approved and existing projects. Uncertainties revolving around the assessment of cumulative impacts, even of unrelated projects, may thus suggest poor understanding of principles and requirements contained within the Directive and render EIA ineffective.

- *Screening*

Similar to findings from the literature, the screening phase and its different approaches were accompanied by mixed views. While its benefits were noted and will be discussed in Section 5.2.4 in conjunction with the role of screening in potentially addressing SS, several deficiencies that may be allowing SS to go by undetected were acknowledged. Participants' concerns about thresholds are in line with disadvantages noted by Glasson and Thievel (2013), namely that they are accompanied by arbitrary rules and that they may result in the evasion of EIA by retaining projects just below thresholds. Opposing Axiak et al. (2002), who claimed that new regulations were robust and had set more stringent thresholds better suited to the small size of the MI, a participant from the ENGOs' stakeholder group discussed the poor transposition of EIA to Malta's context and that thresholds are not tailored to Malta's proportions. Additionally, the discretion accompanying the screening process as noted by Weston (2011), the EC (2003), and Wood and Becker (2005) was reiterated by a participant in this study and noted as contributing to weakening EIA effectiveness. On the other hand, while case-by-case screening was noted by Enríquez-de-Salamanca (2016) as being more effective, especially for the avoidance of project splitting, it was identified by a participant in this study as being more conducive to SS in the Maltese context. The latter resonates with points of discussion presented by Pinho et al. (2010) and

disadvantages noted by Glasson and Theivel (2013), with both referring to the case-by-case approach as being more discretionary and subject to abuse and poor judgment by decision-makers, particularly when there are underlying political or financial interests.

- *Weak public participation*

The role of public participation did not feature among the provisions and good practices discussed in the literature for the avoidance of SS; however, it was recommended as perhaps the most reliable means of identifying and thus preventing SS by some participants in this study (as will be discussed in greater detail in Section 5.2.4). Despite this, such discussions were often accompanied by mention of several barriers impeding the public participation and consultation process, subsequently enabling SS to occur or go by undetected. The greatest weakness identified was the lack of acknowledgement of the public's concerns and recommendations with successive issues relating to quality and quantity of information made available, improper documentation of public hearings, weak terms of reference and resource barriers (i.e., time and monetary expenses). Similar concerns have been recognized in the literature, for example, Williams and Dupuy (2017) identified among a third of their interviewees (EIA stakeholders in Tirana) that such consultations were often insufficiently transparent and that many consultations experience manipulation by local officials. Additionally, weaknesses in the public participation process in the MI and a lack of consideration of the public's feedback were reiterated by Sciberras (2013) who identified through study participants that EIA effectiveness is dented by, among other factors, a reluctance among politicians to heed the public voice.

Governance related issues, and political influence and culture

The interviews identified several governance-related deficiencies which may be cultivating an environment in which SS can prevail. The most prevalent issue apparent among EIA practitioners and technical experts and ENGOs entails the perception that the competent authorities are ineffective, evident through multiple references to instances whereby competent authorities failed to act or were perceived to have acted inadequately (i.e., malpractice or bad project management). Other issues such as bad faith accompanying interpretation of legislation, a reluctance to acknowledge

the occurrence of SS, and the inadequate implementation of SEA may revert back to effectiveness of authorities as they may be contributing to weak governance. The reluctance to acknowledge the occurrence of SS may play a role in the bad faith accompanying interpretation of the legislation. Furthermore, underlying motives and intentions accompanying interpretation of legislation noted in this study are reminiscent of discussions by Williams and Dupuy (2017) who highlighted the potential incentive that key actors such as project proponents, government authorities, and individuals carrying out EIAs, may possess to undermine the EIA process for personal gain or otherwise, particularly taking into consideration the burdens associated with EIA. Such burdens were similarly identified in this study, such as costs, time, and rejection or delay of a proposed project or development. This concern was restated by Weston (2011) who identified a culture of resistance among planners and how discretion allowed by the Directive can be used to evade EIA, and by Wood and Becker (2005) who observed inconsistencies in the screening phase when determining the requirement of an EIA due to discretionary judgment, supporting the argument made by a participant in this study who identified the need for stringent specifications to reduce abuse accompanying such discretion (See Section 4.2.3 and the role of screening).

This study observes strong indications of political influence within the Maltese context through discussions on SS and EIA deficiencies with stakeholder groups for EIA practitioners and technical experts, and with ENGOs. This was made evident through multiple references to perceived close ties between politicians and developers, and property or landowners, a perceived lack of political will and independence, and a system that is said to accommodate developers. The mention of a lack of political will echoes results presented by Sciberras (2013) in the local context whereby interviewees noted a political unwillingness to prioritise environmental issues. Similarly, other concerns and observations have previously been recognized within the local context; for example, in a case study on environmental capacity in St. Julian's, Camilleri (2004) referred to the presence of a strong rhetoric representing "land development as constitutive of progress in Malta" which "raises issues of democracy in the face of alliances between business and politics" and claims that "it is well known

that Malta's developers financially support political parties", identical to statements made by three participants in this study. Impartial decision making and the influence of political factors are likewise recognized within broader contexts; for example, in their review of EIA effectiveness, Jay et al. (2007) discuss that decision making is more often dependent on underlying interests and reflective of the norms of decision makers "operating within political arenas" and rarely follows an impartial and detached rationale. Meanwhile, Leknes (2001) reiterates that in certain instances, political considerations (i.e., political values or distribution) are likely to take precedence over EIA findings.

Resistance from proponents (developers/landowners)

Proponents' intent, attitudes, and perceptions of EIA are recognized in both the literature and by participants in this study as factors influencing the quality of EIA and the occurrence of SS (i.e., Morrison-Saunders, 2018; Weston, 2011). Stakeholder groups in this study such as the Competent Authority, EIA practitioners and technical experts, and ENGOs note their perceptions of proponents' attitudes towards EIA based on their experiences. In particular, they highlight how some developers perceive EIA and cumulative impacts as a form of penalty and that EIA is primarily perceived as a burden in terms of time and costs incurred and can thus result in intentional SS and EIA circumvention. Project proponents' characterisation of the EIA process as time-consuming, expensive, and an impediment to projects is likewise noted by Rathi (2023) based on a thorough literature review and personal experience with EIA, and by Fonseca (2023). Intentional SS is directly recognized by the developers' stakeholder group and indirectly, whereby resistance emerges through several negative inferences relating to EIA (in Section 4.2.2). This 'culture of resistance' resonates with that identified to be present in England, particularly among planners, as discussed by Weston (2011).

5.2.3 Perceptions of informal discussions and their role in SS

Findings in this study surrounding informal discussions are consistent with the mixed opinions expressed in the literature. On the one hand, some participants in this study acknowledge benefits emanating from these discussions such as increased collaboration, improved quality of research and screening, an opportunity to identify

intentions, and an opportunity for both developers and regulators to become more informed. This aligns with positive associations discussed by both Martin and Morrison-Saunders (2015) and Nielsen et al. (2015) with the former noting informal strategic advice in Western Australia as complementing EIA by contributing to early planning and enhancing consideration of alternatives, and the latter recognizing their potential for reducing environmental pollution.

Conversely, some discussions among participants carried negative connotations and framed informal discussions as a potential hinderance. Similar negative associations were expressed by Enríquez-de-Salamanca (2018) who identified their role in enabling project splitting. Likewise, the EC (2009) recognizes the screening stage and accompanying discussions as a means for abuse of discretion and facilitating project approval, which may be echoed in Theme 4, category 2, particularly when developers are said to challenge informal advice and resort to political influence, and when there is a lack of transparency as indicated by examples such as "since these informal discussions are invariably held behind closed doors" (Participant I). In tandem with Bidstrup (2017), who determined that the influence of informal discussions or alternatively, 'grey EIA', was dependent on proponents' rationale, participants of this study referred to developers' attitudes as a factor influencing their outcome. Additional factors noted in this study that may tie in with the 'green rationale' discussed by Bidstrup (2017) and the 'enlightened' proponents discussed by Morrison-Saunders (2018) include discussions which are accompanied by transparency from proponents, particularly through proper documentation.

5.2.4 Addressing SS

Recommendations for tackling the issue of SS emerged both directly from participants and were inferred through reiteration of deficiencies noted in Section 5.2.2. While existing practices and regulations tackling project fragmentation and malpractice were noted, areas of weakness mainly encompassed poor public participation, poor governance and regulation, and resistance to EIA, accompanied by a lack of understanding or interpretation of EIA. The use of the Barbell jig in the conceptual model allows for connecting the deficiencies and factors enabling SS to potential remedies, as displayed in Figure 5.6.

