Abstract: Climate change and disaster risk are serious concerns considering the vulnerability of coastal areas and cities to various climate-disaster threats. Hence, the urban populace and planning stakeholders are grappling with the challenges of seeking ways to integrate adaptation measures into human livelihoods and planning systems. However, the synergy between climate change adaptation (CCA) and disaster risk reduction (DRR) remains fragmented and vague. Therefore, this review highlighted recent theoretical and practical methodologies for sustainable planning outcomes in relation to CCA and DRR themes. This paper provides a new model, Problem analysis model (PAM), designed to analyse Origin–Cause–Effect (impacts)–Risks identification and Answers to climate-related disaster at the local or community level. Lastly, three identified enablers were extensively discussed (policy, programme and practice) as a step towards the model implementation and to improve sustainable planning outcomes.

Keywords: climate change adaptation; coastal areas; disaster risk reduction; problem analysis model; sustainable planning outcomes

1. Introduction

There is a significant overlap between climate change adaptation and disaster risk reduction, considering measures sought to address climate change and disaster risk problems over the years, hence the need for a blanket focus on these two phenomena [1–3]. The level of effects of climate change and disaster risk in coastal areas should highlight strategies towards sustainable planning outcomes, which would include building on policy, programme and practice that will stand the test of time [4]. Additionally, the damages related to disasters caused by climate change in coastal areas have become worse in recent times owed to vulnerabilities in the social world and an increase in environmental hazards, sea-level rise, hurricanes, earthquakes, flooding, soil erosion, coastal pollution and coastal encroachment [4]. In the last two years there have been more than 10,000 fatalities globally, occasioned by natural disasters of various types this gives a concern on the severity, frequency, damage, the numbers of human and assets vulnerable to disaster risk [5].

Consequently, global warming is increasing the intensity of extreme weather events, and the frequency and magnitude of climate change impacts are becoming complex [6]. Therefore, a need for planning systems to adopt a more comprehensive approach to ameliorate imminent hazards is essential at this time [4]. Recently, the developing nations are endangered by several natural disasters induced by urban expansion and haphazard planning, causing a decline in economic resources and deterioration in livelihood [7,8]. Additionally, there are various climate-related disasters manifesting on human due to dwellers’ poor housing and “informalisation” of settlements such as backyard shack,
shanty, slums as well as housing units with poor infrastructures [7]. Recent studies, however, revealed that most urban areas are prone to climate-related disasters because of industrialisation and poor maintenance culture [9,10]. Disaster risk is a phenomenon triggered by the lack of synergy between planning and development dynamics, which leads to threats and vulnerability. In addition, haphazard planning in a developing coastal urban area can result in high disaster risk and urban sprawl. In most cases, depletion of vegetation cover through human activities, for example, construction of roads, building of new structures, asphalt and concrete laying on places where flora thrives might change urban climate negatively [10].

According to Dedekorkut-Howes et al. [11] there are major knowledge gaps in comparative costs and benefits of adaptation strategies, they opined that coastal climate adaptation should embrace local characteristics with the use of combined structural and non-structural measures to be effective. Nonetheless, climate change successively unsettles the human natural environment especially coastal communities, and this leads to vulnerability which is intuitively framed in different ways, hence disaster risk reduction is a prerequisite task that can enhance the resilience of communities. Furthermore, the alignment of possible policy intervention and programs to address these vulnerabilities require an extensive discussion. This discussion can be translated into real life policy implementation at the appropriate municipal or local level [12–14].

In view of the threats posed by climate change and disaster risk, recent environmental events have shown that if a sustainable approach is not adopted to address culminated effects of these two phenomena, societies and cities will continue to dwell under imminent risk and unavoidable hazards [10]. Hence, this paper aims to answer the critical questions of how to improve sustainable planning outcomes through policy, programme and practice in line with the emerging scholarship of synergising climate change adaptation and disaster risk reduction.

2. Methodological Note

This study used search terms in line with the study aim to identify papers on “climate change”, “disaster risk”, “coastal areas”, “climate change adaptation”, “disaster risk reduction”, “sustainable planning”, “Climate change and disaster risk in South Africa” and “policy, programme and practice related to sustainable living”. Science Direct, the Web of Science kernel database and Google Scholar were employed to review and search for papers only written in English Language. Some other papers would have been worthy of inclusion in this study but the language barrier excluded them. This review was based on the inquiry and understanding of CCA and DRR in relation to coastal and urban sustainable planning outcomes. The documentary analysis was designed to appraise facts and evidences; this agrees closely with the process of gathering information in line with qualitative research approach [15]. Moreover, this paper does not aim to address the structural units presented in the study but can only acknowledge the importance of incremental and transformational dynamics [16].

