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Abstract

Global concern has sought to connect resilience with the field of disaster risk reduction, which was prominent in the Hyogo Framework for Action (2005–2015) and updated in the Sendai Framework for Disaster Risk Reduction (2015–2030). Defining disaster risk reduction and resilience as policy goals to reduce vulnerability and minimize risk requires a closer examination of operationalization through development plans, programs, and budgets in Indonesian cities. Therefore, in an effort to connect global commitments to local action, this paper examines local development plans (i.e., RPJP, RPJMD, and RKPD) in two coastal cities in Central Java: Semarang and Tegal. The scope of the research focuses on flooding as it is the most commonly experienced hazard across Indonesia. Content analysis is applied to assess the corresponding planning documents. The content analysis is further verified through focus group discussions among key stakeholders. Findings indicate that there are fourteen areas of plans/programs in terms of reduced exposure to hazards, lessened vulnerability of people and property, improved management of land and the environment, and improved preparedness for adverse events that address flooding in the two selected cities under the responsibility of four local agencies. The elaboration of the resilience-related programmes provides important lessons that operationalizing resilience should be integrative and comprehensive, and require both short-term actionable initiative(s) and long-term transformative frameworks.

Keywords	Resilience, Flood, Disaster Risk Reduction, Central Java
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Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia

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Abstract

Global concern has sought to connect resilience with the field of disaster risk reduction, which was prominent in the Hyogo Framework for Action (2005–2015) and updated in the Sendai Framework for Disaster Risk Reduction (2015–2030). Defining disaster risk reduction and resilience as policy goals to reduce vulnerability and minimize risk requires a closer examination of operationalization through development plans, programs, and budgets in Indonesian cities. Therefore, in an effort to connect global commitments to local action, this paper examines local development plans (i.e., RPJP, RPJMD, and RKPD) in two coastal cities in Central Java: Semarang and Tegal. The scope of the research focuses on flooding as it is the most commonly experienced hazard across Indonesia. Content analysis is applied to assess the corresponding planning documents. The content analysis is further verified through focus group discussions among key stakeholders. Findings indicate that there are fourteen areas of plans/programs in terms of reduced exposure to hazards, lessened vulnerability of people and property, improved management of land and the environment, and improved preparedness for adverse events that address flooding in the two selected cities under the responsibility of four local agencies. The elaboration of the resilience-related programmes provides important lessons that operationalizing resilience should be integrative and comprehensive, and require both short-term actionable initiative(s) and long-term transformative frameworks.

Keywords: Resilience, Flood, Disaster Risk Reduction, Central Java

1. Introduction

Resilience is an emerging terminology discussed across various perspectives, and its meaning continues to be interpreted, re-interpreted, and contested. Because of its complexity, Davoudi et al. [1] believe that resilience will be no more than another "buzzword" if the definition is not clarified and put in the right context. Meerow et al. [2] and Jabareen [3] further highlight the ways that resilience is a multifaceted term that is characterized in different ways depending on the discipline. Scholars also emphasize the importance of defining urban resilience comprehensively, which is done in an integrative approach to accommodate urban complexity. Despite the continuing interest in resilience and the continuing conversation about its definition, there are global movements seeking to convey urban resilience for policy mainstreaming. Therefore, repeated calls are being made—especially among administrators who must implement resilience plans—to be more practical in implementation. Beginning in 2008, the Asian Cities Climate Change Resilience Network (ACCCRN) provided groundbreaking work to bring resilience into the global conversation in the context of climate change and the climate adaptation approach. ACCCRN has developed a framework to promote urban resilience through an inclusive process involving government, communities, and other stakeholders to empower people and member cities (https://www.acccrn.net/about-acccrn). Following the establishment of the ACCCRN program in 10 Asian countries, in 2013, the Rockefeller Foundation also established the 100 Resilient Cities (100RC) program

to promote urban resilience in a more comprehensive way by providing a framework for resilience. The foundation's approach presented a lens to examine the major drivers of vulnerability, which is called the blue wheel, providing an impetus for member cities across the world to become more resilient (http://www.100resilientcities.org/about-us/). The Hyogo Framework for Action 2005–2015 [4] and Sendai Framework for Disaster Risk Reduction 2015–2030 [5] have connected the importance of resilience to disaster risk reduction. The frameworks introduce disaster resilience as a global commitment. In Indonesia, global action is interpreted and enacted through the establishment of the Indonesian National Board for Disaster Management (INBDM) at the national level, and, in turn, regionally as Disaster Management Boards (DMB). In the global disaster resilience frameworks, resilience is defined as the capacity or ability of a system, community, or society exposed to hazards to be able to adapt and recover in the minimum possible time [4]. Accordingly, Forino et al. [6] further conceptualize disaster resilience as any adaptation approach to address emerging hazards or initiatives that seek to reduce high-risk areas and activity on disaster recovery.

As an effort to reinforce the implementation of resilience initiatives/plans, some scholars develop a conceptual framework showing that urban governance is an elementary aspect that requires further reference [2,3,7]. Urban governance is the mechanism to manage urban resilience because it encompasses any determination to improve quality of life, spatial organization, environmental management, and economic activity [8]. Urban governance concepts may include the decision-making process, inclusiveness, and collaboration to address the resilience challenge. Accordingly, urban policy serves as a guidance to understand the governance aspect in resilience and therefore, is very important and influential to create a resilient city.

Nevertheless, some studies show evidence of challenges in addressing disaster resilience in development planning policies. Moloney and Fünfgeld [9] revealed the important role of local government in their examination of multi-level climate governance and adaptive capacity building in Melbourne, Australia. River et al. [10] investigated policy integration as critical for disaster management in Nicaragua. Based on the study in Shah Alam City in Malaysia, Khailani and Perera [11] revealed a proposition to improve the capacity of local authorities, including local communities, to promote disaster resilience. Focusing on disaster management, Madan and Routray [12] also did a study on Delhi, India, and reached a similar conclusion as Khailani and Perera [11]. However, there is still a lack of studies on the amalgamation of disaster resilience into planning policies, mainly in Asian countries. The limited research available has used content analysis to investigate particular policies related to resilience, climate change adaptation, and disaster resilience. Torabi et al. [13] examined two local government policies in two cities in Australia. Forino et al. [6] have also unpacked development policies in three Australian local governments. In the UK, White and Richards [14] have elaborated on the link between planning policy and flood risk at the national and local levels, and Chmutina et al. [15] further examined 30 policy documents in the country to understand how resilience is understood and what kind of actions are executed to make areas within the nation becoming more resilient.

Considering the critical role of urban policies to promote resilience in disaster risk reduction and resilience as policy goals to reduce vulnerability and minimize risk compels us closely examine the operationalization of resilience policies among development plans, programs, and budgets in Indonesian cities. Therefore, in an effort to connect global commitments to local action, this paper examines local development plans in two coastal cities in Central Java: Semarang and Tegal. This paper also investigates how local commitment

is connected to regional and national policies. Semarang represents a metropolitan city that has been engaging in global networks to promote resilience, such as the ACCCRN and 100RC programs. Tegal is a medium city that has grown rapidly in recent years despite the area being prone to flooding. Unlike Semarang, Tegal has never engaged in collaborative work with external partners to address flooding in the city. All programs related to flooding in Tegal are the responsibility of government at the local, provincial, and national levels. The scope of this research examines flooding as the most commonly experienced hazard. There are three basic elements to cover in examining flood management policies: the scope of the programs, budget allocation, and the role of government, including its capacity to expand collaboration.

2. Defining Resilience, Urban Resilience, and Disaster Resilience

Developing interests in the resilience concept have led to various definitions of the term. Meerow et al. [2] for example, reveal that there are at least 25 definitions of resilience from different disciplines. In the initial definition and application to socioecological systems, C.S. Holling [16] defined resilience as the ability of a system to "bounce back" to face a disturbance. However, mostly in the context of urban resilience, the capacity to bounce back is not as simple as the ability to return to equilibrium in addressing a disturbance, but it may also cover the capacity of a system to persist or to reach a new threshold when it experiences a disturbance. Davoudi et al. [1] have differentiated the resilience concept into two categories, "engineering resilience" and "ecological resilience." Engineering resilience is rooted in Holling's [16] classic definition of resilience and focuses on a singular situation of equilibrium, while ecological resilience may capture multiple equilibrium situations.