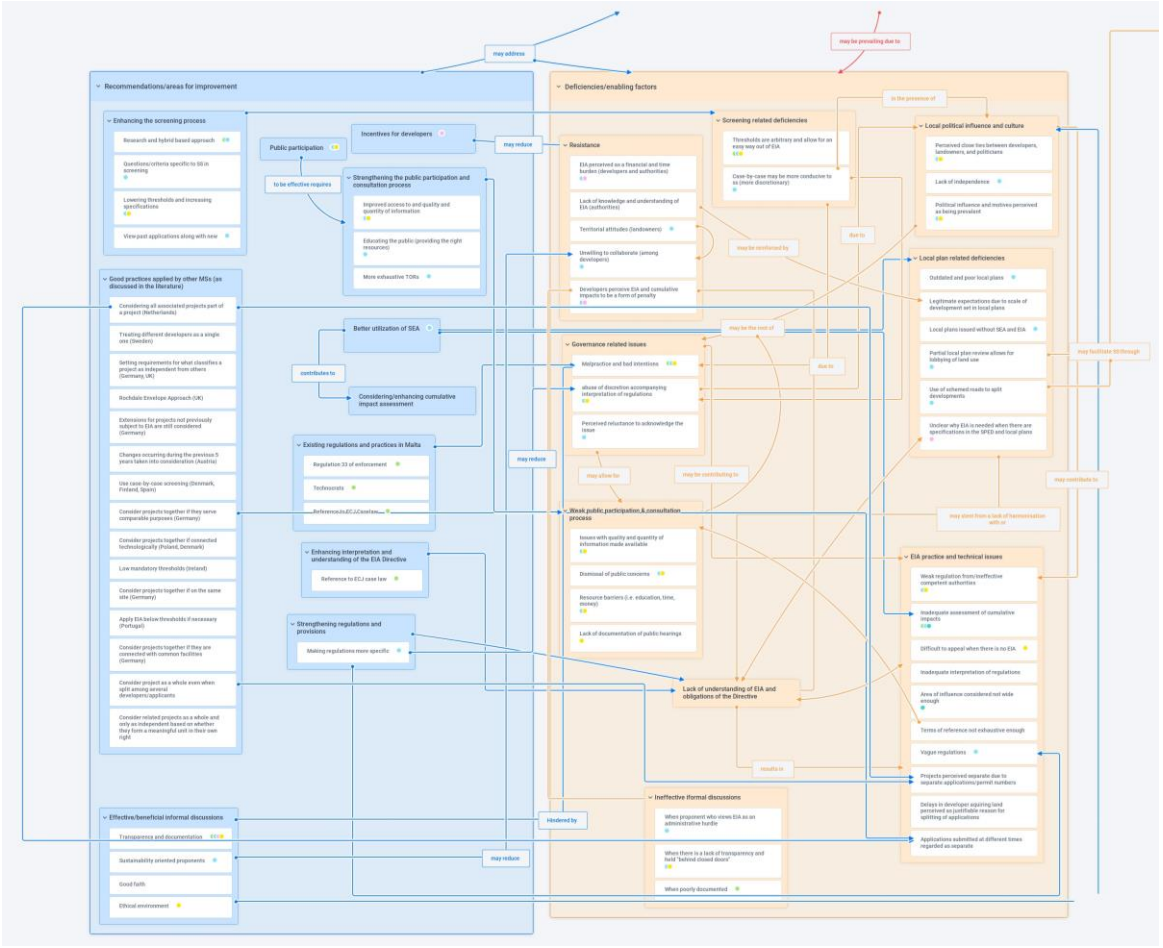

Figure 5. 6 Potential remedies to the deficiencies enabling SS (connected through Barbell jigs).

Existing regulations and practices in Malta

While several references indicated that existing regulations on SS are clearly defined, some expressed otherwise, indicating these to be lacking particularly by allowing loopholes and being excessively open to interpretation. While these mixed views may indicate the need for revising regulations and increasing robustness, they may also reveal underlying issues reverting back to poor interpretation, bad judgement, and political influence, and a lack of understanding and adherence to the principles of the EIA Directive.

Detection

This study previously identified several characteristics associated with SS and indicators (Figure 5.3) which may aid with detecting and preventing its occurrence. In addition to this, some participants in this study acknowledged the role of the public

in identifying SS and the importance of the public participation process. In some instances, public participation was even viewed as the most reliable and ultimate means of addressing SS in the local context. This recognition resonates with discussions by Glucker et al. (2013) centred around the substantive rationale and the potential of public participation in improving the quality of decision-making, namely by providing environmental and social related knowledge, and by testing robustness of the information obtained by the competent authorities, which in some cases may entail contesting such information, especially when proponents' main goal is evidently to acquire project approval and evade EIA. Additionally, Glucker et al. (2013) in their discussion on the instrumental rationale, note that public participation in EIA plays a role in generating legitimacy and highlight that processes that fail to include the public risk being perceived as illegitimate. Similar discussions were raised by an interviewee in this study who perceived public participation in the local context as not being legitimate enough. While the role of the public in tackling SS has thus been recognized, the process of public participation and consultation faces several deficiencies that require addressing to render it effective in addressing SS, as will be further discussed.

Enhancing EIA practice and procedure

- *Improving public participation*

The most prominent barrier to effective public participation was evidently related to the quality and quantity of information available to the public. Such deficiencies concerningly hinder the provisions of the Aarhus Convention (on access to justice in environmental matters) which calls for the "the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention" (UNECE,1998). Additionally, criticism of access to and availability of documentation within the local context has previously been noted by Portelli (2017) and Conrad et al. (2011), reflecting that this issue has prevailed for years and continues to pose barriers to public participation.

Other recurrent issues within the theme of factors enabling SS occurrence under the category of public participation barriers include a perceived lack of acknowledgement by the competent authorities of concerns expressed by the public, and non-

exhaustive terms of reference. The former, reflected on several accounts by ENGOs and EIA practitioners and technical experts in this study, resonates with local findings by Portelli (2017) whereby stakeholders expressed a feeling that their views did not matter and were not reflected in final decisions, and findings by Conrad et al. (2011), who identify areas of concern within the participatory process such as a lack of influence on decisions, with one participant in their study describing the process as one of "hearing but not listening". Moreover, such deficiencies may influence legitimacy in the EIA process as Glucker et al. (2013) discuss that merely providing an opportunity for public participation is not enough if inputs and concerns are not considered by decision-makers and are not able to effect change on decision-making. Additionally, in relation to weak terms of reference, Glucker et al. (2013) note that transparency on the extent to which public participation influences decisions is essential to procedural transparency and subsequently to legitimacy. The public participation process in the local context thus requires increased legitimacy to be able to effectively address SS and safeguard EIA effectiveness. It is also worth noting that accounts noted by participants of this study of a lack of justification on certain approvals reflect poor adherence to Article 9 of Directive 2011/92/EU paragraph 1(b) which details that when a decision to grant or refuse development consent has been taken, the competent authority shall make available to the public the "main reasons and considerations on which the decision is based, including information about the public participation process".

- *Improving governance and regulation*

Strong indications of political influence, namely due to perceived close ties between developers, property owners, and politicians, several references to underlying political motives in decision-making, and a lack independence within the local context, indicate the need for more stringent efforts in safeguarding the substantive element of EIA, thus creating a more effective environment for addressing SS. In this regard, some participants directly noted the need for appointing independent members of integrity on planning boards. While provisions of the Environment and Planning Review Tribunal Act (CAP.551), namely Article 3, state that there shall be the establishment of an "independent and impartial tribunal, to be known as the

Environment and Planning Review Tribunal, for the purposes of reviewing decisions of the Planning Authority and the decisions of the Environment and Resources Authority", it is then stated in the following article (Article 4) that the Prime Minister may establish panels of the Tribunal, whereby each panel consist of three members appointed by the President acting on the advice of the Prime Minister. The political appointment of such members may hamper Article 11 of Directive 2011/92/EU which notes that MSs shall ensure that members of the public shall, *inter alia*, "have access to a review procedure before a court of law or another independent and impartial body established by law to challenge the substantive or procedural legality of decisions…". Therefore, the prevalence of such observations and concerns among participants may indicate weak adherence to Article 11 and the need for an overhaul of the review procedure, with particular attention to independence, impartiality, and competence of the EPRT Members. The latter is further supported by members of ENGOs who perceived the EPRT to be ineffective and note the challenges encountered when appealing projects, particularly due to the perceived prevalence of politically appointed persons on such boards.

Other recommendations entailed better utilization and practice of SEA and cumulative impact assessment. Improved assessment and consideration of cumulative impacts resonate with discussions by Sciberras (2013) who highlights their importance throughout the whole decision-making process and emphasises that EIAs of multiple projects should be looked at holistically in order to adequately address cumulative effects. Additionally, better consideration of cumulative impacts has similarly been recognized by Christensen (2006) as improving screening decisions, and the overall quality and reliability of EIA. The role of SEA has likewise been noted by participants in Sciberras' (2013) study as having the potential to address shortcomings related to cumulative issues in the Maltese context. The benefits of SEA in increasing EIA effectiveness, addressing cumulative impacts, and subsequently SS are thus supported by both participants in this study and in the literature (i.e., Arts et al., 2005; Enríquez-de-Salamanca, 2016; Harriman & Noble, 2008; Vilardo & La Rovere, 2018); however, both SEA and CIA remain underutilized and are not addressed by LPs.

- *Recommendations for improved screening*

Some participants in this study identified the screening phase as an opportunity to detect the occurrence of SS, with one suggesting incorporating questions specific to identifying SS characteristics during this phase as a means of reducing its occurrence. The two approaches to screening, as discussed in the literature, were explored with the intention of identifying which approach might be more conducive to SS and what approach can reduce its occurrence. While the deficiencies associated with both approaches (threshold based and case-by-case) have been duly noted in Section 5.2.2, participants made suggestions to increase the effectiveness of this phase. These included lowering threshold values, to avoid flying just below the radar as noted in discussions by Ehrlich (2022), increasing specifications tied to thresholds, to reduce discretion-related issues as previously discussed, implementing a research-based approach whereby the results of thresholds undergo further questioning, and requesting applicants to present past applications in tandem with new ones. Reflective of discussions by Enríquez-de-Salamanca (2018), Jiricka and Pröbstl (2009), Morrison-Saunders (2018), and Noble (2020), some acknowledged that the two approaches should work in tandem, while the competent authority similarly acknowledged that while thresholds may be necessary to avoid subjecting every project to an EIA and increase meaningfulness, these must also be accompanied by rational thinking. Opposing the latter note, Pinho et al. (2010) maintain that thresholds may in fact result in the unnecessary inclusion of projects not requiring an EIA and uphold that case-by-case evaluation reduces such weaknesses.

- *Reducing proponents' resistance to EIA through incentives*

Financial mechanisms and incentives did not feature among the good practices applied by MSs for SS prevention (Enríquez-de-Salamanca, 2016); however, they emerged through discussions with developers in this study. Such discussions framed EIA as a penalty, as noted in Section 4.2.2 (Resistance from developers and landowners), with several references to monetary and time-related burdens associated with the process. The potential of incentives in encouraging the execution of an EIA and increasing collaboration among developers was subsequently acknowledged. Similar discussions have been addressed in the literature, namely by

Reid (2013) who recognized EIA execution as being *pro forma* and viewed as a bureaucratic obstacle, suggesting that intelligently structured financial incentives can lead to effective environmental protection. Likewise, Toro et al. (2010) identify the use of tax deductions in Columbia; however, these only apply to voluntary efforts in environmental improvement and not in cases whereby significant environmental impacts are expected.

