

Systematic Review

# Stakeholders' Impact Factors of the COVID-19 Pandemic on Sustainable Mixed Development Projects: A Systematic Review and Meta-Analysis

Nadirah Hazwani Najib <sup>1,2</sup>, Syuhaida Ismail <sup>1,\*</sup>, Rohayah Che Amat <sup>1</sup>, Serdar Durdyev <sup>3</sup>, Zdeňka Konečná <sup>4</sup>, Abdoulmohammad Gholamzadeh Chofreh <sup>5,\*</sup>, Feybi Ariani Goni <sup>5</sup>, Chitdrakantan Subramaniam <sup>1</sup> and Jiří Jaromír Klemeš <sup>5</sup>

- <sup>1</sup> Razak Faculty of Technology and Informatics, Universiti Teknologi Malaysia Kuala Lumpur, Jalan Sultan Yahya Petra, Kuala Lumpur 54100, Malaysia
- <sup>2</sup> KPH Synergy Sdn. Bhd., F-2-27, Jalan BG 3B/ 1, Bangi Gateway 3B, Bandar Baru Bangi 43650, Malaysia
- <sup>3</sup> Ara Institute of Canterbury, Christchurch 8011, New Zealand
- <sup>4</sup> Department of Management, Faculty of Business and Management, Brno University of Technology—VUT Brno, Kolejní 2906/4, 61200 Brno, Czech Republic
- <sup>5</sup> Sustainable Process Integration Laboratory—SPIL, NETME Centre, Faculty of Mechanical Engineering, Brno University of Technology—VUT Brno, Technická 2896/2, 616 69 Brno, Czech Republic
- \* Correspondence: syuhaida.kl@utm.my (S.I.); chofreh@fme.vutbr.cz (A.G.C.)



check for updates

**Citation:** Najib, N.H.; Ismail, S.; Che Amat, R.; Durdyev, S.; Konečná, Z.; Chofreh, A.G.; Goni, F.A.; Subramaniam, C.; Klemeš, J.J. Stakeholders' Impact Factors of the COVID-19 Pandemic on Sustainable Mixed Development Projects: A Systematic Review and Meta-Analysis. *Sustainability* **2022**, *14*, 10418. <https://doi.org/10.3390/su141610418>

Academic Editor: Mark Anthony Camilleri

Received: 28 May 2022

Accepted: 11 August 2022

Published: 22 August 2022

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

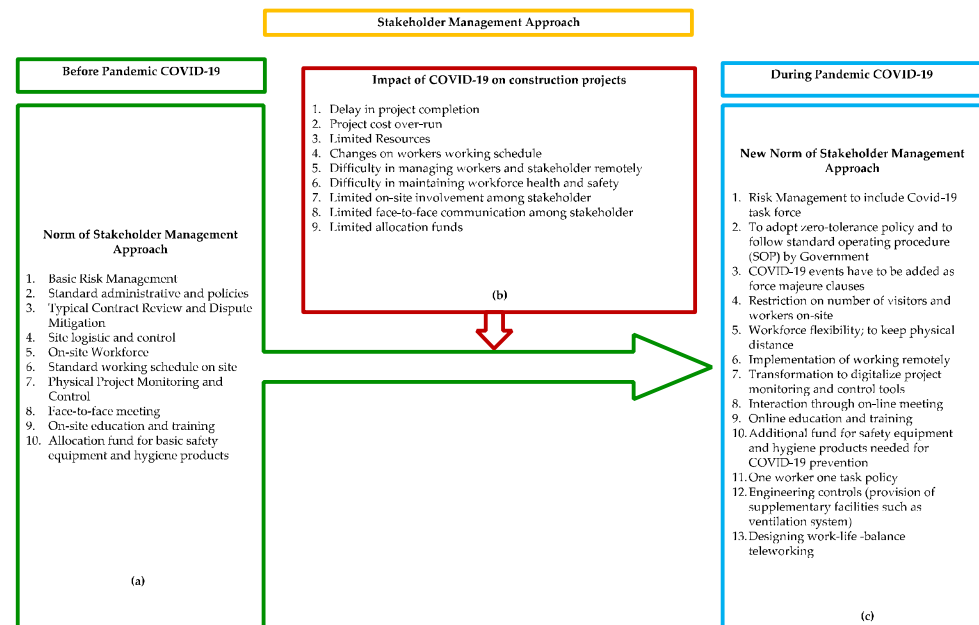
**Abstract:** Managing stakeholders in construction projects is crucial since stakeholders are perceived as a significant source of uncertainty because of the various stakeholders involved, especially in mixed development projects. The preferred reporting items for systematic reviews and meta-analyses (PRISMA) method was used to analyse and select the most relevant publications from two identified databases: SCOPUS and Web of Science (WoS). Only 55 of 1600 publications were identified as relevant to stakeholder impact factors in the construction projects. Towards achieving the Sustainable Development Goal (SDG) 11, 10 stakeholder impact factors affecting the success of mixed development project management during the COVID-19 pandemic were identified and arranged by frequency: stakeholder engagement, stakeholder relationship, stakeholder attribute, stakeholder influence, stakeholder interest, stakeholder needs, stakeholder satisfaction, stakeholder expectation, and stakeholder behaviour. The outcome of this study would assist the construction project team in effectively managing and engaging with the relevant stakeholders to attain SDG 11 associated with sustainable cities and communities, specifically for the mixed development projects during the COVID-19 pandemic.

**Keywords:** construction projects; COVID-19 pandemic; mixed development; stakeholder impact; stakeholder management; SDG 11; sustainable cities and communities; project success

## 1. Introduction

The coronavirus disease 2019 (COVID-19) pandemic has shaken the world and significantly impacted the construction sector, as the construction sector is sensitive to global economic cycles [1]. COVID-19 has undeniably been a worldwide crisis that caused countless hitches in various sectors [2], including the construction sector, where companies and workers are intensely vulnerable to extreme economic regression during and after the COVID-19 pandemic. The construction sector has a great potential to help stimulate recuperation by creating jobs. It is urged to promptly adapt and apply new practices and revise the construction standards, technologies, and workflow for immediate recovery measures [2]. These recovery actions might support the construction sector's transformation towards sustainability and digitalisation [3] in line with United Nations (UN) Sustainable Development Goal 11 (SDG 11) to achieve market transformation focusing on sustainable cities and communities. This transformation should help governments, businesses, and

humanitarian organisations accelerate their efforts in achieving sustainable cities and communities, which aim to make cities inclusive, safe, resilient, and sustainable [4]. However, the construction sector recovery must be closely related to energy and emissions during the pandemic [5] and follow-up vaccination campaigns [6] and also construction materials, which are increasingly related to plastics [7]. The stakeholder management approach before the COVID-19 pandemic typically involved physical engagement in terms of collaboration and effective coordination among stakeholders towards successful construction projects [8], especially on complex projects like sustainable mixed development projects. Figure 1 compares the stakeholder management approach before and during the COVID-19 pandemic. During the pandemic, the construction sector had to endure quite a massive transition in the stakeholder management approach because of the forbidding of face-to-face on-site activities required by the standard operating procedures (SOP) imposed by the government. A hybrid stakeholder management approach shall be executed for the new norm yet still excel enough to manage and conquer the stakeholders' requirements. Blending the virtual and physical approaches will be challenging, whereby the working environment and culture of the organisation will be going into the transformation of sophisticated technologies that will remain even after the pandemic [9].



**Figure 1.** Comparison of stakeholder management approach before and during COVID-19. (a) Norm of stakeholder management approach (adapted and modified from [8]); (b) impact of COVID-19 on construction projects (adapted and modified from [1]); (c) new norm of stakeholder management approach (adapted and modified from [9]).

To promote a sustainable human-centred recovery from the COVID-19 pandemic towards SDG 11, tripartite cooperation and social dialogue with international labour standards are crucial [1]. Governments and other sectoral stakeholders should expeditiously respond to the COVID-19 pandemic with various measures to support the construction sector. According to [8], a construction project is successful when the development team can deal with uncertainty, cost, quality and time, satisfaction, safety, and health and environmental impacts towards the achievement of SDG 11. It is undeniable that the role of stakeholders in pursuing SDG 11 is important; [10] highlighted four key areas in accomplishing progress towards SDG 11, and two of them emphasised building appropriate capacity and skills across stakeholder groups and ensuring practical processes for multilayer stakeholder engagements at all phases of urban development that form consensus, inclusion, resilience, and sustainability. Efficient stakeholder management permits the project team

to understand their stakeholders better, manage their expectations, and recuperate the business opportunities [11] towards achieving SDG 11 amidst the COVID-19 pandemic. This paper aims to establish the stakeholder impact factors affecting mixed development projects' success towards SDG 11 in understanding the potential impact of the COVID-19 pandemic on a mixed development project. From this study, an appropriate stakeholder management approach can also be formulated as a guideline to maximise a stakeholder's positive influence and minimise any negative impact on the mixed development project, especially during the COVID-19 pandemic.

## 2. Literature Review

### *Managing Stakeholders towards the Sustainable Development Goal 11 (SDG 11)*

The construction sector is vital in fostering global economic growth while still achieving inclusive, safe, resilient, and sustainable cities as the sustainability concepts have become a global construction trend and one of the key indicators of project success, besides offering competitive advantages in the construction business strategies [12]. A lack of natural resources, the non-renewable energy crisis, and market perceptions of environmental issues have all been central concerns in maintaining organisational performance, particularly in construction project management [13]. External variables such as stricter national regulations, stakeholder pressures, and environmental requirements have compelled the construction sector to include sustainability initiatives in its strategic goals. It is prudent for sustainability to be embedded into stakeholder management in a mixed development project concept and to be properly managed towards achieving project success during the COVID-19 pandemic. Another critical factor for a successful project is integration management, which refers to coordination among all aspects and processes of the project [14]. Ref. [15] stated that integration is a thoughtful process of developing a governance structure, making the management of key stakeholder requirements more systematic.