The urban planning system is comprised of ever-changing inter-related components. White and O'Hare [17] further differentiate resilience in the planning perspective into two main terms, namely, "equilibrist resilience" and "evolutionary resilience." Equilibrist resilience is similar to Holling's interpretation taken from engineering resilience, which aims to achieve a pre-existing normality, characterized as technorational, shorter term, and reactive. Evolutionary resilience, on the other hand, is likely to be characterized as socioecological resilience per Davoudi's categorization. This notion aims to achieve a new, proactive normality, striving for new, improved thresholds, focusing on medium- to long-term achievements. Jabareen [3] believes that urban resilience should put more emphasis on ecological resilience, as disturbances may come from various external factors or in planning perspectives categorized as evolutionary resilience.

Despite the developing concepts and definitions, there is now more evidences showing that resilience concept mostly in the context of urban resilience [2,3,18,19,20] and disaster resilience [19,20,21] is important to be accommodated comprehensively on addressing multi-faceted of shocks and stresses. Along with the discourse, urbanization also appears as one important phenomena to be better understood as disasters mostly climate-related disasters are likely happen in low-lying urban areas located in the coastal zone [2,4]. There are more than 50% people categorized as living in urban area worldwide [22] and most of them are vulnerable to particular types of disaster. Floods are the most common type of urban disaster in Asia [23], including in Java [24]. Floods occur not only because of changing rainfall and sea level rise but also due to uncontrolled development [25]. Urbanization has created pressures to urban areas as it can be reflected on the significant growth of built-up area within the city center. More built up

 areas as well as slum areas create additional burdens on governments to provide costly infrastructure improvements

3. Development Planning Policies in Indonesia

Development planning policies in Indonesia are divided into two categories: development planning policies (non-spatial) and land use planning policies(spatial). Accordingly, integration and coordination between these two types of policies are very important as they accompany one another. Law No. 26, 2007 provides details about the spatial planning system in Indonesia, and Law No. 25, 2004 explains strategic development planning policy. Fig. 1 explains the three levels of policy for both categories, classified as National, Regional (Provincial), and Local Policies. Each level includes long-term policies (20 years), midterm policies (5 years), and implementation plan policies (1 year).

Some considerable challenges have emerged in the implementation of the spatial and strategic development planning policies. Challenges include approaches to integration between spatial and non-spatial plans and vertical integration between national, regional, and local development policies. Furthermore, the decentralization policy applied in 1999 provided more authority to local government and reduced the role of the provincial government. After decentralizing authority to the local government, institutional capacity challenges began to show up, including lack of qualified human resources, weaknesses in policy implementation, and unclear accountability mechanisms. The authority changes also created substantial challenges regarding conflict of interest among sectors to address particular cross-sector problems, especially in the complexity of addressing disasters. There are at least five important leading agencies included in disaster-related issues. The Planning Board is the coordinating agency, the Public Works Agency is responsible for infrastructure provision (to reduce/control the flood event), the Disaster Management Agency is responsible for early warning and preparedness, the Spatial Planning Agency for land use management, and the Environmental Agency is mostly related to waste management and other environmental impact approvals.



Fig. 1 Planning Policies in Indonesia

4. Methods

This study applies content analysis as the main method to capture inferences and logic of interpretation from selected documents. There are three types of inferences: (1) Deductive, that is, from general to particular, (2) Inductive, which is from particular to specific, and (3) Abductive, which is from one kind of particular to another kind of particular [26]. This study focuses on abductive inference since the term resilience is practically new in the Indonesian context. Therefore, the content analysis is applied to investigate how the term is articulated in the selected documents. Two main approaches are applied: examining the vocabularies and making contrasts/comparisons among the selected documents. Following the development planning system as illustrated in Fig. 1, Table 1 describes the list of documents examined. The documents are classified into three levels based on the government hierarchy: national, regional (provincial), and local. The development planning documents are divided into two categories: development policy (long-term, mid-term, and short-term) and spatial planning document. Nineteen documents have been analyzed from the national to the local level, and most of them are development planning policies documents (15 out of 19). Two FGDs (Focus Group Discussions) were also applied in Tegal and Semarang to further clarify the findings from the content analysis. Based on literatures related to resilience operationalization and urban policy implementation, three leading questions as the basis for the FGDs were issues of (i) policy integration, (ii) equity principle in the implementation, and (iii) consideration of accommodating environment problems and economic value. The participants are from government agencies (see Table 1.) that have programs related to flood and/or disaster issues as the

scope of this research is limited to examining the operationalization of flood resilience initiated by the government.

Content analysis is applied to address the concept of resilience to further clarify the operationalization of resilience articulated in the planning documents. Chelleri et al. [27] state that one confusion of applying resilience is whether it is defined as engineering resilience or socio-ecological resilience. In the context of disaster risk reduction, resilience is usually simply understood as engineering or equilibrist resilience that focuses on the shorter term and aims to achieve pre-existing normality [28]. The challenge for sustainability is for the discourse to focus on the longer term, on a multi-scale and wider dimension. There are three approaches to accommodate resilience in the planning process [29]: (1) the coping approach to reduce the disaster risk, (2) adaptation that includes surviving and protecting the current system, and (3) proactive initiative for longer-term and transformational action. Accordingly, this study includes both development planning and spatial planning documents for short-, mid-, and long-term to further examine the ability of the document to capture the sustainability and dimension of disaster resilience of the chosen cities.

Creswell [30] states that a case study is an approach in qualitative research in which the researcher focuses on a particular program, activity, or process to be investigated. This case study is focused on investigating the development plans of two study areas: Semarang City and Tegal City. The two cities are located on the northern coast of Central Java Province. Semarang is a metropolitan city with 1,500,000 inhabitants, and Tegal is an intermediate or medium-sized city of around 250,000 people. Semarang as a large city experiences higher rainfall compared to Tegal. The rainfall ranges between 550-750 mm/month in the rainy season in Semarang while Tegal experiences 450–650 mm/month in the same season. Semarang also has more significant flood events. It almost reaches 70 flood events in 2013 taking place in 47 urban villages, mostly located in the coastal areas, while Tegal experiences 17 flood events [24]. Both are growing and important cities located in the low-lying and prone area in coastal Java. However, due to its involvement in two global networks (i.e., ACCCRN and 100RC programs), Semarang is more advanced in addressing such disasters, as well as climate change and resilience issues compared to Tegal.

There are at least three types of floods that occur in the two cities. As they are both coastal areas, they both experience tidal flooding. Tidal floods occur mostly in the coastal villages because of land subsidence and rising sea levels. However, as low-lying areas, they also experience flash flooding and inundation from local rainfall and poor drainage maintenance infrastructure. Flash flooding can take place when there is a high rainfall event in the upstream areas that surpass the capacity to absorb rainfall into the ground and overflows the limits of rivers and drainage infrastructure to direct water to the sea. Villages prone to flash floods are mostly located along the riverbanks in midstream and downstream areas. The last type of flood inundation takes place in dense urban areas, where drainage is inadequate and poorly maintained. Poor waste management from settlement and commercial areas and inadequate collection systems also contribute to clogging the system.

Table 1 Selected Documents

N		Veer	T	/pe	Level			Planning Period		
NO	litle of the document	Year	DP*	SP**	National	Regional	Local	Long	Mid	Short
1	National Long-Term Development Plan (RPJPN)	2005-2025	*		*			*		
2	Long-Term Development Plan of Central Java Province	2005-2026	*			*		*		
3	Regional Long-Term Development Plan of Semarang City	2005-2027	*				*	*		
4	Regional Long-Term Development Plan of Tegal City	2005-2028	*				*	*		
5	National Mid-Term Development Plan	2015-2019	*		*				*	
6	Mid-Term Development Plan of Central Java Province	2013-2018	*			*			*	
7	Mid-Term Development Plan of Semarang City	2016-2021	*				*		*	
8	Mid-Term Development Plan of Tegal City	2014-2019	*				*		*	
9	National Government Work Plan	2017	*		*					*
10	Annual Plan of Central Java Province	2017	*			*				*
1	Annual Plan of Semarang City	2017	*				*			*
12	Annual Plan of Tegal City	2017	*				*			*
13	National Spatial Plan	2007-2027		*	*			*		
14	Spatial Plan of Central Java Province	2009-2029		*		*		*		
15	Spatial Plan of Semarang City	2011-2031		*			*	*		
16	Spatial Plan of Tegal City	2011-2031		*			*	*		
17	National Disaster Management Plan	2015-2019	*		*				*	
18	Indonesia Disaster Risk (RBI)	2016	*		*					*
19	Flood Contingency Plan of Central Java Province	2011	*			*				*

*DP: Development Planning Policy (non-spatial)

**SP: Spatial Planning Policy

5. Findings

Flood Resilience Programmes: From National to Local Development Policies

Following Carley's [31] explanation on applying content analysis, investigating a manuscript may focus on counting the number of particular word(s) or terms used in the selected documents. The number or particular/chosen word(s) used in the documents indicates how important the term is from the government's perspective and may also indicate how the terms/words are comprehended. Accordingly, Table 2 shows the list of word(s) related to flood resilience used in the planning documents listed in Table 1.