*Integration of Climate Change Adaptation and Disaster Risk Reduction: Reconstruction and Recovery*

Recent research has highlighted some of the interactions as well as key trials to the integration of CCA and DRR [10,17–19]. Birkmann and von Teichman [10] in their research identified that the combination of the two fields is hinged on bottlenecks subject to incompatibility of historical, spatio-functional scales including disparities in standards and data usage. Most of these incompatibilities have led to wasted chances of the integration of CCA and DRR for sustainable planning outcomes [19]. Within the scope of integral coastal management, the importance of concepts such as risk, disaster, reconstruction and recovery is undoubtedly significant especially in the face of climate change impact, for example, the recovery phase of disaster risk reduction affords an opportunity for effecting long-term measures, yet the opportunity oftentimes remain ignored and unemployed [18,19]. In addendum, the opportunity to reinstate in an adaptive way and to address future climate change are not considered in most cases, as recovery tends to focus on restructuring as swiftly as possible to pre-disaster conditions [10].
It has been revealed that Africa would experience extreme climate events which would affect people’s adaptation to climate change and increase disaster risk in the future giving South Africa as a case study, for example there were recorded events of devastating flooding in year 1994–1995, 2000, 2011 and 2012 in the Western Cape, Limpopo, Kwazulu-Natal and the Eastern Cape respectively [20,21]. These are scientific evidences of climate events that have affected South Africa and its population [22]. Moreover, key indicators of disasters are recognised through development failures, which is unsustainable development, some other key disaster drivers are also poverty, haphazard planning, poor urban expansion and environmental dilapidation occasioned by climate change. In addition, data about disaster occurrence around the world from (2013–17) shows that natural hazards have resulted in about “10,846 deaths”, “49,303 injuries”, and “structural cost of USD148 billion” every year [23]. The rate at which loss increases would require an improved approach to address them. The aftermath of disasters require government effort and responsibility for reconstruction and planning of projects to attain a recovery phase [24]. However, relocating affected population to safe dwellings is integrated into the tasks to attain reclamation [24,25]. A recovery process should be preceded by a population resettlement policy coupled with housing reconstruction program for displaced residents [25,26]. Furthermore, a scale of time ranging from years to decades is always required in order to achieve recovery from catastrophic disaster occurrence [27–29]. Researchers have stressed the importance of follow-up studies, which help to assess the efficacy of any population resettlement program and the importance of such development to a community [30,31]. The abundance of research on post-disaster reconstruction and recovery, for example References [32–35], does not substantiate how we can assess disaster recovery and recovery conditions or constituents. According to Pomponi et al. [36], current post-disaster frameworks adopted by experts are insufficient and in most situations hinder sustainable planning systematically. Lyon [37] opined that post-disaster reconstruction is often unsuccessful in achieving its stated aims because it lacks the proper all-inclusive approach [38]. Moreover, empirical research that defines the inputs of specific-organised reconstruction program is still deficient [39]. Hereafter, the problem analysis model is proposed to appraise questions emerging from climate-related disasters.

3. Problem Analysis Model

This model presents a simplification of several assumptions created specifically to address coastal areas natural hazards, disasters occasioned by environmental and technological failures. The major focus of the model is on achieving sustainable planning outcomes at the local level. The model exerts influence on sustainability of places, the built and natural environment and social protection as shown in Figure 1.
There have been many studies on several disasters, without any order, and this gives the feeling of repetition of reports in relation to disaster events, which is a problem [40,41]. The problem analysis model explains major questions concerned with reconstruction and recovery phase of disaster.

The extent of disasters can be categorised by different variations ranging from wildlife attacks, transport accidents, disasters occasioned by environmental catastrophes or the changing climate [42,43]. In this case, disasters, in the long run, bring an intensity of perils at a location, which are the effects of a social construction of risks. However, most of these disasters are usually determined by historical or other projections associated with scientific and empirical research, as shown in Table 1. In addition, vulnerability represents the exposure of a community to damage, this accounts for the susceptibility of a location or valuables to hazards [44]. On the balance, the problem analysis model functions as the estimate of consequent loss and damage ratio, for example, disaster impact investigation, people rendered homeless, death rate, structural loss, etc. The ripple effect of all-natural hazards such as floods, storms, bushfire, tornadoes, hurricanes, tremors, etc. poses threats to human and their assets hence, the culmination of these hazards bring loss, fatalities and significant loss to governments and to the people [44].