6. Conclusion

6.1 Key findings

This research reveals SS characteristics by examining how it is defined and observed to occur by EIA stakeholders and by identifying potential indicators of its occurrence. It is observed that the nature of SS is primarily rooted in reductionism, referring to a myopic perspective and the loss of the 'bigger picture', and is most times accompanied by intentions to evade holistic assessment and subsequently EIA. Several means of SS were identified, namely, splitting through multiple applications or permits, splitting through ownership or territory splitting, splitting into project phases, the exclusion of intrinsic project components, splitting in time (submission of applications or changes and extensions over a period of time), and splitting through land use change policy. Emerging among some participants were also considerations that aid with differentiating between SS and what constitutes 'legitimate project phasing and unrelated projects', with key insights establishing that SS is not perceived as present if there is no intent to avoid holistic assessment, when there is full transparency, when there is lack of information as a result of complexity, when it is deemed not economically beneficial to build at that time, and in the case of unrelated projects in the same area. Despite this, the latter resonates with poor cumulative impact assessment, which featured among some discussions, and opposes what is set out in the EIA Directive itself i.e., taking into consideration other approved and existing developments. Additionally, negative implications of SS such as environmental and visual impacts, loss of public amenity, and poor perceptions of the competent authority surfaced among discussions, and projects typically subject to this tactic were noted to be residential and large-scale projects, followed by roadworks. The aforementioned project types reflect prevalent development types in the MI and given numerous accounts of SS cases for such projects in the local context, further investigations may be warranted on the number of EIAs carried out for these projects and developments.

The most prevalent and complex theme was evidently motivators, deficiencies, and underlying factors that may be leading to the occurrence of SS. The categories in this

theme garnering the largest number of references include resistance from developers (referred to directly and inferred through negative connotations surrounding EIA), EIA practice and technical issues (such as references to malpractice or bad project management, poor cumulative impact assessment and consideration, and instances of poor judgement), governance related issues (particularly ineffective competent authorities, bad faith accompanying interpretation of legislation, and an observed reluctance to acknowledge the occurrence of SS), weak public participation due to a number of perceived barriers (i.e. dismissal of public concerns, insufficient quality and quantity of information made available, resource related barriers such as education, time and finances, and poor terms of reference), local plan related issues, and political influence and culture (primarily centred on close ties between developers, property owners, and politicians, the presence of political influence and motives, and bad intentions). It is observed, as depicted in the conceptual model, that some of the codes noted within the aforementioned categories (i.e. large development area legally divided into plots and evading EIA, exemption of LPs from SEA, the use of schemed roads to separate developments, projects considered to be unrelated due to different application numbers, and uncertainties on assessing cumulative impacts) denote a lack of understanding of EIA and the obligations of the Directive, whereby some statements oppose good practices identified by other MSs as well as judgements in the case law and the precautionary principle contained in the Directive itself. Additionally, the LPs emerge as a context specific weakness through several references, potentially indicating an area for improvement and further investigation, particularly in the application of SEA, and spatial planning principles.

Through the literature, the potential link between SS and informal discussions was identified; thus, this study also set out to investigate perceptions of informal discussions and their role in SS occurrence or prevention. Mixed views were expressed; advantages were noted on several accounts, namely their role in increasing collaboration, enhancing research and screening, identifying intentions, and the opportunity they provide for the regulator to clarify the expectations of the studies to be carried out. Meanwhile, some expressed their hesitance of such discussions due to a lack of transparency in the local context (reiterating governance

and political influence-related concerns) and due to resistance from project proponents (likewise referring to political influence and proponent attitudes). Concerns appeared to stem primarily in the absence of transparency and documentation; thus, these aspects, along with an ethical environment and developers' attitudes, were identified as determining the influence of informal discussions on the occurrence of SS.

Discussions on aforementioned deficiencies were often accompanied by recommendations on addressing SS (reducing its occurrence and improving its detection). Through the conceptual model, such recommendations have been linked to their respective deficiencies, with the greatest room for improvement centred on governance and regulation, the role of screening and increasing its effectiveness, and enhancing the public participation process. While the role and importance of public participation and consultation were recognized and noted as a means to address SS, previously noted barriers are first to be addressed, thus necessitating further research within this area. Attention should be given particularly to the influence of public participation on decision-making within the local context, the methods of public consultation and their documentation, the quality, quantity, and accessibility of information made available to the public, and assessing the quality of TOR. In terms of screening and its approaches, advantages and disadvantages associated with case-by-case and thresholds were respectively acknowledged, likewise, the necessity of both and the benefits of a hybrid approach was recognized. Thus, neither emerged as superior to the other; however, it was acknowledged that increasing specifications for threshold-based screening or reducing threshold values in the local context may reduce EIA evasion. Additionally, a case-by-case approach emerged as being potentially problematic, especially locally, due to bad intentions and abuse of discretion in interpretation and was recognized as presenting challenges when such decisions are appealed in court. One notable possibility for improved detection of SS within the screening phase entailed the inclusion of criteria or questions specific to SS, thus presenting an avenue for further research. In relation to addressing resistance from certain proponents, surfacing among the developers' stakeholder group was the potential of incentives for increasing willingness to carry out an EIA and collaborate

with other developers. While methods for reducing resistance and enhancing the screening and public participation phase were identified, SS may not be effectively addressed before underlying and more prominent issues relating to governance and regulation are remedied. In this vein, recommendations included the better utilisation of SEA, revision of LPs, enhancing cumulative impact assessment, addressing impartiality and political independence particularly of members on environmental planning boards, adopting spatial and integrated planning, and increasing specifications within legislation.

6.2 Recommendations for EIA practice

The findings presented in Chapter 5 reveal potential deficiencies in EIA practice which merit addressing. Section 5.2.4 reveals several recommendations for improved EIA practice made directly by interviewees, namely in terms of regulations, enhancing public participation and consultation, improving governance, strengthening the screening phase, and through reducing proponent resistance to EIA. In terms of SS regulations and screening, while it is perceived by some that increasing provisions on SS, making them more specific (e.g., addressing the splitting of applications), and lowering thresholds may make it more difficult to evade EIA through this tactic, others indicate that it is not a matter of provisions rather interpretation and acknowledgement of its occurrence. This issue reverts to poor understanding and adherence to the requirements of the EIA Directive and poor governance, particularly concerning the precautionary principle, the preventative aspect of EIA, and the holistic approach required through this process. Thus, to enhance EIA practice, poor understanding of the EIA Directive, its requirements, and underlying principles must first be addressed. Likewise, resistance from proponents may be reduced through better understanding of the purpose and benefits of EIA. Additionally, aforementioned concerns (e.g., more stringent provisions, improving governance, political and cultural influence, and relying on public participation for addressing SS) may suggest mistrust in authorities and indicate governance related concerns. Therefore, enhancing adherence to Article 11 of Directive 2011/92/EU and reviewing Article 4 of the Environment and Planning Review Tribunal Act (CAP.551) may be an essential step in establishing an environment in which SS is acknowledged and in

increasing transparency. Further to this, transparency could be increased through addressing public participation and consultation deficiencies identified, namely access to information and acknowledgement of the public's concerns.

6.3 Recommendations for future research

Several avenues for research emerge through this study, particularly through the identification of underlying deficiencies and motivators enabling SS. Given the emergence of LP related issues, it is recommended that attention is given to their application of SEA and particularly in considering cumulative effects and addressing the 'legitimate expectations' perceived to be sustained by the plans. Furthermore, accounts of overlooking cumulative effects or poor cumulative impact assessment in the MI merit further investigation. Criticism of decision-making by the competent authorities may indicate the need for examining effectiveness in reaching the obligations of the Directive, particularly the substantive element of EIA, while accounts of weak interpretation of the EIA Directive may be addressed by research on EIA application and understanding within the MI (by all stakeholders involved). Additionally, the several references to political influence and governance related issues support the need for further research on assessing and enhancing adherence to Article 11 of Directive 2011/92/EU. In light of weak governance and regulation, the role of the public in challenging decision-making surfaced as potentially the most effective means of addressing SS in the local context; however, given the numerous barriers faced by the public during the participation and consultation process (surfacing in this study and noted in previous research), the need for enhancing this stage of EIA is evident. Assessment of the execution of TORs, availability of information (quality and quantity), resources available (i.e., monetary, time, education) and documentation of public hearings are notably essential. As discussed with one participant, establishing criteria for SS detection within the screening phase of EIA may aid with its elimination: thus, providing an additional area of research. On a similar note, screening merits further research in terms of the effects of applying more stringent and context-appropriate thresholds (as recommended by some stakeholders in this study). The potential for incentives to increase willingness to conduct EIAs and promote collaboration among project proponents likewise requires

additional investigation, especially pertaining to the most effective types of incentives and whether their introduction would result in improved environmental management and adherence to the principles contained within the EIA Directive or whether they may be counterproductive. Additionally, while many references deduced existing SS regulations in the MI to be robust and clear, concerns of poor interpretation and recommendations of increasing specifications to avoid abuse of decision-making discretion could be explored further. Finally, the advantages noted for informal discussions present potential in their use for improving environmental planning and reducing environmental impacts; however, additional research should address guidelines and practices for ensuring transparency and commitment in order for them to be truly effective.

References

Adhabi, E., & BlashAnozie, C. (2017). Literature review for the type of interview in qualitative research. *International Journal of Education*, *9*(3), 86-97. http://dx.doi.org/10.5296/ije.v9i3.11483

Alam, M. K. (2021). A systematic qualitative case study: questions, data collection, NVivo analysis and saturation. *Qualitative Research in Organizations and Management: An International Journal*, *16*(1), 1-31. http://dx.doi.org/10.1108/QROM-09-2019-1825

Alhojailan, M. I. (2012). Thematic analysis: A critical review of its process and evaluation. *West east journal of social sciences*, *1*(1), 39-47.