Restarting and maintaining infrastructure for other industries while keeping their momentum going during the COVID-19 pandemic is critical to preserving national competitiveness and adding value to their investments [16]. To maintain the competitive advantages of a mixed development project and achieve the goals of reigniting the industry, all factors affecting the performance of mixed development projects have to be established and clearly understood [17] to assist sustainable cities and communities. As highlighted by [18], the sustainability concept is interrelated with three dimensions: environment, society, and economy. It balances these three elements towards meeting the present needs without compromising the needs of future generations. Sustainable Enterprise Resource Planning (S-ERP) has been introduced by [14]; it is an enterprise system designed to integrate sustainability activities between corporate sustainable business functions. This system enables construction players to practice sustainability in the project organisation efficiently and has become an essential project management methodology in the transformation road map to sustainability, especially in the stakeholder management area, to successfully conquer sustainable cities and communities.

"Sustainable cities and communities" is one of the 17 SDGs entitled "sustainable cities and communities", established by the United Nations General Assembly in 2015. SDG 11 is measured with 15 indicators and has 10 targets to be achieved, which include safe and affordable housing, affordable and sustainable transport systems, inclusive and sustainable urbanisation, protection of the world's cultural and natural heritage, reduction of the adverse effects of natural disasters, reduction of the environmental impacts of cities, and also provision of access to safe and inclusive green and public spaces [4], as illustrated in Figure 2.



**Figure 2.** Sustainable Development Goal 11 (adapted and modified from [4]).

However, SDG 11 recognises that cities, particularly those in developing countries and the Global South, where poverty, environmental degradation, and the dangers posed by climate change and natural catastrophes are primarily an issue of urban life rather than rural life. Sustainable, inclusive, and equitable cities require stakeholders to produce realistic localised indicators and outputs suited to each city's particular urban circumstances [19]. As the community grows more appreciative of the fully integrated mixed development concept of sustainable cities, which provides an innovative and sustainable design milieu for sustainable communities, this concept becomes more prevalent globally [20]. Indeed, it has demonstrated that urban planning and real estate development have moved in tandem with ever-changing sustainable development patterns and are gradually responsive to the community's needs and requirements towards SDG 11. As the mixed development project is categorised as a multifaceted project identical to the concepts of a sustainable project, green building project, and megaproject, the interconnection between stakeholders also contributes to the project's complexity [21].

Stakeholders strongly influence project success, particularly for multifaceted projects with diverse stakeholders like mixed development projects within sustainable cities, and understanding their influence is essential for project management and implementation [22]. Project success has been extensively discussed in various construction project management and sustainable cities-related publications. Most studies have focused on the scope of project success that measures a project's success and the factors affecting project success. However, according to the comprehensive statement by the Project Management Body of Knowledge (PMBOK) Guide published by [23], project success criteria consist of the golden triangle, namely time, cost, quality, and critical project stakeholder satisfaction and their incorporation into the project. An indicator of a successful project is when the construction projects achieve the golden triangle criteria. This is easily applied and usually gathers consensus among the stakeholders [24] in the mixed development project towards achieving sustainable cities and liveable communities as stipulated in SDG 11. The successful indicator of sustainable cities and communities, as in SDG 11, is achieved when the development is closely interconnected with the environment and economy and safeguards the protection of natural resources, leading to a minimum acceptable quality of life [25]. Strong, healthy, and liveable communities depend on a healthy environment, a vibrant economy, and sufficient employment opportunities for their populations [26].

Some studies have extended project success criteria into new aspects, such as stakeholder participation and satisfaction, customer benefit, upcoming perspective on the organisation, and so forth [27].

Mixed development projects are primarily managed and conducted by multiple stakeholders, making the project concepts immensely more challenging than a single development project, let alone in complex sustainable cities. The relationship between clients, contractors, and consultants can be adversarial, leading to an increased risk of conflict and withdrawal of support, lessening the likelihood of completing mixed development projects toward sustainable cities' achievement. Fundamentally, stakeholder management is the heart of project management. It could either lead to the successful delivery of a project or its failure [28], be it in a sustainable or unsustainable setting. A lengthy process of design and execution of the single mixed development project in sustainable cities constitutes a multifaceted system that involves collaboration and negotiations among the multilayer stakeholders, which intensely increases the project's complexity [21]. It is more likely that stakeholders involved in the mixed development projects within sustainable cities will not always agree, whereby different interests can severely influence and threaten the project's success [29]. Mixed development project concepts promote planned communities that characteristically comprise retail, serviced apartments, small offices or home offices (SoHo's), small offices or versatile offices (SoVos), and commercial office space. Recreational land use to improve the economic and social vitality at the community level in the central area is also synergised and functioned smoothly on an independent basis towards complementing each other [30]. This characteristic makes a mixed development project immensely more challenging than a conventional single development project [31]. Applying a sustainability lens in mixed development projects has also made the projects more complicated and challenging as amalgamation has been less explored. Stakeholder management aims to harness positive influences and minimise negative influences on the project. Therefore, for effective stakeholder management, the process needs to occur regularly so that those insights can be incorporated into the next construction project strategy, which means that stakeholder interaction can help to increase the level of influence [32]. It is alleged that failure to manage stakeholders and maintain good relationships with the stakeholders would lead to project failures [33]. According to [34], stakeholders are considered a critical source of unexpected events in construction projects.

Stakeholders and their characteristics play a vital role in stakeholder management, particularly in mixed development projects. However, the definition of 'stakeholder' is unclear, and many researchers have proposed various definitions of stakeholder to narrow the perspectives. Relying on too narrow or broad views would expose the project team to the risk of leaving out critical stakeholders in the projects or getting too many stakeholders involved, including those not crucial to the projects [35]. The accuracy of the definition of a stakeholder is essential for a good analysis process to identify relevant stakeholders [36]. In a mixed development project, a stakeholder is described as an individual, group, or organisation that has some rights or ownership in the project and may be affected by or perceive itself to be affected by a project decision, activity, or outcome [23].

There are two types of stakeholders in mixed development projects: internal and external stakeholders [37]. The internal stakeholders directly involved in the project include clients, consultants, contractors, suppliers, designers, engineers, architects, labourers, and project team members. In contrast, the project's indirect stakeholders include government agencies, town planners, the media, environmental agencies, and community members [37]. Understanding stakeholders' perceptions and expectations are essential to understanding the challenges and opportunities of implementing the mixed development project [38]. Stakeholder involvement in a construction project, specifically in mixed development projects in sustainable cities, is certainly not new and has vividly advanced in the 21st century [39]. However, stakeholders' participation is still rarely adopted, mainly resulting from the general perception that multi-stakeholder initiatives slow down the mixed development project planning, specifically in achieving sustainability-related tar-

gets, because of a lack of consensus and different sectoral interests [40]. Ref. [41], who conducted a study during the coronavirus disease 2019 (COVID-19) pandemic, also acknowledged that most stakeholders find it difficult to manage their teams, often causing misunderstanding. The success of a mixed development project requires more significant interaction and collaboration with stakeholders, including effective communication or translation of evidence-based mixed development and sustainable design concepts into a form that enables uptake and action by stakeholders [42]. It asserts that an effective project management team can strengthen a company's ability to deal with different risks and resolve stakeholders' conflicts [43], especially in a mixed development project. According to [44], the effective management of stakeholders is crucial to cater for the implementation of the sustainable cities and communities concept of the Sustainable Development Goal 11 (SDG 11) since the intricacy, intensity, and versatility of sustainable development demands the involvement of an enormous diversity of stakeholders.

A mixed development project is described as having "live-work-play" facilities and amenities in a single development with well-planned integration. The development combines retail, office, residential, hotel, recreation, or other pedestrian-oriented functions to maximise the use of space and curb traffic and urban sprawl [45]. Despite its benefits, the difficulty of a mixed development project lies in its very nature, whereby multilayers of stakeholders and users involved in the project make it impossible to reconcile all their interests [46]. Thus, mixed development projects must embrace transparent and pertinent design strategies by ensuring all the stakeholders' active engagement from the early stage of the development until completion [47]. These connections and interrelationships between those stakeholders determine a mixed development project's overall performance. All stakeholders are responsible for successfully delivering the project and meeting the targets of the SDG 11 goals, especially during the COVID-19 pandemic. According to [48], stakeholder management's effectiveness is considered an essential key to a mixed development project's success in achieving SDG 11. If stakeholders are not adequately managed, the possibility of completing the project would be reduced because of conflicts between stakeholders, let alone driving the project towards sustainable cities and community attainment. Poor collaboration, complex bureaucracy, and stakeholder conflicts are examples of weak cooperation amongst relevant stakeholders, which are considered social risks in a mixed development project [49]. Ineffective stakeholder management can also result in dissatisfaction with project outcomes and adverse disruptions to budgets and schedules. This statement has also been supported by [11]. They highlighted that stakeholder management is vital for a construction project since its success is primarily based on its management of stakeholders. Ineffective stakeholder management will lead to various consequences such as failures in project completion, stakeholders' dissatisfaction, failures in competition, poor reputation, environmental, social, and economic destruction from the project, and many more.