Figure 1. Schematic representation of the problem analysis model (PAM).

1. **Origin** should speak to a particular case study, e.g., East London, South Africa.
2. **Cause** of a disaster can spread across three factors which can include anthropogenic activities or human errors, natural occurrences and complex issues which is the combination of the two.
3. **Effects** This should address the extent and impacts of disaster, its widespread and casualty recorded.
4. **Risk identification and answers to climate-related disaster** is to chiefly provide solution per step to the ripple effects of climate-related disaster.
Table 1. Recorded climate-related disasters in South Africa from 1853–2018.

| Year | Location          | Disaster Type | Details of Events                                      | Source |
|------|-------------------|---------------|--------------------------------------------------------|--------|
| 1853 | Eastern Cape      | Snow          | Hundreds of people died from severe snowstorm          | [45]   |
| 1981 | Western Cape      | Floods        | Various casualties                                     | [46]   |
| 1902 | East Griqualand   | Snow          | Very terrible snowstorm in the history of South Africa, 1.5 m deep snow killed about 13,000 sheep | [45]   |
| 1936 | Settlers          | Hailstorm     | 380 mm of rain fell in 15 min, people and cattle were killed by raging water and hailstones | [45]   |
| 1948 | Roodeport         | Tornado       | Worst tornado in the history of South Africa, economic damage of R150m, 700 homes destroyed and 4 people died | [45]   |
| 1949 | Pretoria          | Hailstorm     | 12,000 large windows of houses were destroyed and many cars wrecked | [45]   |
| 1968 | Port Elizabeth    | Floods        | People and animals drowned, communication links were also broken | [45]   |
| 1990 | Welkom            | Tornado       | Operational destruction of R230m, Twenty Square kilometre affected | [45]   |
| 1994 | Lady Smith        | Floods        | Most severe floods in 78 years, R60m worth of property damaged, thousands of families became homeless | [45]   |
| 1994–1995 | Western Cape     | Drought      | Various casualties                                     | [46]   |
| 2010 | Western Cape      | Floods        | Various casualties                                     | [46]   |
| 2000 | Limpopo           | Floods        | Various casualties                                     | [47]   |
| 2011 | KwaZulu-Natal     | Floods        | Various casualties                                     | [48]   |
| 2012 | Kowie River,      | Floods        | This flood caused major changes in the hydro-morphology and aquatic communities of Kowie River | [20]   |
|      | Eastern Cape      |               |                                                        |        |
| 2013 | North West        | Extreme heat  | Various casualties                                     | [49]   |
| 2017 | Knysna            | Fire          | 600 homes were destroyed, many people died and structural damage amounted to about R4billion | [50]   |
| 2017–2018 | Cape Town        | Drought      | Very low crop yield have been recorded over this period, scarcity of potable water including the loss of livestock and depletion of flora/fauna | [51]   |

The understanding and identification of disaster types and risk documentation are critical to attenuate the impacts of these major disasters, and is based on record and measurement of past disaster events. The measurement of disaster risk can be analysed based on trends of loses, risk factor and probability factors to know the extent of disaster risk. The essence of risk assessment gives opportunity for a wide spectrum of identifying various disaster events including their underlying factors and
disaster forecasts. However, a full range of comprehensive risk assessment is needed to evaluate risk projections with the use of scientific knowledge, human-based knowledge and nature-based knowledge solutions. In addition, in preparing for rare disaster events, information and findings are needed along with other scenario building, risk modelling and simulation with the support of expertise from various fields of study in relation to disaster preparedness. Studies also show that to enhance the accuracy of risk projection and assessment, data on hazards, exposures, vulnerability, and losses are needed. This development is now sacrosanct at a time when computational data became available and very potent for modelling different disaster events. Furthermore, the importance of risk assessment is necessary to estimate damages of economic, infrastructure social loss caused by a particular hazard or associated hazards [52].

The relationship between the proposed model and the review of policy, programme and practice for sustainable planning outcome and sustainable living suggests the problem analysis model (PAM) should be operationalised, tested and applied in the real world. This application would provide measures to implement more sustainable policy, programme and practice as highlighted in this study in order to empower local communities to take their risks seriously, and at the same time provide guidance on the social, environmental and structural response needed to enhance their sustainable planning and living [53].