Table 2 Number of Related Vocabulary Used in the Selected Documents

			National		Designal		Local			
No	List of vocabulary	INALIONAL		Regional		Semarang		Tegal		
		DP*	SP**	DP*	SP**	DP*	SP**	DP*	SP**	
1	<i>Resilience*), Resilient*),</i> Resilience, Resilience, Resilient	94	4	96	3	89	3	33	4	
2	Sustainable development*), Sustainable development	22	0	3	0	10	1	8	1	
3	<i>Climate change*</i>), climate change, climate change adaptation	55	1	22	1	26	0	1	0	
4	<i>Disaster*),</i> disaster, disaster management, disaster control, disaster prevention, disaster mitigation, disaster anticipation, disaster risk, disaster risk reduction, impact of the disaster, post-disaster, recovery, preparedness, early warning system	131	20	141	23	305	97	72	43	
5	Flood	17	6	45	4	139	30	31	7	
6	Vulnerability	33	1	25	0	8	0	5	0	
7	Local government, community capacity, Government capacity, institutional capacity, infrastructure capacity	132	5	107	21	129	45	183	38	

*DP: Development Planning Policy (non-spatial)

**SP: Spatial Planning Policy

*) Stated in English

Table 2 presents several interesting findings. The word "resilience" and other similar words (there are several ways that Indonesians translate resilience) are used in all documents but not necessarily in the context of disaster. Disaster resilience appears only 6 times out of 98 words related to resilience in the national documents and 2 times out of 99 words in provincial documents. Even for Semarang and Tegal, the word resilience is applied in various contexts (food, economy, and infrastructure) but not directly address disaster. Hence, the idea of resilience is somehow implied in the documents under the theme of sustainable development. Sustainable development and resilience are mostly applied in the discourse of

food security and economic resilience. Food security is the most frequently-used term likely to have the closest context to resilience. It is in line with national regulation, Law No. 7, 1996 which states that food security is "the fulfilment of food for every community that is reflected from the availability of adequate food, both in quantity and quality, safe, equitable, affordable, and base on the diversity of local resources." This definition is also closely related to the word vulnerability, as it can also be applied to address vulnerability to food and disaster. Economic resilience is applied to address some socioeconomic issues, namely poverty and unemployment.

Even though the term resilience is unlikely to be stated in the context of disaster, disaster is recognized as the major issue mentioned in all documents. There are 300 instances of disaster specified in the Semarang city planning document, which is much higher than the national document, where it is stated only around 150 times. Additionally, it is important to note that Semarang also expanded the discourse on disaster in the context of climate change adaptation while there is still no attention on climate change or climate change adaptation in Tegal City. As elaborated in Reeds et al. [19], the involvement of Semarang city in ACCCRN has led to the programs mainstreamed in the city's policy documents. Following the conversation on disaster, it is also clear that flooding is regarded as a big challenge for all policy levels, including in Semarang and Tegal, as the word flood is mentioned many times; even in Semarang it appears more than 130 times.

Another emerging issue is that spatial planning policies have not accommodated disaster-prone areas and climate change as a critical problem that should be carefully addressed. This is indicated by comparing the related words used in development policy and spatial planning policy. All those words are considered to be related with disaster resilience are used less frequently in spatial planning documents in comparison to development planning documents for all government levels (see Table 2). Though, there are many scholars who have been calling for further attention on the importance of spatial planning to address flood and disaster resilience [7,17,27].

Table 3 further summarizes the articulation of disaster resilience across planning documents across the three different levels of government and between the two cities.

Table 3 Comparing National, Regional, and City Level of Planning Documents

	National	Decienal	L	.ocal
	National	Regional	Semarang	Tegal
Scope of discussion	Disaster (flood) resilience is not explicitly addressed. Resilient/resilience is stated in the context of food security, national security, socio- economic, and cultural aspect. Disaster issues focuson coastal based disasters considering Indonesia as an archipelago country	Flood is an issue to be addressed. However, similar to the national level, the context of resilience/resilient is applied for different aspects, mostly food security and socio-economic resilience.	Flooding is a big issue for Semarang. Even though there are not any explicit statements on disaster resilience, resilience is mentioned in various contexts (similar to national and regional levels), the closest to flood resilience is community resilience to address disaster.	Flooding is not considered a big issue even though it happens several times a year. Resilience is mentioned only in the context of food security.
Strategies	Three main focuses: (1) disaster risk reduction within the framework of sustainable development; 2) reducing vulnerability; 3) enhancing the capacity of government and communities in disaster management.	Role of community appears to be an important theme to address disaster. There are several strategies such as strengthening local institutions and improving local people's knowledge/awareness to address disaster. Thus, it may lead to the concept of disaster resilience.	There are two main strategies: (1) disaster risk reduction through community participation, and (2) infrastructure improvement.	There is not any specific strategy to cope with disaster. The importance of community participation in addressing disaster is only generally mentioned in the long-term development policy.
Programs/ Plans	No specific/explicit statements on flood and/or resilience programs	Infrastructure development/improvement is the program priority. It includes reservoir building and maintenance, river normalization, and coastal area conservation.	There are programs/plans for at (1) infrastructure provision, (2) c environment and land use mana has more adverse flood problem approaches compared to Tegal.	least three different topics: community engagement, and (3) gement. However, since Semarang is, the city has more varied

Local Development Plan Elaboration: Comparing Semarang and Tegal

• Programmes and Budget Allocation

As a big city, Semarang has a much better financial capacity compared to Tegal. As an illustration of 2017, the total development budget for Semarang is US\$340.000, much higher compared to Tegal, which is around US\$190.000. Table 4 displays programs stated in the mid-term planning and government budget executed in 2017 in Semarang and Tegal related to flooding. There are 14 programs listed in Semarang and 7 programs in Tegal. The budget allocated for flood disaster-related programs is 8 percent of the total allocation for Semarang and only 1 percent for Tegal. It is also indicated from the data in Table 4 that Semarang distributes the budget allocation slightly more evenly compared with Tegal.

By examining the name of the programs, it is identified that most of the budget for flood disaster-related programs focus on infrastructure. Flood control has the highest allocation for both cities. Even for Tegal, more than 70 percent of the total budget is allocated only for irrigation development and flood control. There are four actions identified for the flood control program in Semarang. They are constructions of polders, development of a coastal embankment, river normalization, and drainage improvement and maintenance. In Tegal, the actions are similar to Semarang as they include polder, pool retention, and dike construction, river normalization, sea wall development, as well as drainage improvement and maintenance. However, despite the direct infrastructure provision programs, Semarang also allocated a significant amount of its budget to maintain green open space and waste management, and the allocation is much higher compared to Tegal.

Following the foremost action programs in infrastructure provision, a very small amount of budget is allocated for disaster risk reduction and/or disaster management. It is less than 5 percent budget allocation for disaster risk reduction and/or disaster management for both cities. The allocation in Tegal is slightly higher compared to Semarang. It happens that all disaster-related programs in Tegal are the responsibility of the local government, but due to the involvement in the ACCCRN and 100RC program, there is some support from external partners to work together with local government to address flooding in Semarang. The Zurich Flood Resilience Program supported by the Zurich Foundation is recognized as one of the programs conducted in Semarang in 2017 to improve community preparedness in addressing flooding (https://www.acccrn.net/blog/improving-community-preparedness-along-semarang-flood-canal).