The development project team's future interactions with internal stakeholders may grow more difficult, and the community's attitude to the construction project as an external stakeholder may be negative [50]. Xue et al. [51] mentioned that construction projects could be thought of as a group of people working together to accomplish a common goal. It was also indicated in the work of Eyiah-Botwe et al. [52] that the construction projects were executed by coalitions of numerous stakeholders with diverse interests and aims, as well as sociocultural backgrounds, notably in the mixed development projects. The success or failure of a mixed-use development project is heavily driven by stakeholder perceptions and expectations, uncontrollable interests, and stakeholder-led action boundaries to complex interactions that influence the execution of construction projects [53]. As mixed development projects are complicated, costly, and risky on their own, without considering the achievement of SDG 11, the project requires a thorough and vigilant composition of the development team with strong management, development, and design experience to successfully build a mixed development project that meets SDG 11 [54]. There are some common pitfalls and obstacles in realising mixed development projects [54]. It is important

to ensure that the principles of stakeholder management in the construction industry evolve with new requirements and improvements based on the restrictions imposed during the COVID-19 pandemic [55]. At the same time, it is substantial to engage with stakeholders and their environment through transitions to improve sustainability toward SDG 11. Stakeholder management with good determination, effective planning and design, teamwork, adaptability, imagination, and the correct time may be able to overcome these obstacles. Project teams can better understand their stakeholders, manage expectations, and recover commercial prospects [11] to achieve SDG 11 during the COVID-19 pandemic.

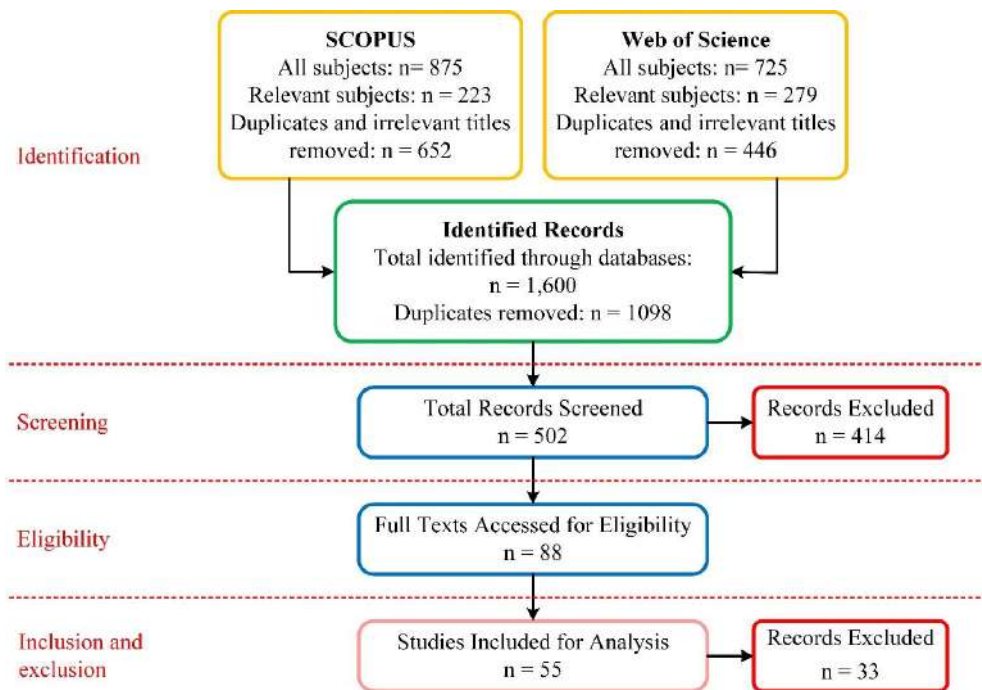
### 3. Materials and Methods

Research in academia would not be complete without conducting a literature review. Knowledge advancement is fundamentally based on earlier work. It is important to do a literature review in a logical order to ensure that all of the relevant information is included. A researcher can test a specific hypothesis, establish new theories, and evaluate the validity and quality of existing work against a criterion by summarising, analysing, and synthesising related literature [56]. The systematic literature review approach ensures a detailed scrutinisation of the existing and most relevant elements from specific publications is investigated, focusing on a particular research scope.

Research questions must be clearly defined, and systematic procedures must be used to discover, evaluate, and collect relevant data from previous studies [57] to conduct a systematic literature review. Methods such as systematic literature reviews are essential for synthesising and disseminating the findings and implications of several research papers on a single topic [58]. Ref. [59] defined the systematic literature review as an objective and unbiased approach to synthesising earlier studies. According to the systematic literature review approach used in this study, we may undertake a thorough and organised screening of all of the accessible publications for relevant material. SLRs are characterised as secondary studies that use well-defined methodologies to find, analyse, and evaluate all available information on a specific research question in an objective, unbiased, and reproducible way. A wide variety of unique procedures can be found by comprehensive search methods, predefined search strings, and consistent inclusion and exclusion criteria in a systematic literature review. Investigators are urged to broaden the scope of the study by conducting a comprehensive literature review [58].

Using the PRISMA flow diagram, researchers could identify publications related to their research topics. Identifying, screening, qualifying, and inserting articles for systematic literature reviews are all steps in the PRISMA flow diagram [57]. The systematic literature review study conducted comprises the following, where these steps are illustrated further in Figure 3 based on the analysis conducted:

- Identification—search in various databases for the relevant records,
- Screening—selection of the most literature,
- Eligibility—check for conformity with eligibility criteria of selected records,
- Inclusion and exclusion—selection of the eligible records.



**Figure 3.** PRISMA flow chart of the literature search (adapted and modified form the preferred reporting items for systematic reviews (PRISMA) statement) [57].

### 3.1. Identification

Researchers accessed two frequently used databases to identify the related publications for the systematic literature review, including SCOPUS and Web of Science. Those databases are the most relevant databases that cover a wider journal range. Due to the technological advancement changes in archiving and retrieving information, the publications selected are limited to between 2009 and 2021 (articles published in the past 12 years) to construct a review on the recent literature considering information retrieval and synthesis in the past digital age. Keywords, namely ‘project stakeholder’, ‘project team member’, ‘project part’, ‘project team’, ‘mixed development’, ‘mixed-use development’, ‘live-work-play development’, ‘construction industry’, ‘construction project’ and ‘SDG 11’ were used to find the related articles. The search result shows a vast field of study, and the first exclusion was to eliminate the unrelated subject areas. Boolean operator (AND/OR) to include one or more of the terms together with a wildcard (\*), which includes a variation of spelling, either singular or plural, were applied to complete the search string to reduce the phrases yet produce an extensive search result [60]. As shown in Figure 4, a search string was structured and used in both databases. Next, the results from the two separate databases were then combined to remove duplicates, resulting in 502 publications brought forward to the screening process.

```

“project stakeholder*” OR “project team member*” OR “project part*” OR
“project tea*” OR “mixed development” OR “mixed-use development”
OR “live-work-play development” AND “construction industr*” AND
“construction project*” OR “SDG 11”
  
```

**Figure 4.** The search string keyword was used for the systematic review process.

### 3.2. Screening

When conducting a literature review, the first step is to read the abstracts of all of the articles to determine whether or not they are relevant to the topic at hand. There were



502 studies judged relevant, and the full-text articles were obtained for quality evaluation. The following criteria were used to choose these publications:

- Stakeholder impact,
- Effective stakeholder management,
- Stakeholder approach,
- Stakeholder theory,
- SDG 11.

Only 88 of the original 414 publications remained after this first round of weeding. Public mental health and clinical environments, as well as manufacturing, automation, and integration technologies, were among the other fields covered by the publications that were omitted from consideration. There was a distinct difference between Web of Science categories and those found in the scholarly literature. It is possible to track the progress of scientific inquiry and the publications that accompany it over the course of 13 years (from 2009 to 2021).

### 3.3. Eligibility

Eligibility is also determined manually. The identification and screening processes are automated, but that does not exclude the likelihood of error in the shortlisted publications. This step aims to categorise the remaining publications and segregate the documents with the highest potential for this paper. High priority was given to publications related to the stakeholder impact, effective stakeholder management, stakeholder approach, stakeholder theory, and SDG 11. Eligibility is a critical manual process that enables researchers to minimise database inconsistencies.

### 3.4. Included and Excluded

As a means of selecting the final publication, ratings were provided based on relevance to the study topics at this time. Publications focusing on stakeholder management impact, stakeholder approach and theory, effective stakeholder management, and SDG 11 that mainly focus on the construction industry were given special attention. As per the criteria mentioned above, a total of 55 publications drawn from SCOPUS (37 papers) and Web of Science (18 papers) were included in the review.

## 4. Results

The COVID-19 pandemic has severely disrupted the construction industry in various ways, including limiting the number of workers permitted on construction sites, delaying project completion, increasing financial stress on construction companies, and legal challenges related to the interpretation of contractual clauses, such as force majeure [61]. In a construction project, there are many stakeholders, especially in mixed development projects. Many researchers demonstrate that construction projects with a large number of interested groups or organisations are significantly affected by both internal and external stakeholders. Since a stakeholder is a person or an organisation that is actively involved in the project or has an interest in or a conflict of interest with the project execution or the project result, stakeholder management is one of the features that will increase the project's success rate [23]. According to [48], stakeholders' significance in stakeholder management processes impacts the project's success directly and/or indirectly and depends on the appropriate management of the stakeholders. Stakeholder impact factors are critical issues that must be acknowledged and tackled in managing stakeholders to achieve project management success during the coronavirus disease 2019 (COVID-19) pandemic towards sustainable cities and communities as envisaged in Sustainable Development Goal 11 (SDG 11). Refer to Table S1: Stakeholders' impact on sustainable cities projects during COVID-19 pandemic.