4. Policy for Sustainable Planning Outcomes

4.1. Resilience as a Key Policy for Sustainability

Holling [54] conceptually introduced resilience; he defined it as “a measure of the ability of ecological systems to absorb changes of state variables, driving variables, and parameters, and still persist” ([54] p. 18.) Resilience has since described the adaptive abilities of individuals, human societies and the global scene [55]. Consequently, one of the policies concepts that has become popular over the years within “climate change adaptation and disaster risk reduction themes” is resilience; this emerges from an array of studies. Resilience is the capability of systems to return to normality, a concept which leverages on engineering ideas [56]. It also implies the capacity of an individual, household, city or an environment to return to its former state functioning with little damage sequel to possible shocks and environmental commotion. However, resilience is gradually developing as an integrative concept approach that links people in ameliorating stress, shocks, social protection, food security, climate-related disasters [57]. The increasing knowledge of resilience brings together aspects of transforming human livelihoods in order to address the hurdles of highest normative priority and enhance improved climate adaptation and disaster reduction [58]. According to Jabareen [59], resilience as a concept within the urban context was adopted from researches that show the way ecological cycle adapts to disturbances and ecological forces. Drawing from an ecological point of view various authors [60–62] suggests that resilience is a persistent relationship within a cycle and for the cycle to withstand changes in the parameters of variables and still absorb those changes. Invariably, resilience implies the ability of a complex environment to undergo huge challenges and still sustain its system controls and functions [59]. In the recent times, the resilience policy concept is now being linked to human and social-environmental systems, coastal urban resilience, urban security and socioeconomic recovery [63,64]. The wider concepts of resilience are the potency built in the strength of a system, society or community to efficiently survive and recover from the impacts of hazard within a short period, including the capacity to preserve, restore, and manage basic amenities, facilities and functions [59]. It has also been suggested that resilience as a policy is relevant in managing areas or communities suffering from disasters and for advancing livelihoods [59]. However, resilience offers the platform to understand how human livelihood is improved and interpreted to cover the broader concepts of urban reconstruction [65,66].
Moreover, policy stakeholders have identified the significance of resilient and adaptive systems specifically in preparedness for interrelated system of intricate risk, while the theoretical reflections of resilience policy may seem slightly abstract, it has tangible and practical implications for the implementation of CCA and DRR [59]. Accordingly, this section seeks to construct five key basic conglomerate phenomena as a policy to improve sustainability under the perception of resilience. It is very interesting to apply the concept of “resilience” to public policy and the five key basic phenomena have been selected based on their fundamental significance in promoting resilient cities and society.

4.1.1. Urban Informality

Informality within the urban space appraises the socioeconomic scale and environmental outlook of informal urban settlements. Roy [67] opined that the level of informality within an urban area has a significant impact on human exposure to vulnerability. Within the context of CCA and DRR, exposure is the degree at which an environment is unable to cope with the extreme impacts of climate-related disasters including susceptibility and vulnerability to environmental, social and spatial urban shocks. Research shows that most urban expansion takes place outside legal urban framework for land development and land-use practice. This results in development of shacks, slums, shanty areas, ghetto, etc., which later forms the larger outlook of an unplanned, disorderly and chaotic urban spaces [68]. Perpetually, these spaces are potentially exposed to risks compared to well-planned cities simply because of their lack of social amenities and services, low income, highly congested spaces, and haphazard planning. However, the population of these informal spaces has the possibility to metamorphose into more compound risks such as informal settlements expansion, environmental degradation, and overuse of available infrastructure and services which is a problem to the ability of cities to face and pull through natural catastrophes. Resilience as policy requires modality to include the vulnerable communities and less privileged society into the city and metropolitan area plan for sustainable living and planning [69].

4.1.2. Spatial Distribution

Spatial distribution forms a core concept in resilience policy, it is a means to analyse relationships between unevenly distributed landscapes, e.g., “city-scape” or “slum-scape” therefore, assessing the spatial distributions of various vulnerability, uncertainties, and risks associated to a community [70]. Spatial distribution contributes to planning and management of places that are predisposed to disasters or a high-risk location and lack of social services. Hence the need for contemporary cities to develop an all-inclusive spatial planning policy that will advance resilience and reduce vulnerabilities to habitats of disadvantaged areas. Even though, spatial distribution might be linked to a passive result in the case of urban sprawl, but in this case it embraces the concept of resilience policy which is critical in addressing environmental risks and hazards considering the unequal distribution of human settlements and location, which must be put into consideration in city planning, and development of urban policy [59].