		Semarang City				Tegal City			
No	Programmes	Annual Budget		Proportion to mid-year budget		Annual Budget		Proportion to mid-year budget	
	_	\$ (000)	%	\$ (000)	%	\$ (000)	%	\$ (000)	%
1	Drainage channel construction	2,543	8.97	30,711	9	127	9.32	1,837	20
2	Irrigation development and management	2,657	9.37	25,214	17	278	20.40	486	20
3	Flood control	8,516	30.03	43,259	22	731	53.68	5,744	21

Table 4 Programmes and Budget Allocation of Semarang City and Tegal City

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		Semarang City				Tegal City				
No	Programmes	Annual Budget		Proportion to mid-year budget		Annual Budget		Proportion to mid-yea budget		
	_	\$ (000)	%	\$ (000)	%	\$ (000)	%	\$ (000)	%	
4	Drainage improvement and maintainance	1,451	5.12	1,451	100					
5	Land use controlling	148	0.52	776	19			46	20	
6	Spatial planning	998	3.52	941	21	37	2.73	145	20	
7	Green open space management	6,518	22.98	20,759	18	105	7.71	1,264	24	
8	Waste management	4,766	16.81	18,189	18	6	0.41	2,818	31	
9	Pollution control and environmental destruction	456	1.61	1,337	34	28	2.03	537	21	
10	Natural resources protection and conservation	91	0.32	483	19	4	0.30			
11	Climate change mitigation	9	0.03	126	7					
12	Climate change adaptation	27	0.09	142	19					
13	Disaster management	125	0.44	876	14					
14	Disaster prevention and preparedness	55	0.20	486	11	46	3.41	11	20	
	Total	28,36	100			1,361	100			

Note:

1 – 6 under the responsibility of Public Works and Spatial Planning Agency

7 under the responsibility of Housing and Settlement Agency

8 – 12 under the responsibility of Environmental Agency

13 – 14 under the responsibility of Disaster management Agency

Stakeholders involvement •

Fig. 3 further illustrates the responsible agency to execute the programs listed in Table 3. The distribution of responsibility between Semarang and Tegal is similar in general. The Public Works and Spatial Planning Agency have the greatest responsibility to execute the disaster-related programs. Unfortunately, most of the allocation of the program is closer to the area of public works than spatial planning. Even as the responsible agency for the disaster risk reduction program, the Disaster Management Agency has a very small responsibility, indicating lower commitment from the local government to address flooding from the perspective of disaster risk reduction.

A comparison of the number of program and budget allocations is another interesting aspect for further elaboration. As illustrated in Fig. 2, the number of programs under the Public Works and Spatial Planning Agency is less than the budget allocation while in other agencies, the situation is the opposite. This indicates that apart from any programs in the area of infrastructure, the allocated budget for each program is relatively low. To further illustrate, the environmental agency in Tegal is responsible for 40 percent of the total program regarding flooding, but the agency only owns 4 percent of the total budget.

The biggest program of the agency is related to waste and environmental destruction. Considering the amount of the budget, the program may not be able to show a relevant outcome/impact for promoting disaster resilience.





6. Discussion

• Engineering resilience towards socio-ecological resilience

Following the reflection of some development practitioners that aims to mainstream urban resilience into policy [32,33] the planning process is critical to build urban resilience. Fig. 3 illustrates development programmes in Semarang and Tegal to address flood according to different types of resilience and stages implementation developed by some scholars [1,13,14,27,29,34].

	Drainage channel construction					
S	Irrigation development and management					
Ш́	Flood control					
5	Drainage improvement and r	maintenance				
2	Land use controlling					
<	Enact spatial planning docur	nent				
◄	nent					
R	Waste management					
U	Pollution control and environr					
Ŏ	Natural resources protection					
×	*Climate change mitigation (Solar Panel)					
	*Climate change adaptation (Mangrove and Climate Friendly Kampong Development)					
	Disaster management					
	Disaster prevention and prep	aredness				
Chelleri et al. (2015)	Recovery	Adaptation	Transformation			

EAA (2016)	Coping Approach	Surviving/Protecting	Pro-active and Transformative Approach
Folke (2006)	Engineering Resilience 🗕 -		→ Socio-ecological
Davoudi et al. (2012)			Resilience
White and O'hare (2014)	Equilibrist Resilience		Evolutionary Resilience
sevelied calls in Concerns	Cit.	1	I
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Fig. 3 Resilience Related Programmes in Semarang City and Tegal City Based on Resilience Concept

By classifying the programmes into three different stages, it is identified that type of the programmes in Semarang and Tegal can be characterized into either the coping approach or surviving/protecting approach. There is still lack of long-term consideration and framework for transformative action. This is exactly similar to the case of Eko Atlantic City, Nigeria [35] where most of the resilience-related initiatives in the city do not really address the root of the problems in addition to some cases those lead to maladaptation strategies. These findings are also further confirmed by the FGD results which showing that the participants mostly consider that all of the programmes implemented in the cities are likely to be reactive rather than pro-active. The current initiatives are focused on dealing with current problems without further consideration to understand potential future issues. Though, as has been revealed by Kernaghan and SIlva [36], Semarang through the ACCCRN program has been successful in including climate change mitigation and climate change adaptation initiatives (see Fig. 3) which are more transformative.

• Business as usual towards opportunity for better planning mechanism

Another fundamental aspect is the important role of local government [32] as following the decentralization era, the local (city) government contributes a very important role in executing any programmes related to flood mitigation, preparedness, as well as adaptation at the local level. There is an interesting lesson learned from Melbourne [9] on the critical role of vertical and horizontal of regional alliance to address cross-sectoral issues related to operationalizing resilience which need multi-level government involvement and cooperation among local government. In Indonesia, the national government generally provides guidance, while provincial governments focus on the cross-border and outlying coastal areas. The local government is the vanguard that executes direct impacted policies at the local level. However, with the reference of [3] principles to operationalize resilience in urban policy, there are no established mechanisms for good coordination among different level of government and to ensure that integration principles applied in Semarang and Tegal. As concerning on flood, further integration is needed mostly related to river management. As stated in Law No. 23 2014 on Local Government, there are distributed responsibility on all matters related to river. Floods that flow from upstream to downstream areas are likely to across different administrative boundaries of local government, and sometimes also provincial government. Accordingly, high levels of cooperation are required to manage the river among the local or provincial government.

There are some interesting findings from the FGD confirming the challenge of integration in operationalizing the resilience principles:

- Disaster management agency has an initiative to establish local preparedness group so called KSB (*Kelompok Siaga Bencana*), similar program also initiated by Provincial Red Cross Organization (PMI)

called community-based preparedness group or SIBAT (*Siaga Bencana Berbasis Masyarakat*). It seems like each agency develop similar activities without communication each other.

- The problem in infrastructure provision is also interesting. From the FGD, it is found out that some initiative leads by Public Works Agency to elevate roads those are prone to flood is then not really effective because it will cause flood in other roads section. The problems become more complicated because there are also a lot of local initiative from the community to elevating the road which are not coordinated each other so it is like road elevation competition.
 - River management and land use planning is also regards as a big challenge as it requires a strong coordination of the government in the upstream area and in the downstream area. As the river is located across administrative boundaries, the involved government stakeholders are also included the Provincial Government of Central Java and also National Government.

Following the integration issue, there is not also a consideration on equity principle yet to ensure the programme has addressed the targeted vulnerable people/area. The equity-related issue can be also indicated from the budget allocation as the responsibility of the programmes implementation is also not distributed proportionally in line with the role and responsibility for each agency. It is found out from the FGD that due to the establishment of new national regulation (i.e. Government Regulation No. 18, 2016) regarding role of agency in local level, there is also changes on responsibility in executing particular programme. Previously, public works, water management, and spatial planning established separately as a single agency with specific responsibility. Following the establishment of the new regulation on new government structure, they are now merge into one agency and therefore, has less authorities and fewer responsibilities to execute such programme meanwhile, as stated clearly in the mid-term planning (RPJMD), flood is a priority problem to be addressed in both cities (Semarang and Tegal) that needs appropriate level of authority and indeed, require greater responsibility.