The shortlisted publications through the systematic literature review method were analysed to establish the stakeholder impact factors in construction project management during the COVID-19 pandemic towards SDG 11, specifically on the mixed development

project that involves multilayer stakeholders. The increasing level of failure in construction projects fostered by its complexity raises the significance of inflexible coordination and assures a high level of integration between the stakeholders (demand and supply sides) if the project is completed. According to [62], stakeholder impact factors are significant issues that the construction project team or project manager needs to consider to achieve project management success during the COVID-19 pandemic toward SDG 11.

## 5. Discussion

### 5.1. Stakeholder Engagement

Stakeholder engagement is essential to Sustainable Development Goal 11 (SDG 11) implementation [4], and stakeholder engagement is even more vital in the context of the mixed development projects during the coronavirus disease 2019 (COVID-19) pandemic. A project management team that actively engages with its stakeholders is more likely to succeed with the potential benefits. To obtain accurate information concerning stakeholders' expectations, the project team needs to develop strategies to engage with stakeholders and understand their needs and concerns. The project manager acts as an 'agent' for stakeholders. It was emphasised that focusing on stakeholder engagement and management is critical to setting stakeholders up for project success [62]. Referring to [44], the stakeholder engagement process is more into the communication approach of exchanging information, listening to, and learning from stakeholders. They also claimed that the whole purpose of stakeholder engagement is to initiate the project's strategic direction and seamless operation. By engaging stakeholders in project issues, project team members can better understand their stakeholders and the project conditions, enhance their reputation, build trust, and foster cooperative relationships, besides developing a better understanding of and mitigation for the threats and uncertainties associated with the project [44]. Ref. [63] mentioned that one of the different ways towards a successful project is understanding the principle that stakeholders can use in engaging amongst them. Inadequate stakeholders' engagement, especially during the COVID-19 pandemic, will lead to project management teams failing to have clear objectives of stakeholder management and difficulty identifying the "invisible" stakeholder in the projects [63]. Engaging with stakeholders is an important method applied in many construction projects. The higher complexity there is to managing mixed development projects towards achieving SDG 11 because of COVID-19, the more this pandemic will rigorously impact the construction project stakeholder engagement, namely in two ways. First, social distancing measures forbid most face-to-face participatory activities originally envisioned in projects. Second, the restrictions have caused hardships for the stakeholders being engaged in the project, particularly in mixed development projects [61].

Stakeholder engagement can also be comprehended as a social learning process. Different stakeholders share a common medium, discover each other's values, reflect upon their values, and build the same project vision and objectives [63]. Effective stakeholder engagement for mixed development projects achieving the mission of SDG 11 requires a hearing session, openness among others, proper discussion, appropriate resources, integration and collaboration, understanding of needs, and systemic thinking of the stakeholders [44]. Table S1 concluded that stakeholder engagement is the most important factor impacting project success and the implementation of effective stakeholder management. Therefore, a systematic approach to stakeholder engagement is a must to engage with the high salience of stakeholders [64], especially in a mixed development project during the COVID-19 pandemic.

### 5.2. Stakeholder Involvement

Stakeholder involvement usually occurs at the commencement of the project, a pre-construction, during construction, and post-construction project; therefore, stakeholders must agree on the success criteria before the project can be commenced to achieve and gain success [65]. Stakeholder involvement is considered one of the key factors in project failure. Its influence can affect construction project schedules, cost control, and decision-

making [66], especially in mixed development projects in sustainable cities following the characteristics of SDG 11. Ref. [65] also mentioned that stakeholder involvement plays a vital role in construction projects as stakeholder involvement can take a different level and form during the project execution that may array along with the project pre-definition and initiation requirements, the organisation's strategic objectives through negotiation, consultation, partnership, and project final goal, which are unique between sustainable and unsustainable cities development. In short, stakeholder involvement is both a means and an end. As a means, it is a process in which stakeholders collaborate and cooperate in emerging the mixed development project in sustainable cities. Many researchers have mentioned the importance of stakeholders involved in a construction project, whereby stakeholders' involvement helps the construction project team address the time, costs, and quality constraints related to managing the project portfolio [65]. Ref. [67] highlighted that stakeholder usually prefers their concepts and ideas to be generated or inserted into the project and how they can contribute to its success. By involving them at an early stage and throughout the project phases during the COVID-19 pandemic, project team members, particularly the project manager, need to clarify for each stakeholder the areas in which their involvement is required, apart from the areas where decisions have already been made. This will ensure that the project team may be able to change the direction of the project plan, revise the approach to project implementation, or provide input on project issues and decisions while meeting stakeholders' concepts and ideas for achieving SDG 11. This clarification will assist stakeholders in only focusing on their efforts in the areas that will be gauged by the project team and will further develop the stability of the project solutions [67].

### 5.3. Stakeholder Relationship

The project success criteria may vary. In mixed development projects in sustainable cities, besides the standard success criteria of time, cost, and quality, the other three elements of the sustainable cities and communities' success indicator are the need to link development with the environment and economy. These are substantial to ensure the protection of natural resources while paying attention to a minimum acceptable quality of life [44]. One of the key factors that lead to success concerning these criteria is a successful stakeholder relationship, where a strong link exists between project success and relationships [68]. Ref. [44] also highlighted that a project with complex and various features, like a mixed development project in sustainable cities, is required to consider the relationship with its stakeholders at the strategic level since stakeholders can influence the success or failure of the project more during the COVID-19 pandemic. Ref. [69] have also emphasised that the stakeholder relationships are very important and significant at each project execution stage because of their tremendous impact on the satisfactoriness, timely manner of performance, and quality of the investment projects. Therefore, acuteness to such relations should be a key project risk management element. The most important task in developing the construction phase of stakeholder relations is factoring in the risk of all the project stakeholders. The temporary nature implies that stakeholder relations are also dissolved at the project's closing, for example, to capture the knowledge that emerged in the relationship or to transfer the relationship to the permanent organisation [70]. According to [71], stakeholder relations need special attention when managing multi-layered stakeholders and dealing with multicultural conflicts in mixed development projects during the COVID-19 pandemic to achieve SDG 11. Stakeholder relations can influence the effectiveness of a project team and a project's overall performance. It is critical to understand each stakeholder's important aspects and issues. This can be attained through separable conversations amongst stakeholders to solicit feedback from them [67] and to improve the overall performance of the mixed development projects toward sustainable cities and communities.

#### 5.4. Stakeholder Attributes

Ref. [72] depicted that stakeholders' attributes are critical success factors in a construction project. As cited by [73], when designing or structuring the stakeholder management strategy, the project management team must assess the impacts of their stakeholders concerning their various attributes since stakeholders play different roles in every particular project. Moreover, identifying the stakeholder attributes and evaluating their impact on the project, mainly mixed development projects in sustainable cities, will help minimise stakeholder conflict and negative influence [73]. A widely used classification of stakeholder attributes in construction projects is based on Mitchell et al.'s (1997) 'stakeholder salience model', namely power, legitimacy, and urgency. This model can be used to determine the influence of stakeholders on a construction project [74] and to classify stakeholders based on their power, legitimacy, and urgency of demands. The model also helps define the salience of the stakeholders' demands to determine how much and what kind of attention stakeholders should receive from the project management team [62].

Ref. [75] accepted both the perspectives of Mitchell et al. (1997) and [76] by applying the four attributes of power, urgency, legitimacy, and proximity with equal weightings in analysing stakeholders' impacts on construction projects. A study conducted by [77] suggested that project success is highly related to four key stakeholders' attributes: power, legitimacy, urgency, and proximity. According to them, these attributes have a direct impact on project success. The assessment of stakeholder attributes will help the project manager and project team members better understand the characteristics of stakeholders that are critical to effective stakeholder management [63]. This eventually helped to successfully manage mixed development projects during the COVID-19 pandemic towards Sustainable Development Goal 11 (SDG 11).

#### 5.5. Stakeholder Influences

Work [8] confirmed that stakeholder influences positively and significantly impact project success related to the project success goal criteria, such as quality, cost, time, health, safety, and environment (HSE), and the satisfaction of the stakeholder. Ref. [69], who found that ignoring the influence of specific stakeholders on the implementation of a construction project, especially in a mixed development project with a sustainable cities approach during the pandemic COVID-19, can drive up the duration of the project and its cost. Ref. [73] indicated that the stakeholders' conflict of interests in the project had become a significant challenge for success. Supported by [78], they emphasised findings by the previous researcher by stating that the stakeholders' influence can impact the project's success, thus playing a critical role in the management of the project. Ref. [79] have highlighted that stakeholder influences are the main driving force contributing to the resolution and refinement of social and environmental issues toward achieving SDG 11. This is because positive stakeholder influences positively impact collaboration and build trust among stakeholders in mixed development projects. In contrast, aggressive stakeholder influences could trigger unexpected impacts on project objectives, causing stakeholders to change project objectives to achieve their desired goals. Stakeholder influences need to be thoroughly embraced in managing stakeholders as their influences will keep changing along the project lifecycle.