4.1.3. Urban Governance

The strength of a resilient city is hinged on the concept of urban governance, which focuses on decision making in planning, open dialog among social groups and communities, communication among urban governance stakeholders with an inclusive participatory process [59]. Urban governance initiates the coordination of civil society and grassroots organisation to contribute to an all-encompassing policymaking process in the planning system. Well-appointed urban governance is one in which the government would be able to provide basic amenities and restore social and institutional services after a disastrous occurrence might have taken place. On the other hand, weak governance will struggle to attain resilience due to lack of capability and competence to involve in planning and decision/policy making process [71]. The ability of a government structure to achieve resilience under conditions of climate uncertainties and unpredictable conditions is a new notion that requires urban policies that brings the problems of global environmental change into urban system. Therefore, urban governance
concepts recommend that coping with extreme climate events requires a more inclusive, premeditated and socio-economically sound system to achieve a resilient society [71].

4.1.4. Standard Procedures for Development

Planning councils and stakeholders should critically appraise the essence of standard procedure for development, hence this plays a key role in building the resilience of the populace. They serve as regulations in place for the construction and growth of the built environment as guided by the town planning officials. Busayo et al. [72] opined that general standard rules for development are essential for communities and cities in order to be void of illegal structures, which in turn result in informal housing units such as rickety, and dilapidated urban structures. The standard procedure for development also serves as a tool for land acquisition, which covers the practice of proper land use and land development. Planning sectors should also oversee building rules, zoning procedure and other land issues enshrined in the standard procedure for the built environment development in order to improve resilience. In addition, it is crucial to eradicating any risk regarding the implementation of planning and development legislation. For example, issuance of building permits by planning official must be strict and in adherence to standard procedure for development, all public majors in the planning subdivisions must be sensitised against the use of any discretionary power, which may alter the integrity of the planning system [73].

4.1.5. Community Attitudinal Change

The term attitudinal change can be a part of a social and community-planning theme, which involves the adherence of communities to rules and regulations constituted by government and authorities. However, over the years, communities and cities have shown nonchalant attitudes towards the development and sustenance of their immediate locality considering the influence of human activities on the cause and intensification of climate change effects which later results in various natural hazards. Anthropogenic activities such as pollution in different forms, deforestation, burning of fossil fuel cause damage (either directly or indirectly) to the environment on a global scale as well as the root cause of changes to marine biodiversity. The effects of human activities are usually not reversible but result in long-term changes in spatiotemporal ecosystem structure and functioning of the span of human existence. Given the position of human activities to global environmental change with regard to biodiversity and the natural environment, it is essential for communities to play an active part in developing community resilience to attenuate disaster risks and climate change rather than socially accepted norms and practices that would exacerbate climate risks [74]. Hence, the social and community-planning stakeholders should intensify efforts to tackle lack of knowledge, ignorance about spatial planning regulations, uncertainty and barriers to information sources, lack of administrative action and lack of empowerment at the community space.

4.2. Conglomerate Planning Themes for Sustainability

Currently, it would give a clear direction to rework planning as a concept for sustainability, the arguments present a foundation for sustainable planning as highlighted by Reference [4]. The objectives of planning in this section facilitate an inclusive and context-related approach that integrates land use, community, government institution, progress in socioeconomic integration and ecological approach as representatives for planning framework.

4.2.1. Spatial Planning Thematic Priorities

In literature, scholars have identified the importance of spatial planning as a policy for sustainable planning in CCA and DRR [72,75,76]. Specifically, spatial planning controls urban planning, post-disaster phase planning, urban landscaping and risk assessment. We can refer to these themes as enablers to maximise the synergy between CCA and DRR, which in turn translates into sustainable planning outcomes. The urban planning control theme would serve as a mechanism for coastal defence
and as control for flood risk and management of seal level increase. However, post-disaster planning entails the strategic and appropriate monitoring of projected risk and building of standards to address past disaster occurrences. Urban landscaping is also embedded in the wider concept of land-use planning which gives room for urban development through incorporating several land-use designs for buildings and structures in order to resist future impact of climate-related risks. A risk assessment would give room for the consideration of coastal hazards full disclosure and awareness of climate-related risk history such as floods, erosion, storms, etc.