Allen W, Kilvington M. (2021). *An introduction to systems thinking to address complex problems*. Presentation at Redesign for a Sustainable Future course, United Nations Systems Staff College, Turin, Italy. https://learningforsustainability.net/pubs/unsa-presentation-systems-thinking.pdf

Amissah, M., Gannon, T., & Monat, J. (2020). What is Systems Thinking? Expert Perspectives from the WPI Systems Thinking Colloquium of 2 October 2019. *Systems*, *8*(1), 6. https://doi.org/10.3390/systems8010006

Arabadjieva, K. (2017). Vagueness and Discretion in the Scope of the EIA Directive. *Journal of Environmental Law*, *29*(3), 417-444. https://doi.org/10.1093/jel/eqx011

Archibald, M. M., Ambagtsheer, R. C., Casey, M. G., & Lawless, M. (2019). Using zoom videoconferencing for qualitative data collection: perceptions and experiences of researchers and participants. *International journal of qualitative methods*, *18*, 1609406919874596. https://doi.org/10.1177/1609406919874596

Arena, J. (2022, March 21). *Portelli business partner applies for another apartment block in Sannat.* Times of Malta.

https://timesofmalta.com/articles/view/portelli-business-partner-applies-for-another-apartment-block-in.942942

Arnold, R. D., & Wade, J. P. (2015). A definition of systems thinking: A systems approach. *Procedia computer science*, *44*, 669-678. https://doi.org/10.1016/j.procs.2015.03.050

Arts, J., Runhaar, H. A., Fischer, T. B., Jha-Thakur, U., Laerhoven, F. V., Driessen, P. P., & Onyango, V. (2016). The effectiveness of EIA as an instrument for environmental governance: reflecting on 25 years of EIA practice in the Netherlands and the UK. *Progress in Environmental Assessment Policy, and Management Theory and Practice*, 171-210. https://doi.org/10.1142/S1464333212500251

Arts, J., Tomlinson, P., & Voogd, H. (2005, September). EIA and SEA tiering: the missing link. In *International experience and perspectives in SEA", Conference of the International Association of Impact Assessment* (pp. 26-30). https://www.researchgate.net/profile/Jos-Arts-2/publication/228388899_EIA_and_SEA_tiering_the_missing_link/links/54fee5860cf2eaf210b42e0d/EIA-and-SEA-tiering-the-missing-link.pdf

Attride-Stirling, J. (2001). Thematic networks: an analytic tool for qualitative research. *Qualitative research*, *1*(3), 385-405. https://doi.org/10.1177/146879410100100307

Axiak, V., Gauci, V., Mallia, M., Mallia, E., Schembri, P. J., Vella, A. J., & Vella, L. (2002). *State of the environment report for Malta*. Technical report, Ministry for Home Affairs and the Environment. https://www.um.edu.mt/library/oar/handle/123456789/91195

Beanlands, G. E., & Duinker, P. N. (1983). *An ecological framework for environmental impact assessment in Canada*.

Behl, D. V., & Ferreira, S. (2014). Systems thinking: An analysis of key factors and relationships. *Procedia Computer Science*, *36*, 104-109. https://doi.org/10.1016/j.procs.2014.09.045

Bidstrup, M. (2017). The 'grey'assessment practice of IA screening: Prevalence, influence and applied rationale. *Environmental Impact Assessment Review*, *62*, 233-239. https://doi.org/10.1016/j.eiar.2015.07.008

Borg, V. P. (2020, February 2). *Architects' watchdog probes 'salami slicing' project*. https://timesofmalta.com/articles/view/architects-watchdog-probes-salami-slicing-project.767890

Borg, V.P. (2020, January 13). *Revealed: property magnate's massive development in Qala.* Times of Malta. https://timesofmalta.com/articles/view/revealed-property-magnates-massive-development-in-qala.762915

Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Sage.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101. http://dx.doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative research in psychology*, *18*(3), 328-352. https://doi.org/10.1080/14780887.2020.1769238

Cabrera, D., & Cabrera, L. & Midgley, G. (2021a). The Four Waves of Systems Thinking. http://dx.doi.org/10.13140/RG.2.2.32099.68649

Cabrera, D., & Cabrera, L. (2015). *Systems thinking made simple*. Plectica Publishing.

Cabrera, D., & Cabrera, L. (2019). Complexity and systems thinking models in education: Applications for leaders. *Learning, design, and technology: An international compendium of theory, research, practice, and policy*, 1-29. https://doi.org/10.1007/978-3-319-17727-4_101-1

Cabrera, D., & Cabrera, L. (2021b). Developing Personal Mastery of Systems Thinking. In Cabrera, D., Cabrera, L., & Midgley, G. (Eds), *Routledge Handbook of Systems Thinking* (pp. 1-40). Routledge. London, UK.

Cabrera, D., & Cabrera, L. (2022). DSRP Theory: A Primer. *Systems*, *10*(2), 26. https://doi.org/10.3390/systems10020026

Cabrera, D., & Colosi, L. (2008). Distinctions, systems, relationships, and perspectives (DSRP): A theory of thinking and of things. *Evaluation and Program Planning*, *31*(3), 311-316. https://doi.org/10.1016/j.evalprogplan.2008.04.001

Caine, C. A. (2018). The place of the Rochdale envelope approach in offshore renewable energy. *Environmental Law Review*, *20*(2), 74-88. https://doi.org/10.1177/1461452918777835

Camilleri, M. (2004). From the inside looking out: knowledge, justice and modernity in the assessment of St. Julian's environmental capacity. *Local Environment*, *9*(1), 45-63. https://doi.org/10.1080/1354983042000176593

Cashmore, M. (2004a). The role of science in environmental impact assessment: process and procedure versus purpose in the development of theory. *Environmental Impact Assessment Review*, *24*(4), 403-426. https://doi.org/10.1016/j.eiar.2003.12.002

Cashmore, M., Gwilliam, R., Morgan, R., Cobb, D., & Bond, A. (2004b). The interminable issue of effectiveness: substantive purposes, outcomes and research challenges in the advancement of environmental impact assessment theory. *Impact Assessment and Project Appraisal*, *22*(4), 295-310. http://dx.doi.org/10.3152/147154604781765860

Cassell, C., & Symon, G. (Eds.). (2004). *Essential guide to qualitative methods in organizational research*. Sage.

Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds?. *Currents in pharmacy teaching and learning*, *10*(6), 807-815. https://doi.org/10.1016/j.cptl.2018.03.019

Christensen, P. (2006). Danish experiences on EIA of livestock projects. *Environmental Impact Assessment Review*, *26*(5), 468-480. https://doi.org/10.1016/j.eiar.2006.01.002

Christensen, P., & Kørnøv, L. (2011). EIA screening and nature protection in Denmark. *Journal of Environmental Management*, *92*(4), 1097-1103. https://doi.org/10.1016/j.jenvman.2010.11.010

Christensen, P., Kørnøv, L., & Nielsen, E. H. (2012). Between governance and government: Danish EIA in uncharted waters. *Journal of Environmental Assessment Policy and Management*, *14*(04), 1250021. https://doi.org/10.1142/S1464333212500214

Clarke, V., & Braun, V. (2017). Thematic analysis. *The Journal of Positive Psychology, 12*(3), 297-298. http://dx.doi.org/10.1080/17439760.2016.1262613

Conrad, E., Cassar, L. F., Christie, M., & Fazey, I. (2011). Hearing but not listening? A participatory assessment of public participation in planning. *Environment and Planning C: Government and Policy*, *29*(5), 761-782. https://doi.org/10.1068/c10137

Costa, C., Breda, Z., Pinho, I., Bakas, F., & Durão, M. (2016). Performing a thematic analysis: An exploratory study about managers' perceptions on gender equality. *The Qualitative Report*, *21*(13), 34-47. http://dx.doi.org/10.46743/2160-3715/2016.2609

DeCuir-Gunby, J. T., Marshall, P. L., & McCulloch, A. W. (2011). Developing and using a codebook for the analysis of interview data: An example from a professional development research project. *Field methods*, *23*(2), 136-155. https://doi.org/10.1177/1525822X10388468

Directive 2014/52. *Directive (EU) 2014/52/EU Of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment*. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&rid=1

EC. (2015). *Interpretation of Definitions of Project Categories of Annex I and II of the EIA Directive*. European Commission. https://doi.org/10.2779/5854181.

ECJ. (2009). Judgment of the Court (Second Chamber) of 10 December 2009. Case C-205/08. Umweltanwalt von Kärnten v Kärntner Landesregierung. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2010:024:FULL&from=RO

European Environment Agency (EEA). (1999). *"cumulative impacts".* EEA. https://www.eea.europa.eu/help/glossary/eea-glossary/cumulative-impacts#:~:text=Cumulative%20impacts%20include%20a%20time,and%20reasonably%20foreseeable%20future%20actions.