#### 5.6. Stakeholder Interest

According to [72], multilayer stakeholders have different levels and types of interests, as well as investments in projects in which they are involved. They also revealed that understanding the stakeholders' interests is a critical factor influencing the stakeholder management process. Ref. [80] supports that stakeholder management is not just about managing the stakeholder involved in a project or an event. Yet, it is a process that implies a systematic approach to identifying stakeholders, prioritising stakeholder needs and interests, and evaluating and monitoring the project activities in relation to the stakeholders intended for project success. Ref. [66] emphasised that diverse interests between stakeholders create conflicts among each other critically in mixed development projects that

are envisioned towards Sustainable Development Goal 11 (SDG 11). A study conducted by [80] has shown that protecting stakeholders' interests in the project is essential. It can help project team members modify their preliminary project plan according to stakeholders' interests while mitigating conflicts of interest among stakeholders. Stakeholder interest became one of the important factors affecting mixed development project management success during the COVID-19 pandemic towards SDG 11.

#### 5.7. Stakeholder Needs

The authors of [48] emphasised that for a project to achieve success, each stakeholder's needs must be accurately analysed as stakeholders' needs will clarify how the stakeholders perceive the project. The existence of these different needs among project stakeholders also helps project team members to focus on the critical impacts of stakeholders on the project. Therefore, exploring the needs of stakeholders is crucial to project success [72], especially in mixed development projects toward Sustainable Development Goal 11 (SDG 11). Ref. [81] highlighted that in the implementation of the project during the COVID-19 pandemic, project team members must ensure that stakeholder needs are met while at the same time safeguarding environmental, social, and economic concerns to deliver a functionally and financially viable project within the timeframe, with approved costs and excellent quality standards. As mentioned by [29], the project is deliberately successful if it meets the needs and fulfils the project objectives of the stakeholders. Thus, project management for mixed development project success during this pandemic will be correlated with the needs of diverse stakeholders for sustainable development towards the SDG 11 mission.

#### 5.8. Stakeholder Satisfaction

Publication [70] emphasised that stakeholders' satisfaction with the project benefits is a prominent facet of the project's success. Suppose that the expectations of the stakeholders and their different interests cannot be reconciled—in that case, the project could be considered unsuccessful by one stakeholder and, at the same time, successful by others. Therefore, stakeholder satisfaction is identified as a key criterion for project success that should be focused on [80] and needs to be maintained during the construction project. Stakeholder satisfaction is perceived as the most powerful stakeholder, even though it does not exert maximum influence on the project spheres [82]. Stakeholder satisfaction is an important factor to consider. It can be described as fulfilling stakeholders' pre-project expectations in the actual performance, which is measurable at different project stages [83]. Stakeholder satisfaction has gained prominence in success measurement in construction projects, as it complements the specific determinants of cost, quality, and time. Considering the impact of coronavirus disease 2019 (COVID-19) on the construction industry, particularly on mixed development projects towards sustainable cities and communities, stakeholders unpredictably try to influence the implementation of the mixed development project according to their expectations. Therefore, if the project outcomes do not meet the agreed requirements or specifications of the stakeholders, the project is considered a malfunction [84].

#### 5.9. Stakeholder Expectations

Managing stakeholders' expectations is one of the key successes of a project. Hence, stakeholders' identification is crucial at the commencement of the mixed development project during the coronavirus disease 2019 (COVID-19) pandemic towards Sustainable Development Goal 11 (SDG 11) to recognise and manage the stakeholders' needs and expectations, creating a suitable environment and catalyst for success [67]. Ref. [67] further added that the lack of weakness in managing stakeholders' expectations and identifying ways of communicating with them would trigger major problems in the project with possible consequences in the closure of the project. Analysing stakeholders' expectations seems essential and should be effectively managed to recuperate project success [29]. However, fully identifying stakeholders' expectations at the discrete level can be challenging [85]. Project teams must apply the sophisticated method in identifying and analysing the stake-

holders' expectations and concerns on mixed development projects in sustainable cities. By capturing stakeholders' expectations, it will help to maximise the positive inputs and minimise the unfavourable output of the project [29]. Insufficient and poor management of stakeholder expectations will negatively impact the project.

#### 5.10. Stakeholder Behaviour

Ref. [86] reinstated a study from Pouloudi and Whitley (1977) by affirming that organisations that successfully plan strategies for stakeholder management would gain positive results in the project execution. The researchers also mentioned that the stakeholder management strategies ought to include stakeholder behaviour to perceive the stakeholders' behaviour and predict their influence on the project [86]. The current findings contribute to industrial practice by enabling project team members to address stakeholders more effectively through an increased understanding of stakeholder behaviour and its consequences [78]. Stakeholder behaviour might also impact the smoothness of the project lifecycle, as the behaviour of stakeholders might be either observed behaviour, cooperative potential, or competitive threat [83]. Stakeholders' behaviour impacts project schedules, cost control, and the project environment, leading to poor decision-making [66], not excluding mixed development projects that adopt conquering the sustainable cities and communities concept. Through effective dialogue and two-way communication, project team members, especially the project managers, might affect and change the behaviours of stakeholders [87]. For example, the aggressive stakeholders could become supportive if they know the important project information, such as benefits, impacts, and constraints within which the projects are delivered. Therefore, stakeholder behaviour is considered an important factor that impacts the success of mixed development projects towards SDG 11 during the COVID-19 pandemic.

## 6. Conclusions

The chance of successful mixed development projects towards achieving SDG 11 can be intensified by efficiently coping and managing the stakeholder impact factors, especially with the new norm approach because of the COVID-19 pandemic. This study revealed that the most stakeholder impact factor to be thoroughly observed is stakeholder engagement towards achieving project success with the highest frequency value of 37 from 55 journals retrieved with a percentage of 67.3%, followed by stakeholder involvement and stakeholder relationship with a similar frequency value of 31 out of 55 journals with a percentage value of 56.4%, respectively. Effective engagement helps interpret the stakeholder needs into the project goals and creates the foundation of effective project planning and strategy development. The needs and requirements of all stakeholders must be identified and properly managed for the betterment of mixed development projects in obtaining SDG 11 and smoothening the project progress. The findings summarised that effective stakeholder management is needed in managing a construction project, specifically for a mixed development project in sustainable cities amidst the COVID-19 pandemic. Stakeholder impact factors that could affect the stakeholder management process towards success has to be established vigilantly. As known, stakeholders demonstrate different levels of responsibility and power, whereby their role in investment project execution can change depending on the project life cycle. Stakeholders can influence the project execution, whether positively or negatively impacting the project goals.

Establishing stakeholders' impact factors is important to strategise an effective stakeholder management approach for mixed development projects with various continuous phases towards achieving SDG 11, which is quite multifaceted. Ignoring the stakeholder impact will result in prolonged project execution time and cost increase. Project team members, to be specific project managers, shall act as the stakeholders' proxies to develop appropriate strategies for engaging stakeholders to acquire correct information on their expectations, needs, and interests. As highlighted in the UN SDGs 2030 Agenda [88], effectively engaging with stakeholders is vital to the success of any project, particularly

in a mixed development project, since each stakeholder's impact may vary. The project team members need to respond according to the stakeholders' ways of achieving their expectations and minimising uncertainty during construction. This study recommended that the project team leaders ensure effective stakeholder engagement from the beginning of the mixed development project life cycle, which would help disseminate information. In establishing all the stakeholders' categories, efforts should be made to highlight and sort out all issues concerning each party in the mixed development project. This study is acclaimed for providing a stakeholder management framework for a mixed development project that can also be part of the guidelines for managing other construction projects' stakeholders. Since this study is only limited to mixed development projects, it is suggested that other scholars or researchers expand and further study the stakeholder impact factors for other construction projects during the COVID-19 pandemic.

**Supplementary Materials:** The following supporting information can be downloaded at <https://www.mdpi.com/article/10.3390/su141610418/s1>, Table S1: Stakeholders impact on sustainable cities projects during COVID-19 Pandemic. References [89–116] are cited in the supplementary materials.

**Author Contributions:** Conceptualisation, N.H.N.; methodology, C.S.; validation, S.I., A.G.C. and F.A.G.; formal analysis, N.H.N. and C.S.; investigation, N.H.N.; data curation, N.H.N.; writing—original draft preparation, N.H.N., S.I., R.C.A., S.D. and Z.K., writing—review and editing, proof-reading J.J.K. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research has been supported by the Ministry of Education Malaysia, Universiti Teknologi Malaysia (UTM), the Research Management Centre (RMC) and Razak Faculty of Technology and Informatics (FTIR) of UTM under Dana Pengukuhan Penyelidikan UTM (FTIR). Two authors are supported by the EU project "Sustainable Process Integration Laboratory—SPIL", project No. CZ.02.1.01/0.0/0.0/15\_003/0000456 funded by the EU "CZ Operational Programme Research, Development and Education", Priority 1: Strengthening capacity for quality research.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Not applicable.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. International Labour Organization (ILO). Impact of COVID-19 on the Construction Sector. 2021. Available online: [https://www.ilo.org/sector/Resources/publications/WCMS\\_767303/lang--en/index.htm](https://www.ilo.org/sector/Resources/publications/WCMS_767303/lang--en/index.htm) (accessed on 10 March 2022).
2. Zeinalnezhad, M.; Chofreh, A.G.; Goni, F.A.; Klemeš, J.J.; Sari, E. Simulation and Improvement of Patients' Workflow in Heart Clinics during COVID-19 Pandemic Using Timed Coloured Petri Nets. *Int. J. Environ. Res. Public Health* **2020**, *17*, 8577. [CrossRef] [PubMed]
3. Pouchkin, M.; Tada, K.; Surina, J. ILO Decent Work Technical Support Team and Country Office for Eastern Europe and Central Asia; ILO Decent Work Technical Support Team and Country Office for Eastern Europe and Central Asia. The Centenary Declaration: A Compass for a Better Future of Work. *Soc. Labour Res.* **2019**, *37*, 130–137.
4. Environment, U.N. GOAL 11: Sustainable Cities and Communities. UNEP—UN Environment Programme. 2 October 2017. Available online: <https://www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-1> (accessed on 27 July 2022).
5. Klemeš, J.J.; Van Fan, Y.; Jiang, P. The energy and environmental footprints of COVID-19 fighting measures—PPE, disinfection, supply chains. *Energy* **2020**, *211*, 118701. [CrossRef] [PubMed]
6. Klemeš, J.J.; Jiang, P.; Van Fan, Y.; Bokhari, A.; Wang, X.-C. COVID-19 pandemics Stage II—Energy and environmental impacts of vaccination. *Renew. Sustain. Energy Rev.* **2021**, *150*, 111400. [CrossRef]
7. Klemeš, J.J.; Van Fan, Y.; Tan, R.R.; Jiang, P. Minimising the present and future plastic waste, energy and environmental footprints related to COVID-19. *Renew. Sustain. Energy Rev.* **2020**, *127*, 109883. [CrossRef]
8. Marleno, R.; Surjokusumo, S.; Oetomo, W.; Setiawan, M.I.; Abdullah, D. The Influence of Stakeholder Factors Affecting the Success of Construction Projects in Indonesia. *J. Phys. Conf. Ser.* **2018**, *1114*, 012135. [CrossRef]