4.2.2. Social and Community Planning Thematic Priorities

The role of communities and an immediate locality in CCA and DRR is significant in reducing the impacts of environmental hazards within the society, giving the ‘pre-arranged collaborative efforts’ of the community to prepare and recover from any imminent disasters. Hence, social and community planning has become popular because of its ability to better deal with future climate risks in line with individuals and communities associated capacity building, financial contributions, self-involvement, individual monitoring of projects and active community labour. Change to public perception would give the community the capacity to communicate their views and challenges about vulnerabilities to the appropriate medium, hence the public or a particular social environment is directly affected by climate-related risks. Therefore, access to information through public perception or indigenous knowledge would go a long way in improving avenues for better risk minimisation and strategies for extremely vulnerable communities. Community inclusion is also a branch of the social/community planning; this would offer the community a say and a leadership position during a pre-disaster or post-disaster planning, which may include volunteering and inclusion of community members in the building and reconstruction phase. The adaptive capacity of a community is built on self-reliant and empowered residents, in order to potentially develop and promote their individual focus on the stages of preparedness, response and recovery from climate risks. In addition, social memory is a continuous update of the community about the reality of climate risk. This affords the community to be educated and improve their awareness level about climate change predictions, risk-prone areas including arrangements to support dwellers that require emergency or evacuation actions.

4.2.3. High-Order Government Planning Thematic Priorities

To coordinate effectively the sustenance of cities and the society through CCA and DRR, the role of the government, which serves as leadership to the people, needs to be strengthened through partnership with various sectors and all stakeholders in the planning system. High-order government planning would also bring about institutional support in the fields of CCA and DRR by improving management and sharing of knowledge, empowering networking, as well as improvement in understanding and effecting policy and legislation. There should be better communication amongst agencies and strong partnership across government sectors and the broader community in order to build a formidable team for better decision making, and improved knowledge and capacity, which in turn would resonate into establishing rules and regulation to ensure adherence to constituted authorities, and planning council’s agreement.

5. Programme and Practice for Sustainable Planning Outcomes

5.1. Programme for Sustainable Planning

Currently, adaptation to climate change and the reduction of coastal disasters are urgent challenges for coastal areas. However, “programme” in this case refers to major international conventions and agreements, expert groups and strategies that are in place to guide as drivers of sustainable planning; this touches upon a very important but often overlooked topic of coastal management and urban areas in general. For example, The International Decade for Natural Disaster Reduction (1990–1999), United Nations Framework Convention on Climate Change (1992), The Yokohama Strategy (1994),
International Strategy for Disaster Reduction (1999), The Hyogo Framework for Action (2005), The C40 Cities Climate Leadership Group (2005), Sendai Framework for Disaster Risk Reduction (2015–2030), The Paris Agreement (2015), Sustainable Development Goals (2015) and The Intergovernmental Panel on Climate Change (1988). All of these “programmes” at the international scene aim to attenuate the impacts of climate-related disaster, but less attention is paid to the adoption of these programmes at the local level. Conversely, only few studies compiled these programmes to arrive at a succinct synthesis. Henceforward, these list was made based on numerous factors, some key qualifications were evaluated: concept in relation to disaster risk and climate change issues, and proven use of factors and the validity of the programmes at the national and international level based on their guiding principles and goals to attain sustainable planning outcomes. Generalising the guiding principles and reports from these programmes would bring about sustainable planning outcomes at the local level especially coastal communities, which face more of exogenous force of natural hazards [77]. Furthermore, coastal areas are suffering from uncontrolled urban sprawl in the Global South and facing an ever-increasing disaster risk due to global climate change and lack in the implementation of contemporary programmes of this manner for planning and adaptation.

However, Sendai Framework for Disaster Risk Reduction (SFDRR) is a recently adopted framework, considering its constituted policy and programme for sustainable planning, the framework was set to address the issues relating to disasters across the globe until the year 2030, this would afford researchers to review and analyse the implementation and efficiency of (SFDRR). The adoption of the Sendai Framework for Disaster Risk Reduction was born out of a conference hosted by the United Nations on Disaster Risk Reduction, which took place in Sendai, Miyagi, Japan from 14th to 18th March 2015, which gave countries across the world opportunities;