Ehrlich, A. (2022). Collective impacts: using systems thinking in project-level assessment. *Impact Assessment and Project Appraisal*, *40*(2), 129-145. https://doi.org/10.1080/14615517.2021.1996901

Emmelin, L. (2006). *Effective environmental assessment tools–critical reflections on concepts and practice*. Blekinge Institute of Technology. https://mediamanager.sei.org/documents/Publications/Policy-institutions/Effective%20Environmental%20Assessment%20Tools%20-%20critical%20reflections%20on%20concepts%20and%20practice,%20MiSt%20BTH.pdf

Endicott, T. A. (1997). Vagueness and legal theory. *Legal Theory*, *3*(1), 37-63. https://doi.org/10.1017/S135232520000063X

Enríquez-de-Salamanca, Á. (2016). Project splitting in environmental impact assessment. *Impact assessment and project appraisal*, *34*(2), 152-159. https://doi.org/10.1080/14615517.2016.1159425

Enríquez-de-Salamanca, Á. (2018). Stakeholders' manipulation of environmental impact assessment. *Environmental Impact Assessment Review*, *68*, 10-18. https://doi.org/10.1016/j.eiar.2017.10.003

Enríquez-de-Salamanca, Á. (2021a). Project justification and EIA: Anything goes?. *Environmental Impact Assessment Review*, *87*, 106540. https://doi.org/10.1016/j.eiar.2020.106540

Enríquez-de-Salamanca, &. (2021b). Simplified environmental impact assessment processes: Review and implementation proposals. *Environmental Impact Assessment Review, 90*, 106640. https://doi.org/10.1016/j.eiar.2021.106640

Enserink, B. (2000). A quick scan for infrastructure planning: screening alternatives through interactive stakeholder analysis. *Impact Assessment and Project Appraisal*, *18*(1), 15-22. https://doi.org/10.3152/147154600781767628

Environment and Resources Authority (ERA). (2023). *EIA Process.* ERA. https://era.org.mt/era-topic-categories/eia-process/#:~:text=The%20developer%20is%20responsible%20for,preparation%20of%20an%20EIA%20Report

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, *5*(1), 1-4. https://doi.org/10.11648/j.ajtas.20160501.11

European Commission. (2009). *Study concerning the report on the application and effectiveness of the EIA Directive.* https://wayback.archive-it.org/12090/20151221015159/http://ec.europa.eu/environment/archives/eia/pdf/eia_study_june_09.pdf

Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International journal of qualitative methods*, *5*(1), 80-92. https://doi.org/10.1177/160940690600500107

Fielding, N. G., Lee, R. M., & Blank, G. (Eds.). (2008). *The SAGE handbook of online research methods*. Sage.

Flick, U. (Ed.). (2017). *The Sage handbook of qualitative data collection*. Sage.

Flick, U., von Kardoff, E., & Steinke, I. (Eds.). (2004). *A companion to qualitative research*. Sage.

Flimkien ghal Ambjent Ahjar (FAA). (n.d.). *Luqa Overdevelopment By Stealth.* FAA. http://new.faa.org.mt/do-your-bit/luqa-overdevelopment-stealth/

Fonseca, A. (2023). Weak Participation and Ideological Exemption: The Latest Stage of EIA Simplification in Brazil?. *Impact Assessment and Project Appraisal*, *41*(3), 199-204. https://doi.org/10.1080/14615517.2023.2172644

Galea, C. (2004). *Possibilities concerning the relationship between SEA (Strategic Environment Assessment) and local planning in Malta: a case study of the North West Local Plan (Rural settlements)* (Master's thesis, University of Malta).

Garrity, E. J. (2018). Using systems thinking to understand and enlarge mental models: Helping the transition to a sustainable world. *Systems*, *6*(2), 15. https://doi.org/10.3390/systems6020015

Geneletti, D. (2014). Integration of impact assessment types improves consideration of alternatives. *Impact Assessment and Project Appraisal*, *32*(1), 17-18. https://doi.org/10.1080/14615517.2013.872846

Ghita, L. (2020). *The environmental impact assessment process as applied in Malta to major coastal engineering works: an evaluation* (Bachelor's thesis, University of Malta).

Gibson, R. B. (1992). Environmental assessment design: lessons from the Canadian experience. *Environmental & resource economics*, *2*(6), 12-24.

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British dental journal*, *204*(6), 291-295. https://doi.org/10.1038/bdj.2008.192

Glasson, J., & Therivel, R. (2013). *Introduction to environmental impact assessment*. Routledge.

Glucker, A. N., Driessen, P. P., Kolhoff, A., & Runhaar, H. A. (2013). Public participation in environmental impact assessment: why, who and how?. *Environmental impact assessment review*, *43*, 104-111. https://doi.org/10.1016/j.eiar.2013.06.003

Graggaber, M., & Pistecky, D. W. (2012). *The implementation of the environmental impact assessment on the basis of precise example*. EU IMPEL, Nicosia.

https://va.mite.gov.it/File/DocumentoCondivisione/2f19d5a3-128f-4d9e-b1a8-05189f2cbef4

Grohs, J. R., Kirk, G. R., Soledad, M. M., & Knight, D. B. (2018). Assessing systems thinking: A tool to measure complex reasoning through ill-structured problems. *Thinking Skills and Creativity*, *28*, 110-130. https://doi.org/10.1016/j.tsc.2018.03.003

Harriman, J. A., & Noble, B. F. (2008). Characterizing project and strategic approaches to regional cumulative effects assessment in Canada. *Journal of environmental assessment policy and management*, *10*(01), 25-50. https://doi.org/10.1142/S1464333208002944

Hofman, J., Sutherland, A., Bellasio, J., Sim, M., van Gorp, A., Cox, K., ... & Henham, M. L. (2018). Evaluating interventions that prevent or counter violent extremism. Rand. https://www.rand.org/content/dam/rand/pubs/research_reports/RR2000/RR2094/RAND_RR2094.pdf

Hung, W. (2008). Enhancing systems-thinking skills with modelling. *British Journal of Educational Technology, 39*(6), 1099-1120. https://doi.org/10.1111/j.1467-8535.2007.00791.x

Infrastructure Planning Inspectorate. (April 2012). *Using the 'Rochdale Envelope'.* http://www.hwa.uk.com/site/wp-content/uploads/2017/07/POE-2b-Appendix-6.pdf (last accessed 29 July 2022)

Islam, M. A., & Aldaihani, F. M. F. (2022). Justification for Adopting Qualitative Research Method, Research Approaches, Sampling Strategy, Sample Size, Interview Method, Saturation, and Data Analysis. *Journal of International Business and Management*, *5*(1), 01-11. https://doi.org/10.37227/JIBM-2021-09-1494

Jaeger, J. A. (2015). Improving environmental impact assessment and road planning at the landscape scale. In R. Van Der Ree, D.J. Smith, & C. Grilo

(Eds.), *Handbook of Road Ecology* (pp. 32-42). John Wiley & Sons. https://doi.org/10.1002/9781118568170.ch5

Jalava, K., Pasanen, S., Saalasti, M., & Kuitunen, M. (2010). Quality of environmental impact assessment: Finnish EISs and the opinions of EIA professionals. *Impact Assessment and Project Appraisal*, *28*(1), 15-27. https://doi.org/10.3152/146155110X488826

Javadi, M., & Zarea, K. (2016). Understanding thematic analysis and its pitfall. *Journal of client care*, *1*(1), 33-39. http://dx.doi.org/10.15412/J.JCC.02010107

Jay, S., Jones, C., Slinn, P., & Wood, C. (2007). Environmental impact assessment: Retrospect and prospect. *Environmental impact assessment review*, *27*(4), 287-300. https://doi.org/10.1016/j.eiar.2006.12.001

Jiricka-Pürrer, A., Bösch, M., & Pröbstl-Haider, U. (2018). Desired but neglected: Investigating the consideration of alternatives in Austrian EIA and SEA practice. *Sustainability (Basel, Switzerland), 10*(10), 3680. https://doi.org/10.3390/su10103680

Johnson, D. R., Scheitle, C. P., & Ecklund, E. H. (2021). Beyond the in-person interview? How interview quality varies across in-person, telephone, and Skype interviews. *Social Science Computer Review*, *39*(6), 1142-1158. https://doi.org/10.1177/0894439319893612

Kay, J.J. (2008). An introduction to systems thinking. In Waltner-Toews, D., Kay, J. J., & Lister, N. M. E. (Eds.). *The ecosystem approach: complexity, uncertainty, and managing for sustainability* (pp. 3-13). Columbia University Press.

Kingston, S., Heyvaert, V., & Čavoški, A. (2017). *European environmental law*. Cambridge university press.

Kirchhoff, D., Montãno, M., Ranieri, V. E. L., de Oliveira, I. S. D., Doberstein, B., & de Souza, M. P. (2007). Limitations and drawbacks of using Preliminary Environmental Reports (PERs) as an input to Environmental Licensing in São Paulo State: A case study on natural gas pipeline routing. *Environmental*

Impact Assessment Review, *27*(4), 301-318. https://doi.org/10.1016/j.eiar.2006.11.003

Kruopienė, J., Židonienė, S., & Dvarionienė, J. (2009). Current practice and shortcomings of EIA in Lithuania. *Environmental Impact Assessment Review*, *29*(5), 305-309. https://doi.org/10.1016/j.eiar.2009.02.003

Leknes, E. (2001). The roles of EIA in the decision-making process. *Environmental Impact Assessment Review*, *21*(4), 309-334. https://doi.org/10.1016/S0195-9255(00)00081-0

Lonsdale, J., Weston, K., Blake, S., Edwards, R., & Elliott, M. (2017). The amended European environmental impact assessment directive: UK marine experience and recommendations. *Ocean & Coastal Management*, *148*, 131-142. http://dx.doi.org/10.1016/j.ocecoaman.2017.07.021

Lundberg, K. (2011). A systems thinking approach to environmental follow-up in a Swedish central public authority: Hindrances and possibilities for learning from experience. *Environmental management*, *48*(1), 123-133. https://doi.org/10.1007/s00267-010-9600-5

Lyhne, I., van Laerhoven, F., Cashmore, M., & Runhaar, H. (2017). Theorising EIA effectiveness: A contribution based on the Danish system. *Environmental Impact Assessment Review*, *62*, 240-249. https://doi.org/10.1016/j.eiar.2015.12.002

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Higher Education*, *9*(3). http://ojs.aishe.org/index.php/aishe-j/article/view/335

Manitoba Law Reform Commission. (2014). Discussion Paper: Manitoba's Environmental Assessment and Licensing Regime.