9. Adhikari, K.; Poudyal, L. Future of Construction Industry: COVID-19 and Its Implications on Construction Projects and Risk Management—A Review. *Preprints* **2021**, 2021040383. [CrossRef]
10. United Nations Global Compact, UNGC, Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable. 2016. Available online: [https://sdgcompass.org/wp-content/uploads/2016/04/Goal\\_11.pdf](https://sdgcompass.org/wp-content/uploads/2016/04/Goal_11.pdf) (accessed on 27 July 2022).
11. Somachandra, V.; Sylva, K. “Ethical Management Practice”, as a Csr Tool to Ensure the Corporate Sustainability of Construction Industry: A Conceptual Review. Available online: <http://dl.lib.uom.lk/bitstream/handle/123/13017/4.pdf?Sequence=1&isAllowed=y> (accessed on 27 May 2022).
12. Chofreh, A.G.; Goni, F.A.; Malik, M.N.; Khan, H.H.; Klemeš, J.J. The imperative and research directions of sustainable project management. *J. Clean. Prod.* **2019**, *238*, 117810. [CrossRef]
13. Sari, E.; Ma’Aram, A.; Shaharoun, A.M.; Chofreh, A.G.; Goni, F.A.; Klemeš, J.J.; Marie, I.A.; Saraswati, D. Measuring sustainable cleaner maintenance hierarchical contributions of the car manufacturing industry. *J. Clean. Prod.* **2021**, *312*, 127717.10.1016/j.jclepro.2021.127717. [CrossRef]
14. Gholamzadeh Chofreh, A.; Goni, F.A.; Klemeš, J.J. Development of a Framework for the Implementation of Sustainable Enterprise Resource Planning. *Chem. Eng. Trans.* **2017**, *61*, 1543–1548.
15. Chofreh, A.G.; Goni, F.A.; Shaharoun, A.M.; Ismail, S.; Klemeš, J.J. Sustainable enterprise resource planning: Imperatives and research directions. *J. Clean. Prod.* **2014**, *71*, 139–147. [CrossRef]
16. Subramaniam, C.; Ismail, S.; Durdyev, S.; Rani, W.W.M.; Bakar, N.; Banaitis, A. Overcoming the Project Communications Management Breakdown amongst Foreign Workers during the COVID-19 Pandemic in Biophilia Inveigled Construction Projects in Malaysia. *Energies* **2021**, *14*, 4790. [CrossRef]
17. Mambwe, M.; Mwanaumo, E.M.; Nsefu, M.K.; Sakala, N. Impact of Stakeholder Engagement on Performance of Construction Projects in Lusaka District. In Proceedings of the 2nd African International Conference on Industrial Engineering and Operations Management, Harare, Zimbabwe, 7–10 December 2020.
18. Chofreh, A.G.; Goni, F.; Shaharoun, A.M.; Ismail, S. A Review on Sustainability Transformation Roadmaps Using Project Management Methodology. *Adv. Sci. Lett.* **2015**, *21*, 133–136. [CrossRef]
19. Almeida, A.C. Multi actor multi criteria analysis (MAMCA) as a tool to build indicators and localize sustainable development goal 11 in Brazilian municipalities. *Heliyon* **2019**, *5*, e02128. [CrossRef]
20. Mongabay. Modernizing Malaysia: The Blessings and Stresses of an Infrastructure Explosion. Available online: <https://international.thenewslens.com/article/100525> (accessed on 14 March 2022).
21. Nguyen, T.S.; Mohamed, S.; Panuwatwanich, K. Stakeholder Management in Complex Project: Review of Contemporary Literature. *J. Eng. Proj. Prod. Manag.* **2018**, *8*, 75–89. [CrossRef]
22. Liang, X.; Yu, T.; Guo, L. Understanding Stakeholders’ Influence on Project Success with a New SNA Method: A Case Study of the Green Retrofit in China. *Sustainability* **2017**, *9*, 1927. [CrossRef]
23. Project Management Institute. *A Guide to the Project Management Body of Knowledge (PMBOK(R) Guide—Sixth Edition/Agile Practice Guide Bundle (Pmbok Guide)*; Project Management Institute: Newtown Square, PA, USA, 2017.
24. Najib, N.H.; Ismail, S.; Amat, R. Asset and Project Management Way Forward in the COVID-19 Pandemic. *MAPMA e-Bull.* **2020**, *1*, 9–15.
25. Dahl, A.L. Contributions to the evolving theory and practice of indicators of sustainability. In *Routledge Handbook of Sustainability Indicators*; Routledge: Abingdon, UK; New York, NY, USA, 2018; pp. 42–58. [CrossRef]
26. Michalina, D.; Mederly, P.; Diefenbacher, H.; Held, B. Sustainable Urban Development: A Review of Urban Sustainability Indicator Frameworks. *Sustainability* **2021**, *13*, 9348. [CrossRef]
27. Shenhar, A.J.; Dvir, D.; Levy, O.; Maltz, A.C. Project Success: A Multidimensional Strategic Concept. *Long Range Plan.* **2001**, *34*, 699–725. [CrossRef]
28. Srinivasan, N.; Dhivya, S. An empirical study on stakeholder management in construction projects. *Mater. Today Proc.* **2020**, *21*, 60–62. [CrossRef]
29. Klaus-Rosińska, A.; Iwko, J. Stakeholder Management—One of the Clues of Sustainable Project Management—As an Underestimated Factor of Project Success in Small Construction Companies. *Sustainability* **2021**, *13*, 9877. [CrossRef]
30. Kong, H.; Sui, D.Z.; Tong, X.; Wang, X. Paths to mixed-use development: A case study of Southern Changping in Beijing, China. *Cities* **2015**, *44*, 94–103. [CrossRef]
31. Jin, X.; Zhang, G.K.; Liu, H.; Feng, Y.; Zuo, J. Major Participants in the Construction Industry and Their Approaches to Risks: A Theoretical Framework. *Procedia Eng.* **2017**, *182*, 314–320. [CrossRef]
32. Höjer, M.; Wangel, J. Smart Sustainable Cities: Definition and Challenges. In *Advances in Intelligent Systems and Computing*; Springer International Publishing: Cham, Switzerland, 2015; pp. 333–349.
33. Xia, N.; Zou, P.X.; Griffin, M.A.; Wang, X.; Zhong, R. Towards integrating construction risk management and stakeholder management: A systematic literature review and future research agendas. *Int. J. Proj. Manag.* **2018**, *36*, 701–715. [CrossRef]
34. Nguyen, V.T.; Do, S.T.; Vo, N.M.; Nguyen, T.A.; Pham, S.V.H. An Analysis of Construction Failure Factors to Stakeholder Coordinating Performance in the Finishing Phase of High-Rise Building Projects. *Adv. Civ. Eng.* **2020**, *2020*, 6633958. [CrossRef]
35. Oke, A.E.; Aigbavboa, C.O. *Sustainable Value Management for Construction Projects*; Springer International Publishing: Cham, Switzerland, 2017.