(a) To focus on unique and concise forward-looking approach for the post-2015 framework for disaster risk reduction
(b) To build on the Hyogo Framework which was initiated from 2005–2015 with a focus on improving nations’ and communities’ disaster management
(c) To review lessons learnt from the local and national institutions and strategies for disaster risk reduction and their relevant recommendations on the implementation of the Hyogo Framework for Action
(d) To highlight issues that surround the championing of the post-2015 framework for disaster risk reduction
(e) To structure a strategic review of the actualisation of the post-2015 framework for disaster risk reduction

5.2. Practice for Sustainable Planning

Nature in practice is an approach endorsed by “The European Commission” to advance and conserve ecosystems services in urban, coastal, rural and natural habitats through the development and restoration of biodiversity. CCA and DRR are the major thrust of these initiatives aimed at improving human wellbeing, safety and health [78]. There are apparently global best practices in place to cope with climate change, most of them provide insights to accommodate future impacts, and it is, however, a challenge to successfully harness these good practices considering the barriers that hinder effective adaptation. To explore cases of advance practices across various sectors few examples were highlighted. Ecosystem-based adaptation (EbA), Integrated risk management (IRM), Green infrastructure and resilient design, Emergency management (EM), Blue and green infrastructure, Sustainable forest management, Wetland conservation and restoration, Ecosystem engineering practices, Coral reef restoration and artificial reef construction, Thicket restoration, Mangrove forest restoration, Sustainable land management, Opportunity mapping and Community based approach to CCA and DRR are all complementary approaches that closely shows natural approach and human approach which both culminate to “knowledge-based approach” therefore providing a wide range of co-benefits. However,
each practice significantly addresses environmental, social, and economic issues from a unique standpoint, hence they may produce overlapping outcomes vis-à-vis CCA, DRR as well as effectiveness in conservation priorities and opportunities to promote economic gains and development [79].

Still, the multiple increases in human and naturally-induced disaster risk and depletion or degradation of biodiversity which in turn exacerbate climate change and disaster risk require a complex interplay of approaches that addresses sustainable management with the aim of building resilient sectors and society through internationally supported practices. For example, the European Union and its members countries have a legislation guide that helps in conserving, enhancing the ecosystems and services which includes the following “Biodiversity strategy to 2020”, “Blueprint to safeguard Europe water resources”, “EU strategy on adaptation to climate change” and “Road map to a resource-efficient Europe” [78]. All of these together form a guide to attain a sustainable environment either now or in the future.

6. Summary

This paper elaborated policy, programme and practice for sustainable planning outcome and sustainable living in line with attaining resilient coastal communities and cities at large. This captures the wider concept of climate change adaptation and disaster risk reduction (see Figure 2). Accordingly, CCA and DRR aim at implementing action to improve resilience and increase the ability of systems to function and cope under stress and to prepare for unforeseen disasters. Thusly, the effort to harmonise policy, programme and practice is essential where resilience is common to these terms considering their integration into CCA and DRR goals. CCA and DRR have a wide amount of crossover and common goals, where the first addresses issues related to climate hazards and variability in climate conditions, while the latter involves dealing with all hazards (human or animal induced) including either geophysical or hydro-meteorological hazards. However, CCA also deals exclusively with the long-term coping mechanism of communities to changing climatic conditions, including the benefits this can offer, while DRR is specifically involved in extreme events causing disaster. Moreover, this paper suggests that a point of convergence between CCA and DRR in addressing climate-disaster risk will bring about a desired common objective in attenuating community’s vulnerability and achieving sustainable living. However, resilience was conceptualised as a key policy for sustainability under five major concepts. The new problem analysis model (PAM) was designed to improve cradle-to-the-grave overview of climate-related disasters and assessments of disaster resilience at the local level. The relationship between the proposed model and the review of policy, programme and practice for sustainable planning outcome and sustainable living suggests the problem analysis model (PAM) should be operationalised, tested and applied in the real world. In addition, synergy between coordinated planning themes were highlighted, including spatial planning, social and community planning and high-order government planning. About ten programmes at the international level were highlighted based on their prominence in the literature in advancing CCA and DRR. However, SFDRR, which was a framework set to review issues relating to disaster across the world until the year 2030 is a hotspot for researchers to analyse in future studies in view of its constituted policy and programme for sustainable planning outcomes. As a final point, we highlighted selected practices for sustainable planning which are both nature- and human-based solutions.
we highlighted selected practices for sustainable planning which are both nature- and human-based solutions.

Figure 2. Summary of ideas captured for climate change adaptation and disaster risk reduction to enhance sustainable planning outcomes.

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