Marsden, S. (2011). Assessment of transboundary environmental effects in the Pearl River Delta Region: Is there a role for strategic environmental assessment?. *Environmental Impact Assessment Review*, *31*(6), 593-601. https://doi.org/10.1016/j.eiar.2010.03.010

Martin, L., & Morrison-Saunders, A. (2015). Determining the value and influence of informal strategic advice for environmental impact assessment: Western Australian perspectives. *Impact Assessment and Project Appraisal*, *33*(4), 265-277. https://doi.org/10.1080/14615517.2015.1080032

Mason, M. (2010). Sample size and saturation in PhD studies using qualitative interviews. In *Forum qualitative Sozialforschung/Forum: qualitative social research* (Vol. 11, No. 3). https://doi.org/10.17169/fqs-11.3.1428

MEPA. (2015). SPED: *Strategic Plan for Environment and Development*. MEPA. https://sustainabledevelopment.gov.mt/wp-content/uploads/2021/10/Strategic-Plan-for-the-Environment-and-Development-SPED.pdf

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Ministry for Development of Infrastructure. Planning Services Division. (1990). *Structure Plan for the Maltese Islands : Written Statement November 1990 - 1st Draft*.

Morgan, R. K. (1999). *Environmental impact assessment: a methodological approach*. Springer Science & Business Media.

Morgan, R. K. (2012). Environmental impact assessment: the state of the art. *Impact assessment and project appraisal*, *30*(1), 5-14. https://doi.org/10.1080/14615517.2012.661557

Morrison-Saunders, A. (2018). *Advanced introduction to environmental impact assessment*. Edward Elgar Publishing.

National Statistics Office (NSO). (2023, February 21). *Residential Building Permits: Q4/2022*. NSO. https://nso.gov.mt/mt/residential-building-permits-q4-2022/#:~:text=During%20the%20last%20quarter%20of,increased%20by%203.2%20per%20cent

Nielsen, E. H., Christensen, P., & Kørnøv, L. (2005). EIA screening in Denmark: a new regulatory instrument?. *Journal of Environmental Assessment Policy and Management*, *7*(01), 35-49. http://dx.doi.org/10.1142/S146433320500192X

Noble, B. F. (2020). *Introduction to Environmental Assessment: A Guide to Principles and Practice*. Oxford University Press.

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International journal of qualitative methods*, *16*(1), 1609406917733847. https://doi.org/10.1177/1609406917733847

Ogola, P. F. A. (2007). Environmental impact assessment general procedures. *Short Course II on Surface Exploration for Geothermal Resources, organized by UNUGTP and KenGen, at Lake Naivasha, Kenya*, 2-17. https://orkustofnun.is/gogn/unu-gtp-sc/UNU-GTP-SC-25-0904.pdf

Onat, N. C., Kucukvar, M., Halog, A., & Cloutier, S. (2017). Systems thinking for life cycle sustainability assessment: A review of recent developments, applications, and future perspectives. *Sustainability*, *9*(5), 706. https://doi.org/10.3390/su9050706

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and policy in mental health and mental health services research*, *42*(5), 533-544. https://doi.org/10.1007%2Fs10488-013-0528-y

Partidário, M., den Broeder, L., Croal, P., Fuggle, R., & Ross, W. (2012, April 2012). *Impact assessment*. International Association for Impact Assessment (IAIA): Fargo, ND, USA. http://www.jsia.net/6_assessment/Fastips_1ImpactAssessment.pdf

Patton, M. Q. (2002). *Qualitative research & evaluation methods*. Sage.

Patton, M. Q. (2014). *Qualitative research & evaluation methods: Integrating theory and practice*. Sage.

Petts, J. (1999). Handbook of Environmental Impact Assessment Volume 2 Environmental Impact Assessment in Practice: Impact and Limitations.

Pinho, P., McCallum, S., & Cruz, S. S. (2010). A critical appraisal of EIA screening practice in EU Member States. *Impact Assessment and Project Appraisal*, *28*(2), 91-107. https://doi.org/10.3152/146155110X498799

Planning Authority (PA). (2023). *Local Plans*. PA. https://www.pa.org.mt/en/local-plans

MEPA. (2006). North Harbour Local Plan. PA. https://www.pa.org.mt/en/local-plan-details/north-harbour-local-plan

Pölönen, I., Hokkanen, P., & Jalava, K. (2011). The effectiveness of the Finnish EIA system—What works, what doesn't, and what could be improved?. *Environmental Impact Assessment Review*, *31*(2), 120-128. https://doi.org/10.1016/j.eiar.2010.06.003

Portelli, R. (2017). *Assessing the experiences of Sliema residents and environmental non-governmental organizations of public participation processes in development projects in Sliema* (Master's thesis, University of Malta).

Pouikli, K., & Tsakalogianni, I. (2022). Criteria for Identifying Splitting of Projects (Salami-Slicing) Tactic in Light of the C-11/20 Regione Puglia Case and eia Practice in Greece. *Journal for European Environmental & Planning Law*, *19*(3), 222-247. http://dx.doi.org/10.1163/18760104-19030005

Pröbstl-Haider, U. (2022). EIA Effectiveness in Sensitive Alpine Areas: A Comparison of Winter Tourism Infrastructure Development in Germany and Austria. *Sustainability*, *14*(15), 9775. https://doi.org/10.3390/su14159775

Proudfoot, K. (2022). Inductive/Deductive Hybrid Thematic Analysis in Mixed Methods Research. *Journal of Mixed Methods Research*, 15586898221126816. https://doi.org/10.1177/15586898221126816

Rathi, A. (2022). Is "consideration of alternatives" in project level environmental impact assessment studies in developing countries an eyewash: An Indian

case-study. *Journal of Environmental Planning and Management, 65*(3), 418-440. https://doi.org/10.1080/09640568.2021.1886058

Rathi, A. K. A. (2023). Pursuing the Distilled Good Practices to Improve the Quality of Environmental Impact Assessment Reports and Hence Enhance the EIA Effectiveness and Help Address the Concerns of Project Proponents: An Indian Context. *Macro Management & Public Policies*, *5*(1), 26-43. https://doi.org/10.30564/mmpp.v5i1.5460

Reid, J. (2013). *Financial mechanisms for environmental compliance in infrastructure projects*. Conservation Strategy Fund. https://www.ecosystemmarketplace.com/wp-content/uploads/archive/documents/Doc_57.pdf

Roberts, K., Dowell, A., & Nie, J. B. (2019). Attempting rigour and replicability in thematic analysis of qualitative research data; a case study of codebook development. *BMC medical research methodology*, *19*(1), 1-8. https://doi.org/10.1186/s12874-019-0707-y

Roudgarmi, P. (2018). Cumulative effects assessment (CEA), a review. *Journal of Environmental Assessment Policy and Management*, *20*(02), 1850008. https://doi.org/10.1142/S1464333218500084

Saarijärvi, M., & Bratt, E. L. (2021). When face-to-face interviews are not possible: tips and tricks for video, telephone, online chat, and email interviews in qualitative research. *European Journal of Cardiovascular Nursing,* 20(04), 392-396. https://doi.org/10.1093/eurjcn/zvab038

Sadler, B. (1996). *International study of the effectiveness of environmental assessment: final report: environmental assessment in a changing world: evaluating practice to improve performance*. Canadian Environmental Assessment Agency.

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., ... & Jinks, C. (2018). Saturation in qualitative research: exploring its conceptualization and

operationalization. *Quality & quantity*, *52*(4), 1893-1907. https://doi.org/10.1007/s11135-017-0574-8

Schembri Orland, K. (2018, January 25). *Planning Authority approves plans for 31-storey Mercury House development.* Independent. https://www.independent.com.mt/articles/2018-01-25/local-news/Planning-Authority-approves-plans-for-31-storey-Mercury-House-development-6736184051

Sciberras, R. (2013). Effectiveness of Environmental Impact Assessment Process in the Maltese Islands. *Masters Theses, 2010-2019.* 319. https://commons.lib.jmu.edu/master201019/319

Seiffert, M. E. B., & Loch, C. (2005). Systemic thinking in environmental management: support for sustainable development. *Journal of cleaner production*, *13*(12), 1197-1202. https://doi.org/10.1016/j.jclepro.2004.07.004

Smith, J. A. (2015). Qualitative psychology: A practical guide to research methods. *Qualitative psychology*, 1-312. Sage.

Stephenson Harwood LLP. (2018). *A guide to applications for planning permission and other consents: #10ThingsSH you need to know.* https://www.shlegal.com/flipbook/a-guide-to-applications-for-planning-permission

Sundler, A. J., Lindberg, E., Nilsson, C., & Palmér, L. (2019). Qualitative thematic analysis based on descriptive phenomenology. *Nursing open*, *6*(3), 733-739. https://doi.org/10.1002/nop2.275

Suri, H. (2011). Purposeful sampling in qualitative research synthesis. *Qualitative research journal*, *11*(2), 63-75. http://dx.doi.org/10.3316/QRJ1102063

Therivel, R., & Ross, B. (2007). Cumulative effects assessment: does scale matter?. *Environmental impact assessment review*, *27*(5), 365-385. https://doi.org/10.1016/j.eiar.2007.02.001

Times of Malta. (2021, April 19). *Activists, local council file appeal against Qala development.* Times of Malta.

https://timesofmalta.com/articles/view/activists-local-council-file-appeal-against-qala-development.865719

Times of Malta. (2017, January 30). *Massive Luqa development split 'to dodge environmental studies'*. Times of Malta. https://timesofmalta.com/articles/view/massive-luqa-development-split-to-dodge-environmental-studies.638060

Toro, J., Requena, I., & Zamorano, M. (2010). Environmental impact assessment in Colombia: Critical analysis and proposals for improvement. *Environmental Impact Assessment Review*, *30*(4), 247-261. https://doi.org/10.1016/j.eiar.2009.09.001

UNECE. (1998, June 25). *Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.* Aarhus, Denmark. https://unece.org/DAM/env/pp/documents/cep43e.pdf.

Van Calster, G., & Reins, L. (2017). *EU environmental law*. Edward Elgar Publishing.