36. Rathenam, B.D.C.; Dabup, N.L. Impact of Community Engagement on Public Construction Projects—Case Study of Hamman-skraal Pedestrian Bridge. *Univ. J. Manag.* **2017**, *5*, 418–428.
37. Singh, G.K. Stakeholder Management in Construction Industry. Master's Thesis, Department of Building Engineering and Management, School of Planning and Architecture, New Delhi, India, 2015.
38. Xue, F.; Gou, Z.; Lau, S.S.-Y.; Lau, S.-K.; Chung, K.-H.; Zhang, J. From biophilic design to biophilic urbanism: Stakeholders' perspectives. *J. Clean. Prod.* **2018**, *211*, 1444–1452. [[CrossRef](#)]
39. Ferreira, V.; Barreira, A.P.; Loures, L.; Antunes, D.; Panagopoulos, T. Stakeholders' Engagement on Nature-Based Solutions: A Systematic Literature Review. *Sustainability* **2020**, *12*, 640. [[CrossRef](#)]
40. Raymond, C.M.; Frantzeskaki, N.; Kabisch, N.; Berry, P.; Breil, M.; Nita, M.R.; Geneletti, D.; Calafapietra, C. A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas. *Environ. Sci. Policy* **2017**, *77*, 15–24. [[CrossRef](#)]
41. Jallow, H.; Renukappa, S.; Suresh, S. The impact of COVID-19 outbreak on United Kingdom infrastructure sector. *Smart Sustain. Built Environ.* **2020**, *10*, 581–593. [[CrossRef](#)]
42. Marshall, A.J.; Williams, N.S.G. Communicating Biophilic Design: Start with the Grasslands. *Front. Built Environ.* **2019**, *5*, 1. [[CrossRef](#)]
43. Shah, S.Q.A.; Lai, F.-W.; Shad, M.K.; Konečná, Z.; Goni, F.A.; Chofreh, A.G.; Klemeš, J.J. The Inclusion of Intellectual Capital into the Green Board Committee to Enhance Firm Performance. *Sustainability* **2021**, *13*, 10849. [[CrossRef](#)]
44. Leal Filho, W.; Brandli, L. Engaging Stakeholders for Sustainable Development. In *Engaging Stakeholders in Education for Sustainable Development at University Level*; Springer International Publishing: Cham, Switzerland, 2016; pp. 335–342.
45. Zhuo, Y.; Zheng, H.; Wu, C.; Xu, Z.; Li, G.; Yu, Z. Compatibility mix degree index: A novel measure to characterize urban land use mix pattern. *Comput. Environ. Urban Syst.* **2019**, *75*, 49–60. [[CrossRef](#)]
46. Harris, M.S. Competitive Precinct Projects: An Evaluation of Competitively Positioned Mixed-Use Megaprojects. Ph.D. Thesis, Sydney School of Architecture, Design and Planning, Sydney, Australia, 2019.
47. Arof, K.Z.M.; Ismail, S.; Najib, N.H.; Amat, R.C.; Ahmad, N.H.B. Exploring Opportunities of Adopting Biophilic Cities Concept into Mixed-Use Development Project in Malaysia. *IOP Conf. Ser. Earth Environ. Sci.* **2020**, *409*, 012054. [[CrossRef](#)]
48. Dağlı, Ö.B. Stakeholder Management in Project Success: Is It an Object or Subject. *PM World J.* **2018**, *7*, 1–6.
49. Zeinalnezhad, M.; Chofreh, A.G.; Goni, F.A.; Hashemi, L.S.; Klemeš, J.J. A hybrid risk analysis model for wind farms using Coloured Petri Nets and interpretive structural modelling. *Energy* **2021**, *229*, 120696. [[CrossRef](#)]
50. Amadi, C.; Carrillo, P.; Tuuli, M. Stakeholder management in PPP projects: External stakeholders' perspective. *Built Environ. Proj. Asset Manag.* **2018**, *8*, 403–414. [[CrossRef](#)]
51. Xue, J.; Shen, G.Q.; Yang, R.J.; Wu, H.; Li, X.; Lin, X.; Xue, F. Mapping the knowledge domain of stakeholder perspective studies in construction projects: A bibliometric approach. *Int. J. Proj. Manag.* **2020**, *38*, 313–326. [[CrossRef](#)]
52. Eyiah-Botwe, E.; Aigbavboa, C.O.; Thwala, W.D. Critical Success Factors for Enhanced Stakeholder Management in Ghana. *Socioeconomica* **2016**, *5*, 153–170.
53. Di Maddaloni, F.; Davis, K. Project Manager's Perception of the Local Communities' Stakeholder in Megaprojects. An Empirical Investigation in the UK. *Int. J. Proj. Manag.* **2018**, *36*, 542–565. [[CrossRef](#)]
54. Green, J. A Holistic Understanding of Mixed-Use Theory in Practice: Analyzing the Factors of Success in Three Kansas City Mixed-Use Developments. Master's Thesis, Kansas State University, Manhattan, KS, USA, 2020.
55. Subramaniam, C.; Ismail, S.; Wan Mohd Rani, W.N.M.; Saleh, A.L. Revisiting the essential communication channels in safeguarding the well-being of the construction industry players from the covid-19 pandemic: A systematic literature review. *Malays. Constr.* **2021**, *14*, 218–237.
56. Paré, G.; Trudel, M.C.; Jaana, M.; Kitsiou, S. Synthesising Information Systems Knowledge: A Typology of Literature Reviews. *Informat. Manag.* **2015**, *52*, 183–199. [[CrossRef](#)]
57. Page, M.J.; McKenzie, J.E.; Bossuyt, P.M.; Boutron, I.; Hoffmann, T.C.; Mulrow, C.D.; Shamseer, L.; Tetzlaff, J.M.; Akl, E.A.; Brennan, S.E.; et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *Int. J. Surg.* **2021**, *88*, 105906. [[CrossRef](#)] [[PubMed](#)]
58. Shaffril, H.A.M.; Ahmad, N.; Samsuddin, S.F.; Abu Samah, A.; Hamdan, M.E. Systematic literature review on adaptation towards climate change impacts among indigenous people in the Asia Pacific regions. *J. Clean. Prod.* **2020**, *258*, 120595. [[CrossRef](#)]
59. Gough, D.; Oliver, S. *An Introduction to Systematic Reviews*; Sage: Los Angeles, CA, USA, 2017.
60. Mohamed-Shaffril, H.A.; Samsuddin, S.F.; Abu Samah, A. The ABC of systematic literature review: The basic methodological guidance for beginners. *Qual. Quant.* **2021**, *55*, 1319–1346. [[CrossRef](#)]
61. Araya, F.; Sierra, L. Influence between COVID-19 Impacts and Project Stakeholders in Chilean Construction Projects. *Sustainability* **2021**, *13*, 10082. [[CrossRef](#)]
62. Chandr, H.P.; Indarto; Wiguna, I.P.A.; Koming, P.F. Model of Stakeholder Influence on Project Success: Finding from Construction Project in East Java. *Int. J. Acad. Res.* **2012**, *4*, 41–45.
63. Yang, J.; Shen, G.Q.; Ho, M.; Drew, D.S.; Chan, A.P.C. Exploring Critical Success Factors for Stakeholder Management in Construction Projects. *J. Civ. Eng. Manag.* **2009**, *15*, 337–348. [[CrossRef](#)]
64. Bal, M.; Bryde, D.; Fearon, D.; Ochieng, E. Stakeholder Engagement: Achieving Sustainability in the Construction Sector. *Sustainability* **2013**, *5*, 695–710. [[CrossRef](#)]