Despite all the emerging discourse, budget should be taken into account as the biggest concern and therefore, program prioritization is very important as most of the actions is very much depend on the government budget. Accordingly, programmes execution which are likely to be more environment rather than economic is not popular as economic problem is still taken as the greatest concern for cities in developing regions like Central Java. Taken into account consideration of environmental and economic value, there has been so far, the most common program that has been accommodate both values are waste bank program. the FGD participants acknowledge waste bank program initiated by the environmental agency in both cities (Semarang and Tegal) as a good example. Waste is regard as a big contributor to flood as there are a very significant amount of garbage found in the river. People need to be educated not to throw garbage into the river. Through the waste bank program, local people are trained to manage the garbage so it has economic value by using the 3R principles (Reuse, Reduce, and Recycle).

7. Conclusion

This study has shown the complexity of operationalizing resilience particularly to address flood disaster in two different cities in Central Java. The content analysis result has revealed that resilience is not a terminology commonly applied for disaster-related context even though, it is very clear that disaster mainly flood is a big issue that require a lot of concern for the case of Semarang and Tegal. Following previous studies of disaster resilience, many literatures suggest that the operationalization of disaster

resilience should be integrative and comprehensive, require both, short-term actionable initiative and also needs long-term and transformative framework. The scope of initiative is also multidisciplinary and therefore, it involves different agencies with various scope of intervention. Thus, horizontal and vertical coordination is very important.

Acknowledgement

We would like to express our gratitude to Diponegoro University and the Director General of Higher Education, Ministry of Research and Technology Indonesia for funding this research. We would also like to thank the government of Semarang and Tegal for the data and shared information they provided during the survey period.

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2. Editor Decision – 1: Revision Required (3 Reviewers)



IJDRR Revision requested for IJDRR_2018_483

5 messages

Sébastien Penmellen Boret (International Journal of Disaster Risk Reduction)

16 July 2018 at 10:47

<EviseSupport@elsevier.com> Reply-To: sebastien.boret@icloud.com To: wiwandari.handayani@pwk.undip.ac.id

Ref: IJDRR_2018_483 Title: Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia Journal: International Journal of Disaster Risk Reduction

Dear Dr. Handayani,

Thank you for submitting your manuscript to the International Journal of Disaster Risk Reduction. The review of your paper is now complete and a summary is appended below. The referees suggest that your paper needs substantial revision. Therefore I invite you to address all their comments and submit a revised manuscript.

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I look forward to receiving your revised manuscript as soon as possible.

Kind regards,

Dr Boret Associate Editor International Journal of Disaster Risk Reduction

Comments from the editors and reviewers: -Reviewer 1

-

1. The authors did not describe the frequency and losses of flood disasters in two cities, so it is impossible to judge whether the policy and budget are reasonable.

2. Resilience is a comprehensive concept. In the findings, the authors did not integrate analysis of the resilience and describe it effectively.

3. The author's conclusion is too general and lack of details. It is suggested that the author conclude his own conclusions based on the detailed analysis of two cities.

-Reviewer 2

-

there are some suggestions as follows:

1. In the abstract, it write 'examination of operationalization through development plans, programs, and budgets in Indonesian cities.' Then, the next sentence, 'Therefore, in an effort to connect global commitments to local action, this paper examines local development plans', also in the paper, it include the programs and budgets parts, all three aspects are important for the connecting to global. Or do you mean the programs and budgets belong to the development plans, in a sub level.

2. In the abstract, it shows the purpose of this paper is to find the connection between global and local - from national, regional and local, but it is hard to find the relationship among national, regional and local, if consider it is a network.

3. The finding shown in the abstract should be the relationship, include cooperation and integration of the different levels of government agencies, no how many plans or programs find in the local level.

4. The operationalization should be one of the keyword

5. Conception of resilience is very important, but not the only key point of this paper. The definition of resilience, urban resilience, disaster resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative.

6. It looks strange in table 2 and 3, in the national level, there is such less number of disaster resilience, since flooding and tsunami are the serious disasters in Indonesia and the 100RC is from 2013.

7. The BNPB publish a report every two years about the 'National progress report on the implementation of the Hyogo Framework for Action' from 2007, I do not know if these relative to your research, based on

-Reviewer 3

This paper provides a content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia. The aim of this content analysis is to operationalise a resilience approach and therewith contribute to the wider literature on resilience. This is a relevant and timely topic and it is my impression that the authors have valuable empirical material at their disposal. However, I have several issues with the paper as it currently stands which point to the need for revision.

First, in terms of literature, the authors do refer to key papers including those of Folke and Davoudi. However, they seem to overlook more specific literature that has tried to operationalise and specify the resilience concept. These papers might be of interest:

Wardekker, J.A., de Jong, A., Knoop, J.M., van der Sluijs, J.P. Operationalising a resilience approach to adapting an urban delta to uncertain climate changes (2010) Technological Forecasting and Social Change, 77 (6), pp. 987-998.

Hegger, D.L.T., Driessen, P.P.J., Wiering, M., Van Rijswick, H.F.M.W., Kundzewicz, Z.W., Matczak, P., Crabbé, A., Raadgever, G.T., Bakker, M.H.N., Priest, S.J., Larrue, C., Ek, K. Toward more flood resilience: Is a diversification of flood risk management strategies the way forward? (2016) Ecology and Society, 21 (4), art. no. 52.

Both papers try to unpack the notion of resilience and specify it to the context of delta cities and floods respectively. The authors can use these and related papers to give a more complete overview of the resilience debate in section 2 and to relate their findings back to that debate in their discussion.

Second, the paper's line of argumentation needs to be improved. The authors need to be more explicit about the steps taken in the paper. Some specific suggestions:

-In the introduction, try to formulate a research aim and main research question. The research aim seems to be to contribute to literature and practice of resilience by making a content analysis of disaster policies in Central Java, Indonesia. The introduction needs to write explicitly what the latter (making the content analysis) could possibly contribute to the former (contributing to literature and practice). I suggest to end the introduction with an overview of the steps that will follow. Write explicitly what each section is going to contribute to reaching a conclusion.

-section 2: as written before, the literature review needs to be expanded. Furthermore, the review should culminate in a more explicitly formulated analytical framework. Try to end with a figure, table, list of bullets (I have no preference for a specific mode of presentation) that shows the reader at one glance what you are going to look for in the empirical material and why.

-methods: try to build up the methods according to more formal methodological terms that explicate why your content analysis is valuable. For instance, write down what your unit of analysis is – policies in two coastal cities in Java. Why is this an interesting unit of analysis? What will studying this contribute to global debates? Next, explicate what your research objects are: policy documents, of which you have studied the content. Why are these policy documents a good way to study your unit of analysis (and what are limitations, since this is mainly desk research)? Then you can explicate how you collected and selected the documents (data collection). Finally, you need to write more explicitly how you analysed the data and how the framework developed in section 2 provided you with the guidance for this. Consider using terms like 'unit of analysis', 'research objects', 'data collection' and 'data analysis' as headings. This will help the reader to understand how the steps that you took will logically lead to a sound conclusion.

-findings: unless I overlooked something, the structure that was used to present the findings comes a bit out of the blue. The findings section has headings such as 'budget allocation', 'stakeholder involvement' etc. These have not been explicitly introduced (e.g. in your framework or methods) as important categories that you will look at. I would expect the findings to have a structure that is in line with the framework introduced in section 2, for instance: indicators of an engineering resilience approach vs. indicators of an ecological resilience approach. I am not suggesting that this is the only way to structure the results, but in any case the structure should be more explicitly connected to what you discussed in previous sections.

-discussion: there is a discussion of the results. But these results need to be connected more explicitly to existing literature. Try to be more explicit about whether your findings are new, or whether they corroborate or contradict what others have written. You also need to give a critical reflection on your own research (strengths and limitations) and suggest next research steps.

So to summarize, I think that the paper is potentially interesting. However, its embedding in existing literature needs to be strengthened and the overall logic of the line of argumentation needs to be brought out much more explicitly. If the authors manage to address these issues, I trust that this paper provides a valuable contribution to the literature.

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Wiwandari Handayani <wiwandari.handayani@pwk.undip.ac.id> To: Dolores Foley <dolores@hawaii.edu>, micahrf@hawaii.edu 17 July 2018 at 04:42

Dear Bu Dolores and Micah,

I forward comments/inputs from the reviewers for the IJDRR paper. Please let me know your thought, I will try to improve the paper as soon as possible.