Vilardo, C., & La Rovere, E. L. (2018). Multi-project environmental impact assessment: insights from offshore oil and gas development in Brazil. *Impact Assessment and Project Appraisal*, *36*(4), 358-370. https://doi.org/10.1080/14615517.2018.1475615

Vollrath, M., & Torgersen, S. (2000). Personality types and coping. *Personality and individual differences*, *29*(2), 367-378. https://psycnet.apa.org/doi/10.1016/S0191-8869(99)00199-3

Walliman, N. (2022). *Research methods: The basics*. Routledge.

Weston, J. (2011). Screening for environmental impact assessment projects in England: what screening?. *Impact Assessment and Project Appraisal*, *29*(2), 90-98. https://doi.org/10.3152/146155111X12913679730593

Willemsen, R. F., Aardoom, J. J., Chavannes, N. H., & Versluis, A. (2022). Online synchronous focus group interviews: Practical considerations. *Qualitative Research*, 14687941221110161. https://doi.org/10.1177/14687941221110161

Williams, A., & Dupuy, K. (2017). Deciding over nature: Corruption and environmental impact assessments. *Environmental Impact Assessment Review*, *65*, 118-124. https://doi.org/10.1016/j.eiar.2017.05.002

Wilson, J., Hinz, S., Coston-Guarini, J., Mazé, C., Guarini, J. M., & Chauvaud, L. (2017). System-based assessments—Improving the confidence in the EIA process. *Environments*, *4*(4), 95. https://doi.org/10.3390/environments4040095

Wood, G., & Becker, J. (2005). Discretionary judgement in local planning authority decision making: screening development proposals for environmental impact assessment. *Journal of Environmental Planning and Management*, *48*(3), 349-371. https://doi.org/10.1080/09640560500067467

Zammit, M.L. (2021, October 25). *Developer Joseph Portelli admits illegal Qala works.* Times of Malta. https://timesofmalta.com/articles/view/developer-joseph-portelli-admits-illegal-qala-works.910075

Zhang, H., Amodio-Calvo, J., & Haapala, K. R. (2013, October). A systems thinking approach for modeling sustainable manufacturing problems in enterprises. In *Proceedings of the international annual conference (IAC) of the American Society for Engineering Management (ASEM), Minneapolis, MI, USA* (pp. 3-5). http://dx.doi.org/10.13140/2.1.4173.8888

Zhang, J., Kørnøv, L., & Christensen, P. (2018). The discretionary power of the environmental assessment practitioner. *Environmental Impact Assessment Review*, *72*, 25-32. https://doi.org/10.1016/j.eiar.2018.04.008

Appendix A: Interview Guide

Group 1: The Competent Authority

Salami-slicing in EIA

1. The Directive prohibits the splitting of a project into smaller ones in order to avoid EIA or salami slicing. What would in your opinion constitute "salami slicing"?
2. Regulation 10(6) (SL 549.46), prohibits salami slicing, how effective is it at doing so? In what ways is splitting of projects prevented? How effective have these methods been?
3. There are currently no national provisions with regards to prevention of salami-slicing, only practices such as screening for prevention. Do you believe that provisions in national legislation could improve avoidance of salami-slicing? Would you be able to suggest any provisions or other practices to eliminate this phenomenon?
4. Have you encountered any episodes of salami slicing? Please refer to what type of development they applied to.
5. How does ERA decide whether or not “the *bona fide* phasing of a project or the splitting into mutually coordinated applications” is a case of salami slicing?
6. Does ERA have a process in order to determine this? If yes, can you explain it?
7. Can you list the main indicators that would help in flagging a case of salami-slicing?
8. How would ERA deal with a scenario in which e.g. project A has been extended by project B. Project A is now operational and was screened-out, project B alone would also be screened out; however projects A + B together would have been screened in.
9. When ERA is deciding on the inclusion of the projects contributing to the cumulation of impacts, which criteria/criterion does it use in order to decide which projects are to be assessed (potential, planned, planned and permitted, already operational)?
10. Can you identify any deficiencies in EIA that may lead to instances of project splitting?

11. Could you provide any examples of projects where the issue of cumulation of impacts/environmental effects was addressed effectively or failed to do so?

Screening in EIA

1. Would you say that screening is effective or ineffective in preventing salami-slicing?
2. If ineffective, how could the screening process lead to instances of salami-slicing?
3. In your opinion and from your experience, are certain types of projects or developments more prone to project fragmentation?
4. Is a threshold-based approach to the screening procedure more conducive to salami slicing?
5. Would a case-by-case approach to screening help with identification of salami-slicing?
6. In the literature, informal discussions and amendments of a development prior to or during screening have been viewed both as a hinderance and improvement of EIA. What are your views on informal discussions and amendments prior to project screening? Do you believe this to be a common practice in the MI? Do you believe this would increase SS or reduce it?

Environmental impact assessment (EIA) (General questions)

1. As the competent authority, what is your perception of EIA?
2. What do you believe your obligations to be with regards to EIA?
3. How does the competent authority ensure that the quality of the environmental information provided in accordance with Art. 5 and Annex IV is sufficient?
4. How does the competent authority ensure that the relevant information is submitted by the developer?
5. Should the competent authority be obliged to provide justification for why specific concerns expressed by the public are not reflected in TOR?

6. Would you say that “scoping” leads to an improvement of the quality of information provided by the developer, according to Art. 5(1), in Malta? Why or why not?

Group 2: EIA practitioners and technical experts

Salami-slicing in EIA

1. The EIA Directive prohibits the splitting of a project into smaller ones in order to avoid EIA or salami slicing. What would in your opinion constitute "salami slicing"?
2. Regulation 10(6) (SL 549.46), prohibits salami slicing, how effective is it at doing so? In what ways do you think splitting of projects is prevented in the MI? In your opinion, how effective have these methods been?
3. There are currently no national provisions with regards to prevention of salami-slicing, only practices such as screening for prevention. Do you believe that provisions in national legislation could improve avoidance of salami-slicing? Would you be able to suggest any provisions or other practices to eliminate this phenomenon?
4. Have you encountered any episodes of salami-slicing in your line of work? Please refer to what type of development they applied to.
5. Can you list the main indicators that would help in flagging a case of salami-slicing?
6. Can you identify any deficiencies in EIA that may lead to instances of project splitting?
7. Could you provide any examples of projects where the issue of cumulation of impacts/environmental effects was addressed effectively or failed to do so?

Screening in EIA

1. Would you say that screening is effective or ineffective in preventing salami-slicing?
2. If ineffective, how could the screening process lead to instances of salami-slicing?

3. In your opinion and from your experience, are certain types of projects or developments more prone to project fragmentation?
4. Is a threshold-based approach to the screening procedure more conducive to salami slicing?
5. Would a case-by-case approach to screening help with identification of salami-slicing?
6. In the literature, informal discussions and amendments of a development prior to or during screening have been viewed both as a hinderance and improvement of EIA. What are your views on informal discussions and amendments prior to project screening? Do you believe this to be a common practice in the MI? Do you believe this would increase SS or reduce it?

Environmental impact assessment (EIA) (General questions)

1. As an EIA practitioner, what is your perception of EIA? Do you believe it to be effective in its purpose?
2. What do you believe your obligations to be with regards to EIA?
3. Would you say that “scoping” leads to an improvement of the quality of information provided by the developer, according to Art. 5(1), in Malta? Why or why not?
4. Should the competent authority be obliged to provide justification for why specific concerns expressed by the public are not reflected in TOR?
5. Would you say that “scoping” leads to an improvement of the quality of information provided by the developer, according to Art. 5(1), in Malta? Why or why not?

Group 3: Developers and legal advisors

Salami-slicing in EIA

1. The EIA Directive prohibits the splitting of a project into smaller ones in order to avoid EIA or salami slicing. What would in your opinion constitute "salami slicing"?

2. Regulation 10(6) (SL 549.46), prohibits salami slicing, how effective is it at doing so? In what ways do you think splitting of projects is prevented in the MI? In your opinion, how effective have these methods been?
3. There are currently no national provisions with regards to prevention of salami-slicing, only practices such as screening for prevention. Do you believe that provisions in national legislation could improve avoidance of salami-slicing? Would you be able to suggest any provisions or other practices to eliminate this phenomenon?
4. Have you encountered any episodes of salami slicing in your line of work? Please refer to what type of development they applied to.
5. Can you list the main indicators that would help in flagging a case of salami – slicing?
6. Can you identify any deficiencies in EIA that may lead to instances of project splitting?
7. Do you believe that proponents intentions influence EIA and SS? For example, one that views EIA as an administrative hurdle compared to a proponent that is more sustainability oriented?

Screening in EIA

1. Would you say that screening is effective or ineffective in preventing salami-slicing?
2. If ineffective, how could the screening process lead to instances of salami-slicing?
3. In your opinion and from your experience, are certain types of projects or developments more prone to project fragmentation?
4. Is a threshold-based approach to the screening procedure more conducive to salami slicing?
5. Would a case-by-case approach to screening help with identification of salami-slicing?
6. In the literature, informal discussions and amendments of a development prior to or during screening have been viewed both as a hinderance and improvement of EIA. What are your views on informal discussions and

amendments prior to project screening? Do you believe this to be a common practice in the MI? Do you believe this would increase SS or reduce it?

Environmental impact assessment (EIA) (General questions)

1. As a developer/architect, what is your perception of EIA? Is it conducive to improving the environmental performance of a project?
2. What do you believe your obligations to be with regards to EIA?
3. Would you say that "scoping" leads to an improvement of the quality of information provided by the developer, according to Art. 5(1), in Malta? Why or why not?