65. Magassouba, S.M.; Tambi, A.M.B.A.; Alkhlaifat, B.I.; Bin Abdullah, A.A. Influence of Stakeholders Involvement on Development Project Performance in Guinea. *Int. J. Acad. Res. Bus. Soc. Sci.* **2019**, *9*, 1111–1120. [CrossRef]
66. Herath, S.; Chong, S.C. Key Components and Critical Success Factors for Project Management Success: A Literature Review. *Oper. Supply Chain Manag. Int. J.* **2021**, *14*, 431–443. [CrossRef]
67. Alqaisi, I.F. The effects of stakeholder's engagement and communication management on projects success. *MATEC Web Conf.* **2018**, *162*, 02037. [CrossRef]
68. Abeyssekera, V.; Campbell, M. Project success and relationships from a stakeholder perspective: A pilot study. In Proceedings of the 17th Annual ARCOM Conference, Salford, UK, 5–7 September 2001.
69. Bizon-Górecka, J.; Górecki, J. Influence of Selected Stakeholders of Construction Investment Projects on the Course of Project. *IOP Conf. Ser. Mater. Sci. Eng.* **2017**, *245*, 072018. [CrossRef]
70. Silvius, G.; Schipper, R. Planning Project Stakeholder Engagement from a Sustainable Development Perspective. *Adm. Sci.* **2019**, *9*, 46. [CrossRef]
71. Tabassi, A.A.; Abdullah, A.; Bryde, D.J. Conflict Management, Team Coordination, and Performance Within Multicultural Temporary Projects: Evidence from the Construction Industry. *Proj. Manag. J.* **2018**, *50*, 101–114. [CrossRef]
72. Asma, P.; Sunny, R. Factors Affecting the Stakeholder Management Process in Construction Project. *Int. J. Eng. Res. Technol.* **2018**, *7*, 271–274.
73. Yu, T.; Man, Q.; Wang, Y.; Shen, G.Q.; Hong, J.; Zhang, J.; Zhong, J. Evaluating different stakeholder impacts on the occurrence of quality defects in offsite construction projects: A Bayesian-network-based model. *J. Clean. Prod.* **2019**, *241*, 118390. [CrossRef]
74. Olander, S. Stakeholder impact analysis in construction project management. *Constr. Manag. Econ.* **2007**, *25*, 277–287. [CrossRef]
75. Nguyen, N.H.; Skitmore, M.; Wong, J.K.W.; Skitmore, R. Stakeholder impact analysis of infrastructure project management in developing countries: A study of perception of project managers in state-owned engineering firms in Vietnam. *Constr. Manag. Econ.* **2009**, *27*, 1129–1140. [CrossRef]
76. Bourne, L.; Walker, D.H. Visualising and mapping stakeholder influence. *Manag. Decis.* **2005**, *43*, 649–660. [CrossRef]
77. Rajablu, M.; Marthandan, G.; Yusoff, W.F.W. Managing for Stakeholders: The Role of Stakeholder-Based Management in Project Success. *Asian Soc. Sci.* **2014**, *11*, p111. [CrossRef]
78. Beringer, C.; Jonas, D.; Gemünden, H.G. Establishing Project Portfolio Management: An Exploratory Analysis of the Influence of Internal Stakeholders' Interactions. *Proj. Manag. J.* **2012**, *43*, 16–32. [CrossRef]
79. Lin, X.; McKenna, B.; Ho, C.M.; Shen, G.Q. Stakeholders' influence strategies on social responsibility implementation in construction projects. *J. Clean. Prod.* **2019**, *235*, 348–358. [CrossRef]
80. Eyiah-Botwe, E.; Aigbavboa, C.; Thwala, W.D. Mega Construction Projects: Using Stakeholder Management for Enhanced Sustainable Construction. *Am. J. Eng. Res.* **2016**, *5*, 80–86.
81. Althaidi, B.; Abdel-Monem, M.; Eldash, K. The Impact of Stakeholders' Requirements on Stumbled Projects in Kuwait. *Int. J. Eng. Res. Technol.* **2021**, *10*, 5.
82. Maqbool, R.; Deng, X.; Rashid, Y. Stakeholders' satisfaction as a key determinant of critical success factors in renewable energy projects. *Energy Sustain. Soc.* **2020**, *10*, 28. [CrossRef]
83. Oppong, G.D.; Chan, A.P.; Dansoh, A. A review of stakeholder management performance attributes in construction projects. *Int. J. Proj. Manag.* **2017**, *35*, 1037–1051. [CrossRef]
84. Muntu, D.; Setyawati, R.; Riantini, L.; Ichsan, M. Effect of human resources management and advances to improve construction project performance. *Phys. Chem. Earth* **2021**, *122*, 103000. [CrossRef]
85. Johansen, A.; Eik-Andresen, P.; Ekambaram, A. Stakeholder Benefit Assessment—Project Success through Management of Stakeholders. *Procedia Soc. Behav. Sci.* **2014**, *119*, 581–590. [CrossRef]
86. Akeyo Forsman, P. A Study of Construction Project Stakeholders' Management Methods and the Critical Success Factors Essential for Successful Management in Stockholm Region. Master's Thesis, KTH Royal Institute of Technology, Stockholm, Sweden, 2017.
87. Mathur, V.N.; Price, A.D.; Austin, S. Conceptualizing stakeholder engagement in the context of sustainability and its assessment. *Constr. Manag. Econ.* **2008**, *26*, 601–609. [CrossRef]
88. Training Reference Material: Effective Stakeholder Engagement for the 2030 Agenda. Available online: <https://www.unescap.org/resources/training-reference-material-effective-stakeholder-engagement-2030-agenda> (accessed on 13 March 2022).
89. Iqbal, M.; Ma, J.; Ahmad, N.; Hussain, K.; Usmani, M.S.; Ahmad, M. Sustainable construction through energy management practices in developing economies: An analysis of barriers in the construction sector. *Environ. Sci. Pollut. Res.* **2021**, *28*, 34793–34823. [CrossRef] [PubMed]
90. Khohar, H.A.; Rahman, R.A.; Haron, A.T.; Esa, M. Assessment Strategies to Evaluate Building Information Modeling Capabilities of Organizations. *IOP Conf. Ser. Earth Environ. Sci.* **2021**, *641*, 012012.
91. Leon, M.; Laing, R. A concept design stages protocol to support collaborative processes in architecture, engineering and construction projects. *J. Eng. Des. Technol.* **2021**, *20*, 777–799. [CrossRef]
92. Oke, A.; Akinradewo, O.; Aigbavboa, C.; Ndalamba, M. Challenges to the Implementation of Lean Construction Practices in the South African Construction Industry. In *Collaboration and Integration in Construction, Engineering, Management and Technology*; Springer International Publishing: Cham, Switzerland, 2021; pp. 133–137. [CrossRef]
93. Rui, Y.; Yaik-Wah, L.; Siang, T.C. Construction Project Management Based on Building Information Modeling (BIM). *Civ. Eng. Arch.* **2021**, *9*, 2055–2061. [CrossRef]

94. Inga, C.; Ochoa, F.; Farje, J. Competency management model to resolve conflicts with external stakeholders in construction projects. In Proceedings of the 2020 Congreso Internacional de Innovación y Tendencias en Ingeniería (CONIITI), Bogota, Colombia, 30 September–2 October 2020. [[CrossRef](#)]
95. Lee, Z.P.; Rahman, R.A.; Doh, S.I. Key drivers for adopting design build: A comparative study between project stakeholders. *Phys. Chem. Earth* **2020**, *120*, 102945. [[CrossRef](#)]
96. Safapour, E.; Kermanshachi, S.; Kamalirad, S. Analysis of effective project-based communication components within primary stakeholders in construction industry. *Built Environ. Proj. Asset Manag.* **2020**, *11*, 157–173. [[CrossRef](#)]
97. Wuni, I.Y.; Shen, G.Q. Critical Success Factors for Modular Integrated Construction Projects: A Review. *Build. Res. Inf.* **2020**, *48*, 763–784. [[CrossRef](#)]
98. Deep, S.; Gajendran, T.; Jefferies, M. A systematic review of ‘enablers of collaboration’ among the participants in construction projects. *Int. J. Constr. Manag.* **2019**, *21*, 919–931. [[CrossRef](#)]
99. Batistič, S.; Kenda, R. Toward a model of socializing project team members: An integrative approach. *Int. J. Proj. Manag.* **2018**, *36*, 687–700. [[CrossRef](#)]
100. Davis, K. An empirical investigation into different stakeholder groups perception of project success. *Int. J. Proj. Manag.* **2017**, *35*, 604–617. [[CrossRef](#)]
101. Donkoh, D.; Aboagye-Nimo, E. Stakeholders’ Role in Improving Ghana’s Construction Safety. *Inst. Civ. Eng. Proc. Manag. Procur. Law* **2017**, *170*, 68–76. [[CrossRef](#)]
102. Lückmann, P.; Färber, K. The Impact of Cultural Differences on Project Stakeholder Engagement: A Review of Case Study Research in International Project Management. *Procedia Comput. Sci.* **2016**, *100*, 85–94. [[CrossRef](#)]
103. Assefa, S.; Worke, Z.T.; Mohammed, M. Stakeholders Impact Analysis on Road Construction Project Management in Ethiopia: A Case of Western Region. *Int. J. Eng. Tech. Res.* **2015**, *3*, 115–121.
104. Miller, D.; Oliver, M. *Engaging Stakeholders for Project Success*; PMI White Paper; Project Management Institute: Newtown Square, PA, USA, 2015.
105. Olaku, A.P.; Ibrahim, S.; Abdulmumin, A.; Adeniran, O.W.; John, T.A. Evaluation of Perception of Stakeholders on Key Performance Indicators for U.B.E Building Projects. *J. Multidiscip. Eng. Sci. Technol.* **2015**, *2*, 277–285.
106. Serrador, P.; Turner, R. The Relationship between Project Success and Project Efficiency. *Proj. Manag. J.* **2015**, *46*, 30–39. [[CrossRef](#)]
107. Zidane, Y.J.-T.; Johansen, A.; Ekambaram, A.; Hald, L.C. When Stakeholders Shape Successes or Bring Failures—A Case Study of an Algerian Megaproject. *Procedia Comput. Sci.* **2015**, *64*, 844–851. [[CrossRef](#)]
108. Ramel, E. *How External Stakeholder Impact Project Management Success*; ESC Rennes School of Business: Rennes, France, 2014.
109. Yang, R.J.; Wang, Y.; Jin, X.-H. Stakeholders’ Attributes, Behaviors, and Decision-Making Strategies in Construction Projects: Importance and Correlations in Practice. *Proj. Manag. J.* **2014**, *45*, 74–90. [[CrossRef](#)]
110. Xie, L.-L.; Yang, Y.; Hu, Y.; Chan, A.P.C. Understanding Project Stakeholders’ Perceptions of Public Participation in China’s Infrastructure and Construction Projects: Social Effects, Benefits, Forms, and Barriers. *Eng. Constr. Archit. Manag.* **2014**, *21*, 224–240. [[CrossRef](#)]
111. Eskerod, P.; Huemann, M. Sustainable development and project stakeholder management: What standards say. *Int. J. Manag. Proj. Bus.* **2013**, *6*, 36–50. [[CrossRef](#)]
112. Li, T.H.; Ng, S.T.; Skitmore, M. Evaluating stakeholder satisfaction during public participation in major infrastructure and construction projects: A fuzzy approach. *Autom. Constr.* **2013**, *29*, 123–135. [[CrossRef](#)]
113. Ng, S.T.; Wong, Y.M.; Wong, J.M. Factors Influencing the Success of PPP at Feasibility Stage—A Tripartite Comparison Study in Hong Kong. *Habitat Int.* **2012**, *36*, 423–432. [[CrossRef](#)]
114. Zanjirchi, S.M.; Moradi, M. Construction project success analysis from stakeholders’ theory perspective. *Afr. J. Bus. Manag.* **2012**, *6*, 5218–5225. [[CrossRef](#)]
115. Assudani, R.; Kloppenborg, T.J. Managing Stakeholders for Project Management Success: An Emergent Model of Stakeholders. *J. Gen. Manag.* **2010**, *35*, 67–80. [[CrossRef](#)]
116. Yang, J.; Shen, G.Q.; Ho, M.; Drew, D.S.; Xue, X. Stakeholder Management in Construction: An Empirical Study to Address Research Gaps in Previous Studies. *Int. J. Proj. Manag.* **2011**, *29*, 900–910. [[CrossRef](#)]