Best, Wlwiek [Quoted text hidden]

Wiwandari Handayani <wiwandari.handayani@pwk.undip.ac.id> To: Admin Lab Wilayah <lab.wilayah@pwk.undip.ac.id> 17 July 2018 at 10:56

------ Forwarded message ------From: Sébastien Penmellen Boret (International Journal of Disaster Risk Reduction) <EviseSupport@elsevier.com> Date: 2018-07-16 10:47 GMT+07:00 Subject: IJDRR Revision requested for IJDRR_2018_483 To: wiwandari.handayani@pwk.undip.ac.id

[Quoted text hidden]

Micah Fisher <micahrf@hawaii.edu> To: wiwandari.handayani@pwk.undip.ac.id Cc: Dolores Foley <dolores@hawaii.edu>

Hi Ibu Wiwiek,

This is great news. Congrats on getting an initial acceptance. I think addressing reviewer 1 and 2 will be quite easy, but I think reviewer 3 is posing some more challenging questions. This reviewer provides some really strong comments to consider and I believe it will really help to improve the manuscript.

I suggest going through each of the comments one by one as a basis to begin redrafting the paper. Once you make an initial draft of edits I would be happy to take a look and provide additional improvements.

Thanks,

Micah [Quoted text hidden]

Micah Fisher <micahrf@hawaii.edu> To: wiwandari.handayani@pwk.undip.ac.id Cc: Dolores Foley <dolores@hawaii.edu>

Reviewer comments [Quoted text hidden] 19 July 2018 at 23:24

12 August 2018 at 08:15



IJDRR Revision Requested - IJDRR_2018_483 for International Journal of Disaster Risk Reduction

1 message

International Journal of Disaster Risk Reduction <EviseSupport@elsevier.com> Reply-To: ijdrr@elsevier.com 6 September 2018 at 13:23

To: wiwandari.handayani@pwk.undip.ac.id

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Ref: IJDRR_2018_483 Title: Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia Journal: International Journal of Disaster Risk Reduction

Dear Dr. Handayani,

On 15/Jul/2018 I sent the above-referenced request for your manuscript, and would kindly like to remind you to respond to this request by 13/Sep/2018.

To view the request, log into EVISE® at: http://www.evise.com/evise/faces/pages/navigation/NavController.jspx? JRNL_ACR=IJDRR and click on the title of your manuscript, located under 'My Author Tasks' on your homepage. Complete the required steps and submit the manuscript.

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Kind regards,

International Journal of Disaster Risk Reduction

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IJDRR Revision Requested - IJDRR_2018_483 for International Journal of Disaster Risk Reduction

1 message

International Journal of Disaster Risk Reduction <EviseSupport@elsevier.com> Reply-To: ijdrr@elsevier.com 13 September 2018 at 13:21

To: wiwandari.handayani@pwk.undip.ac.id

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Ref: IJDRR_2018_483 Title: Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia Journal: International Journal of Disaster Risk Reduction

Dear Dr. Handayani,

On 15/Jul/2018 I sent the above-referenced request for your manuscript, and would kindly like to remind you to respond to this request by 13/Sep/2018.

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Kind regards,

International Journal of Disaster Risk Reduction

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3. 1st Revised Version Submitted



IJDRR Received revision IJDRR_2018_483_R1

1 message

International Journal of Disaster Risk Reduction <EviseSupport@elsevier.com> Reply-To: ijdrr@elsevier.com 13 September 2018 at 18:48

To: wiwandari.handayani@pwk.undip.ac.id

This message was sent automatically. Please do not reply.

Ref: IJDRR_2018_483_R1 Title: Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia Journal: International Journal of Disaster Risk Reduction

Dear Dr. Handayani,

Thank you for submitting your revised manuscript for consideration for publication in International Journal of Disaster Risk Reduction. Your revision was received in good order.

To track the status of your manuscript, please log into EVISE® http://www.evise.com/evise/faces/pages/navigation/ NavController.jspx?JRNL_ACR=IJDRR and locate the submission under the header 'My Submissions with Journal' on your 'My Author Tasks' view.

We appreciate your submitting your revision to this journal.

Kind regards,

International Journal of Disaster Risk Reduction

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Manuscript Details

Manuscript number	IJDRR_2018_483_R1
Title	Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia
Article type	Research Paper

Abstract

Global concern has sought to connect resilience with the field of disaster risk reduction, which was prominent in the Hyogo Framework for Action (2005–2015) and updated in the Sendai Framework for Disaster Risk Reduction (2015–2030). However, defining disaster risk reduction and resilience as policy goals geared towards reducing vulnerability and minimizing risk requires a closer examination. This research examines the operationalization of resilience in programs and budgets of development plans in Indonesian cities. This paper investigates the documentation of planning policies in the Indonesian context, examining National to local level efforts. The research specifically analyzes case studies at two cities, Semarang and Tegal, and highlights how these sites have accommodated the term resilience to address flooding. The scope of the research focuses on flooding as it is the most commonly experienced hazard across Indonesia. Content analysis is applied to assess identified planning documents. The content analysis is further verified through focus group discussions among key stakeholders. Findings indicate that there are fourteen areas of plans/programs in terms of reduced exposure to hazards, lessened vulnerability of people and property, improved management of land and the environment, and improved preparedness to address flooding in the two selected cities. The elaboration of resilience-related programmes provides important lessons that operationalizing resilience should be integrative and comprehensive, and require both short-term actionable initiative(s) and long-term transformative frameworks.

Keywords	Resilience, Operationalizing Resilience, Flood, Disaster Risk Reduction, Central Java
Corresponding Author	Wiwandari Handayani
Corresponding Author's Institution	University of Diponegoro
Order of Authors	Wiwandari Handayani, Micah Fisher, Iwan Rudiarto, Jawoto Setyono, DOLORES FOLEY

Submission Files Included in this PDF

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Response to reviewers IJDRR_flood resilience.docx.pdf [Response to Reviewers]

Operationalizing flood resilience_full paper_revised final.docx [Manuscript File]

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Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia

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Corresponding Author:

Wiwandari Handayani

Response to comments from the editors and reviewers

Thank you so much for all the valuable comments/inputs. They have been very useful in helping us improve the manuscript. We provide our explanations and revisions to the paper based on the following explanations.

Reviewer 1

	Comments	Explanation
1.	The authors did not describe the frequency and losses of flood disasters in two cities, so it is impossible to judge whether the policy and budget are reasonable.	We have now explained in the section entitled "Case Study Sites", particularly line 253-256.
2.	Resilience is a comprehensive concept. In the findings, the authors did not integrate analysis of the resilience and describe it effectively.	The findings are now explained based on 4 research questions (line 96-104). The research question is now framed as the following: (1) to what extent are planning policies accommodating the terms resilience to address flooding in planning documents? (2) How are they connecting local action with global, national, and regional priorities? (3) what kind of resilience approaches are applied in the proposed programs? Could such approaches be categorized as a transformative resilience approach geared towards a long-term perspective or are they more re-active and of shorter-term orientation? Finally, (4) what are the important lessons for future planning policies and how can they be geared towards a more holistic resilience orientation? We have also made significant changes to the framework based on our literature review on disaster resilience (Figure 1). This now
3.	The author's conclusion is too general and lack of details. It is suggested that the author conclude his own conclusions based on the detailed analysis of two cities.	We have re-structured and added more detailed statements in the conclusion. Please see the revisions now included in that section.