Group 4: ENGOs

1. As an NGO/member of the public/local council, what is your perception of EIA? Do you believe it to be effective in its purpose?
2. Are you aware of the issue of salami-slicing in EIA? If so, how would you describe salami-slicing?
3. Can you list the main indicators that would help in flagging a case of salami-slicing?
4. Have you encountered episodes of salami-slicing in your line of work? If so, what type of developments they applied to?
5. In what ways do you think splitting of projects is prevented in the MI? In your opinion, how effective have these methods been?
6. There are currently no national provisions with regards to prevention of salami-slicing, only practices such as screening for prevention. Do you believe that provisions in national legislation could improve avoidance of salami-slicing? Would you be able to suggest any provisions or other practices to eliminate this phenomenon?
7. Can you identify any deficiencies in EIA that may lead to instances of project splitting?
8. What are your perceptions of public participation in EIA in the Maltese Islands? Is the process effective? Are there any shortcomings or room for improvement?

9. Do you believe the public plays a role in identification of salami-slicing?

Appendix B: Participant information and consent forms

Dear Participant,

My name is Daniela Ghirxi and I am currently reading for an MSc Degree in Rural and Environmental Sciences with the Institute of Earth Systems of the University of Malta. This letter is an invitation to participate in my postgraduate dissertation that forms part of my programme of studies. Below you will find information about my research and about what your involvement would entail, should you decide to take part.

The aim of my study is to establish a conceptual model/visual tool intended for identifying and preventing instances of salami-slicing in Environmental Impact Assessment (EIA). Your participation in this study would help contribute to a better understanding of EIA, and the occurrence of salami-slicing (also known as project splitting or fragmentation) along with its potential identification and avoidance. Any data collected from this research will be used solely for purposes of this study.

Participation in this study is entirely voluntary; in other words, you are free to accept or refuse to participate, without needing to give a reason. Should you choose to participate, you will be asked to take part in an interview led by the undersigned. The interview may be expected to last approximately 30 minutes to 1 hour. Keeping in mind the current climate with COVID-19, the interview may take place virtually. You may choose to withdraw from the study at any time by advising the undersigned, without needing to provide any explanation and without any negative repercussions for you. Should you choose to withdraw, any data collected from you will be deleted. If you choose to participate, please note that there are no direct benefits to you.

Please note that, unless you indicate otherwise below, the interview will be recorded to facilitate data collection and will later be transcribed for thematic analysis. All interview discussions will be treated in strict confidence. Your name will not appear in the dissertation or in any other publications resulting from this study. However, anonymous or pseudonymised quotations may be used. While the aforementioned efforts will be made to protect participants' identities, there remains a potential risk

that you may be identified through the responses that you give; this risk arises from the small number of people working in the EIA sector.

Signed consent forms and any other soft/hard-copy materials will be stored securely, in a file only accessible to the undersigned; recordings and transcripts will be stored in an encrypted file on a password-protected computer, and only my supervisors and myself will have access to this data. Please note also that, as a participant, you have the right under the General Data Protection Regulation (GDPR) and national legislation to access, rectify and where applicable ask for the data concerning you to be erased. All data collected will be erased on completion of the study and following publication of results.

A copy of this information sheet is being provided for you to keep and for future reference.

Thank you for your time and consideration. Should you have any questions or concerns, please do not hesitate to contact me by e-mail [redacted]; you can also contact my supervisor, Dr Mark Scerri: phone: +356 2340 2440 email: [redacted] OR my co-supervisor Prof. Elisabeth Conrad: phone: +356 2340 2873; email: [redacted].

Yours Sincerely,

Daniela Ghirxi	Dr. M. Scerri
Researcher	Research Supervisor

Prof. E. Conrad

Research Co-Supervisor

I, the undersigned, give my consent to take part in the research study being conducted by **Daniela Ghirxi,** supervised by **Dr Mark Scerri** and co-supervised **by Prof. Elisabeth Conrad**, in part fulfilment of the requirements for the **MSc degree in Rural and Environmental Sciences** at the **Institute of Earth Systems, University of Malta**. The purpose of this document is to specify the terms of my participation in this research study.

I understand that this study involves research, the aim of which is to examine salami-slicing in EIA and establish a model intended for its identification and prevention.

Please read the following carefully before indicating your consent:

1. I confirm that I have read the information presented in the information letter about the purpose of the study. I have had the opportunity to ask questions; any questions I had were answered fully and to my satisfaction. I have been provided with a copy of the information letter and understand that I will also be given a copy of this consent form to keep.
2. I understand that my participation is voluntary and that I can withdraw at any time, without any penalty and without needing to give a reason. I also understand that, if I choose to withdraw, any data collected from me will be deleted.
3. I understand that I have been invited to participate in an interview, which is expected to take approximately 30 minutes to 1 hour. I am aware that I may choose to decline to answer any of the questions asked during the interview.
4. I am aware that the interview <u>will be recorded</u> should I give my consent below.
5. I understand that I am NOT to record the interview discussion in any format.
6. I understand that signed consent forms and any other soft-copy materials will be stored securely, only accessible to the undersigned; recordings and transcripts will be stored in an encrypted file on a password-protected

computer, and only the supervisor and the researcher will have access to this data.

7. I am aware that my identity will not be revealed in any publications, reports or presentations arising from this research. I am aware that extracts from the interview discussions may be reproduced in these outputs, either in anonymous form, or using a pseudonym [a made-up name or code – e.g. respondent A].
8. I am aware that while the measures previously listed will be taken to protect my identity, complete anonymity is not fully guaranteed.
9. I understand that there are no direct benefits to me from participating in this study.
10. I understand that, under the General Data Protection Regulation (GDPR) and national legislation, I have the right to access, rectify, and where applicable, ask for the data concerning me to be erased.
11. I understand that all data collected will be erased on completion of the study and following publication of results.

Please tick as appropriate:

I give my consent to participate in this study.	☐
I give my consent to being recorded for purposes of data analysis.	☐

Participant name: _____

Participant signature: _____

Date: _____

Appendix C: Data management plan

Nature of the data	
Kind of data that will be collected:	Expected to be transcribed recordings (text)
The expected size of the data set:	This is expected to vary depending on number of participants willing to participate. Interview duration is expected to be between 30 minutes to an hour.
Tools/software required to read or view the data:	Data will be analysed through thematic analysis using software such as NVivo. A systems thinking tool called 'Plectica' will also be used for the creation of a conceptual model based on the research.
Anonymity of data:	As indicated in the consent forms, participants' identities will be protected through the use of pseudonyms (i.e. the responses will be separated from the name, with a separate list linking names and codes)
Data management plan	
Responsibility for data management:	Student
Metadata to be created to make data understandable:	Thematic framework diagram and conceptual model (through Plectica – a visual tool for systems thinking)
Data storage:	Recordings and transcripts will be stored in an encrypted file on my personal password-protected computer, and only I will have access to this data. Conceptual model will be stored on a

	private account on Plectica and analysis of qualitative data carried out through NVivo will likewise be saved on a personal private account.
Backup for data storage:	Personal Copy at PI
Does this data require secure storage?	The data will be stored in an encrypted file on a secure personal computer.
Duration of data storage:	All data collected will be stored until completion of the study and following publication of results (Estimation: until 2023).
Data sharing	
Data is not expected to be shared.	

Appendix D: Background on the Maltese Local Plans

The Development Planning Act (DPA) of 1992 sets out for the sustainable planning and management of development within the MI, and for the establishment of an authority with powers to that effect. The first comprehensive document providing strategic guidance on land use in the MI was the Structure Plan of 1990 published by the Planning Services Division, which guided both private and Government development matters over the succeeding twenty years, provided policies for determining permit applications and proposed land use changes, and provided context for the development of seven site-specific LPs (Ministry for Development Infrastructure, 1990). The aforementioned was superseded by the Strategic Plan for the Environment and Development (SPED) published in 2015 by the Malta Environment and Planning Agency (MEPA) namely as a result of socio-economic development witnessed since the Structure Plan was compiled. The SPED regulates sustainable management of land and sea resources and provides for a long-term spatial strategy for the environment and development (MEPA, 2015). The LPs arising from the Structure Plan continued to from part of Subsidiary Plans that support the SPED (undergoing a partial review in 2013), and have been defined within Article 48.1 of the DPA as:

> "a plan that deals with the specific development planning requirements of an area where the rate of development or redevelopment cannot be satisfactorily managed or where special factors cannot be considered solely based on the Spatial Strategy. It shall set out detailed policies in relation to the development planning matters of the area in general conformity with the Spatial Strategy and where applicable, any subject plan" (MEPA, 2015).

The seven LPs[9] include the following: 1) the South Malta LP, 2) the North West LP, 3) the North Harbour LP, 4) Gozo and Comino LP, 5) Central Malta LP, 6) Grand Harbour LP, and 7) Marsaxlokk Bay LP (PA, 2023). These plans provide overarching policy direction and contain within them several land use policies *inter alia* on urban

[9] Accessible at https://www.pa.org.mt/en/local-plans.

settlements, rural settlements, agriculture, tourism, commerce and industry, recreation, landscape, conservation, among others. Examples of the direction provided within such plans include refusal of development permission for developments likely to have significant effects on strategic views and landmark buildings, ensuring that proposals are compatible in terms of setting and scale with the character of strategic and local views, and that the height and design of proposed buildings respect the visuals of landmark buildings in the vicinity[10]. According to a judgement by the Maltese Courts (75/2007 JVC)[11] on the 18th of March 2010 on the alleged failure to comply with obligations under the SEA Directive, the Commission concluded that given the approval of the LPs by the MEPA before 21 July 2006 (predating Malta's succession into the European Union), the requirement under Article 4 (1) to carry out an EIA (in accordance with Article 13 [3]) was not applicable. Further to this, in a civil court case in 2021 (Flimkien Ghal Ambjent Ahjar et vs Ciantar Christopher Dr. Eng. Pro et noe et) the extension of development zones was likewise exempt from an SEA due to the continuation of an exercise that was initiated in 1991.

[10] The North Harbour Local Plan (MEPA, 2006).

[11] Accessible at https://ecourts.gov.mt/onlineservices/Judgements/PrintPdf?JudgementId=0&CaseJudgementId=127713