Reviewer 2

	Comments	Explanation
1.	In the abstract, it writes 'examination	Thank you for highlighting this point. We have
	of operationalization through	thoroughly addressed this issue throughout the paper.
	development plans, programs, and	Indeed the programs and budgets we examine in the
	budgets in Indonesian cities.' Then,	case studies belong to sub-national development plans.
	the next sentence, 'Therefore, in an	However, we have now clarified this point in the

	effort to connect global commitments	abstract, and in the section on research methods
	to local action, this paper examines	(particularly line 244-245). We engage in the case
	local development plans', also in the	studies to also make a broader point about global
	paper, it includes the programs and	initiatives. We hope that the current version clearly
	budgets parts, all three aspects are	articulates this point. Also see the notes in Figure 1.
	important for the connecting to	
	global. Or do you mean the programs	
	and budgets belong to the	
	development plans, in a sub level.	
2.	In the abstract, it shows the purpose	We have significantly re-arranged the structure of the
	of this paper is to find the connection	paper. The paper is now developed based on 4
	between global and local - from	questions, as noted above. We have also changed the
	national, regional and local, but it is	explanation in the abstract.
	hard to find the relationship among	
	national, regional and local, if consider	We have also highlighted additional points in the
	it is a network.	findings section to explain how global commitments are
3.	The finding shown in the abstract	followed up in Indonesia, and also influence planning
	should be the relationship, include	efforts in Semarang and Tegal.
	cooperation and integration of the	
	different levels of government	
	agencies, no how many plans or	
	programs find in the local level.	
4.	The operationalization should be one	Thank you. We have included this as one of our
	of the keywords	keywords.
5.	Conception of resilience is very	We believe that Figure 1 now provides a better
	important, but not the only key point	explanation about this point. We have also added
	of this paper. The definition of	several additional text that responds to this point. On
	resilience, urban resilience, disaster	the one hand we have clearly explained in more depth
	resilience, look like both described in	our conceptualization of resilience. Furthermore, we
	resilience, look like both described in the first and second chapters. The	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our
	resilience, look like both described in the first and second chapters. The conception of resilience is not clear	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related
	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives.
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	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives.
	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives.
	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives.
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	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative.	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives.
6.	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative.	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives.
6.	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative. It looks strange in table 2 and 3, in the national level, there is such less	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives. We agree and have considered this point in our changes. This fact is one element that emerges in the
6.	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative. It looks strange in table 2 and 3, in the national level, there is such less number of disaster resilience since	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives. We agree and have considered this point in our changes. This fact is one element that emerges in the results of our content analysis. We have included this
6.	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative. It looks strange in table 2 and 3, in the national level, there is such less number of disaster resilience, since flooding and tsunami are the serious	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives. We agree and have considered this point in our changes. This fact is one element that emerges in the results of our content analysis. We have included this point as one of our concerns as well
6.	resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative. It looks strange in table 2 and 3, in the national level, there is such less number of disaster resilience, since flooding and tsunami are the serious disasters in Indonesia and the 100PC is	our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives. We agree and have considered this point in our changes. This fact is one element that emerges in the results of our content analysis. We have included this point as one of our concerns as well.
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report on the implementation of the	
Hyogo Framework for Action' from	
2007, I do not know if these relative to	
your research, based on the table 1, I	
think these maybe useful.	

Reviewer 3

General comment:		
This paper provides a content analysis of flood disaster planning in two coastal cities of Central Java,		
Indonesia. The aim of this content analysis is to operationalise a resilience approach and therewith		
cont	ribute to the wider literature on resilience. This	s is a relevant and timely topic and it is my
impi	ression that the authors have valuable empirica	l material at their disposal. However, I have
several issues with the paper as it currently stands which point to the need for revision.		
	Detail Comments	Explanation
1.	First, in terms of literature, the authors do refer to key papers including those of Folke and Davoudi. However, they seem to overlook more specific literature that has tried to operationalise and specify the	Thank you so much for recommending this additional literature to us. We have added included these papers in different parts of the paper, mostly in the 1 st (introduction) and 2 nd (defining resilience) parts of the paper. This
	resilience concept. These papers might be of interest:	allowed us to situate resilience as a term in more effective ways.
	Wardekker, J.A., de Jong, A., Knoop, J.M., van der Sluijs, J.P. Operationalising a resilience approach to adapting an urban delta to uncertain climate changes (2010) Technological Forecasting and Social Change, 77 (6), pp. 987-998.	We hope that the paper, in its current form, now address the various debates in defining resilience, as well as the broader point we are trying to make about operationalizing resilience. We hope that our analysis, and particularly the case studies provide greater depth and reach to these conceptual debates relative to their real
	Hegger, D.L.T., Driessen, P.P.J., Wiering, M., Van Rijswick, H.F.M.W., Kundzewicz, Z.W., Matczak, P., Crabbé, A., Raadgever, G.T., Bakker, M.H.N., Priest, S.J., Larrue, C., Ek, K. Toward more flood resilience: Is a diversification of flood risk management strategies the way forward? (2016) Ecology and Society, 21 (4), art. no. 52.	applications.
	Both papers try to unpack the notion of resilience and specify it to the context of delta cities and floods respectively. The authors can use these and related papers to give a more complete overview of the resilience debate in section 2 and to relate their findings back to that debate in their discussion.	

2.	Second, the paper's line of argumentation	We have tried very hard to work on structure
	needs to be improved. The authors need to	and line of argument and have accordingly made
	be more explicit about the steps taken in	various changes to the paper.
	the paper. Some specific suggestions:	
2a.	In the introduction, try to formulate a	We have added a set of key research questions
	research aim and main research question.	and have more closely sought to respond to
	The research aim seems to be to contribute	these research questions throughout the paper.
	to literature and practice of resilience by	We have included more explanation about the
	making a content analysis of disaster	content analysis as it relates the formulation of
	policies in Central Java, Indonesia. The	this broader question. We have also included a
	introduction needs to write explicitly what	section that breaks down the content of each of
	the latter (making the content analysis)	the sections to help to signpost and guide the
	could possibly contribute to the former	reader through the density of the paper – both in
	(contributing to literature and practice). I	terms of the discussion on resilience as well as
	suggest to end the introduction with an	the more richer case study analysis in the paper.
	overview of the steps that will follow. Write	
	explicitly what each section is going to	
	contribute to reaching a conclusion.	
2b.	section 2: as written before, the literature	Thanks for this suggestion. We have expanded
	review needs to be expanded. Furthermore,	the literation review. We have also created a
	the review should culminate in a more	more explicit analytical framework with a clear
	explicitly formulated analytical framework.	articulation of concepts, as suggested (figure 1).
	Try to end with a figure, table, list of bullets	We hope this now provides the clarity you had
	(I have no preference for a specific mode of	intended in this comment.
	presentation) that shows the reader at one	
	glance what you are going to look for in the	
	empirical material and why.	
2c.	methods: try to build up the methods	We believe the methods section is now much
	according to more formal methodological	Improved and responds to these very helpful
	terms that explicate why your content	suggestions. We have divided the methods
	analysis is valuable. For instance, write	section into several sub-parts to nelp achieve this
	down what your unit of analysis is – policies	goal, which include: (1) content analysis, (2) data
	in two coastal cities in Java. Why is this an	collection and analysis), and (3) case study sites
	studying this contribute to global debates?	
	Next explicate what your research chiests	
	are: policy documents, of which you have	
	studied the content. Why are these policy	
	documents a good way to study your unit of	
	analysis (and what are limitations, since this	
	is mainly desk research)? Then you can	
	explicate how you collected and selected	
	the documents (data collection). Finally, vou	
	need to write more explicitly how you	
	analysed the data and how the framework	
	developed in section 2 provided you with	
	the guidance for this. Consider using terms	
	like 'unit of analysis', 'research objects',	

	'data collection' and 'data analysis' as headings. This will help the reader to	
	logically lead to a sound conclusion.	
2d.	logically lead to a sound conclusion. findings: unless I overlooked something, the structure that was used to present the findings comes a bit out of the blue. The findings section has headings such as 'budget allocation', 'stakeholder involvement' etc. These have not been explicitly introduced (e.g. in your framework or methods) as important categories that you will look at. I would expect the findings to have a structure that is in line with the framework introduced in section 2, for instance: indicators of an engineering resilience approach vs. indicators of an ecological resilience approach. I am not suggesting that this is the only way to structure the results, but in any case the structure should be more explicitly connected to what you discussed in provious eactions	We have now developed the findings based on the research questions. As for the discussion in Table 5, this is based on the typology explained in Figure 1.
2e.	discussion: there is a discussion of the results. But these results need to be connected more explicitly to existing literature. Try to be more explicit about whether your findings are new, or whether they corroborate or contradict what others have written. You also need to give a critical reflection on your own research (strengths and limitations) and suggest next research steps. So to summarize, I think that the paper is pote existing literature needs to be strengthened a needs to be brought out much more explicitly trust that this paper provides a valuable contra-	We hope that the resultant Table 5 may provide a better illustration that links the literature to the findings and discussion sections. There are also additional paragraphs in the discussion and conclusion section that speak to this point. We put some explanation to indicate the corroborate and contradict with other papers. For example, line 454-457 and line 506-509. Entially interesting. However, its embedding in nd the overall logic of the line of argumentation . If the authors manage to address these issues, I ibution to the literature.
2 Operationalizing resilience: A content analysis of flood disaster planning in two 3 coastal cities in Central Java, Indonesia

5 Abstract

Global concern has sought to connect resilience with the field of disaster risk reduction, which was prominent in the Hyogo Framework for Action (2005-2015) and updated in the Sendai Framework for Disaster Risk Reduction (2015-2030). However, Edefining disaster risk reduction and resilience as policy goals geared towardsto reducinge vulnerability and minimizinge risk requires a closer examination. of This research examines operationalization of resilience through in programs and budgets of development plans including the, programs, and budgets in Indonesian cities. Therefore, , in an effort to connect global commitments to local action, this paper examines local development plans (i.e., RPJP, RPJMD, and RKPD) in two coastal cities in Central Java: Semarang and Tegal. tThis paper investigates the documentation of planning policies in the Indonesian context, examining from National to local level efforts. The research (locus on Semarang and Tegal) to understand specifically how the analyzes case studies at two cities, Semarang and Tegal, and highlights how these sitesdocuments- have accommodated the term of resilience to address flooding., how they are connected, and what are the proposed program to provide lessons for future planning policies in Indonesia. The scope of the research focuses on flooding as it is the most commonly experienced hazard across Indonesia. Content analysis is applied to assess the corresponding identified planning documents. The content analysis is further verified through focus group discussions among key stakeholders. Findings indicate that there are fourteen areas of plans/programs in terms of reduced exposure to hazards, lessened vulnerability of people and property, improved management of land and the environment, and improved preparedness for adverse events that to address flooding in the two selected cities under the responsibility of four local agencies. The elaboration of the resilience-related programmes provides important lessons that operationalizing resilience should be integrative and comprehensive, and require both short-term actionable initiative(s) and long-term transformative frameworks.

Keywords: Resilience, Operationalizing Resilience, Flood, Disaster Risk Reduction, Central Java

1. Introduction

Resilience is an emerging terminology discussed across various perspectives, and its meaning continues to be interpreted, re-interpreted, and contested. Because of its complexity, Davoudi et al. [1] believe that resilience will be no more than another "buzzword" if the definition is not clarified and put in the right context. Meerow et al. [2] and Jabareen [3] further highlight the ways that resilience is a multifaceted term, that is characterized in differently ways depending on the discipline. Urban resilience appears as offers one important emerging study areadiscourse as more people live in urban areas, and that much of the gap to meet resilience will occur among medium sized cities, across the Asia-Pacific region-in-the current decade [4,5]. Scholars also emphasize the importance of defining urban resilience comprehensively, which is done in an integrative approach to accommodate urban complexity.

Despite the continuing interest in resilience and the continuing conversation about its definition, there are global movements seeking to convey urban resilience for policy mainstreaming. Therefore, repeated calls are being made—especially among administrators who must implement resilience plans—to be more practical in implementation. Beginning in 2008, the Asian Cities Climate Change Resilience Network (ACCCRN) provided groundbreaking work to bring resilience into the global conversation in the context of climate change and the-promoting efforts for climate adaptation approach. ACCCRN has developed a framework to promote urban resilience through an inclusive process involving government, communities, and other stakeholders to empower people and member cities (https://www.acccrn.net/about-acccrn). Following the establishment of the ACCCRN program in 10 Asian countries, in 2013, the Rockefeller Foundation also established the 100 Resilient Cities (100RC) program to promote urban resilience in a more comprehensive way by providing a framework for resilience. The foundation's approach presented a lens to examine the major drivers of vulnerability, which is called the blue wheel, providing an impetus for member cities across the world to become more resilient (http://www.100resilientcities.org/about-us/). The Hyogo Framework for Action 2005–2015 [64] and Sendai Framework for Disaster Risk Reduction 2015-2030 [75] have connected the importance of resilience to-with disaster risk reduction. The frameworks introduce disaster resilience as a global commitment. In Indonesia, global action is interpreted and enacted through the establishment of the Indonesian National Board for Disaster Management (INBDM) at the national level, and, in turn, regionally as Disaster Management Boards (DMB). Since 2007, INBDM presents publishes a National Progress Report on the Implementation of the Hyogo Framework for Action in Indonesia every two years since 2007.

-In the Among global disaster resilience frameworks, resilience is defined as the capacity or ability of a system, community, or society exposed to hazards to be able to adapt and recover in the minimum possible time [64]. Accordingly, Forino et al. [6] further_some scholars conceptualize disaster resilience as any adaptation approach to address emerging hazards or initiatives that seek to reduce high-risk areas and activity_address_on_disaster recovery_[8,96,107,118_Chelleri, EAA/Lonsdale]. Focusing on flood resilience, Hegger et al. [129](2016) has translated the disaster resilience by combining Flood Risk Management (FRM) principles with particular forms of capacity.

As-In an effort to reinforce the implementation of resilience initiatives/plans, some scholars develop a conceptual framework showing that urban governance is an elementary aspect that requires further reference investigation [2,3,13107]. Urban governance is suggested as the mechanism to for managinge urban resilience because it encompasses any determination efforts to improve quality of life, spatial organization, environmental management, and economic activity [1418]. Urban governance concepts may include the decision-making process, inclusivityeness, and collaboration to address the resilience challenges. Accordingly, urban policy serves as a guidance to for understand translating the governance principles aspect in of resilience, and therefore, can is very important and influencetial approaches for to creatinge a resilient city.

Nevertheless, some studies show evidence of challenges in addressing disaster resilience in development planning policies. Moloney and Fünfgeld [1529] revealed the important role of local government in their examination of multi-level climate governance and adaptive capacity building in Melbourne, Australia. River et al. [1963] investigated policy integration as critical for disaster management in Nicaragua. Based on the study in Shah Alam City in Malaysia, Khailani and Perera [1741] revealed a proposition to improve the capacity of local authorities, including elements engaging local communities; to promote disaster

resilience. Focusing on disaster management, Madan and Routray [1285] also did a study on Delhi, India, and reached a similar conclusion as Khailani and Perera [1741], to focus on building key capacities. However, there is still a lack of studies on the amalgamation of disaster resilience into planning policies, mainly-particularly in Asian countries. Some research has elaborated resilience approaches to be more operationalized. Wardekker et al. [196], in which they (2010) examineds how local actors in Rotterdam appliedy resilience principles to discuss-shape policy discussions and develop options for maintaining delta areas those that are prone because of to emergent effects from climate change. Hegger et al. [129](2016) operationalizes the term-of "flood resilience" and links that-it with Flood Risk Management (FRM) approaches in some European Countries. The limited research available has used-utilized content analysis as a way to investigate examine particular policies related to resilience, climate change adaptation, and disaster resilience. Torabi et al. [20173] examined two-local government policies in two cities in Australian cities. Forino et al. [6] have also unpacked development policies in-among three Australian local governments. In the UK, White and Richards [21184] have elaborated on the link between planning policy and flood risk at the national and local levels, and Chmutina et al. [22195] further examined 30 policy documents in the country to understand how resilience is understood, and what kind of actions are executed to make areas within the nation becoming more resilient.

Considering the critical role of urban policies to promote resilience in disaster risk reduction and resilience as a policy goals to reduce vulnerability and minimize risk compels us to more closely examine the operationalization of resilience policies among development plans, including features present among the, programs, and budgets, and the responsible agencies in Indonesian cities. There are four main research questions: (1) to what extent are the planning document planning policies have accommodatinged the terms of resilience to address flooding in planning documents? (2) How are they are connecting local actioned with from global, national, and regional priorities, to local action? (3) what kind of resilience approaches are applied in the proposed programs? Could that such approaches be categorized as a transformative resilience approach with geared towards a long-term perspective or it is just a are they more re-active and of shorter-term orientation?- And Finally, (4) what are the important lessons for future planning policies and how can they be geared towards a those are sounds more holistic resilience orientation?, The research aim is to contribute to literature and practices of resilience by making a content analysis of disaster policies in Central Java, Indonesia. Therefore, iln an effort to connect global commitments to local action, this paper examines local development plans in two coastal cities in Central Java: Semarang and -Tegal. This paper also investigates Another benefit of this analysis is the overall examination of how local commitment _— is connected to regional and national policies and priroities priorities. Accordingly, we focus the unit of analysis of the research is the policy document from national to local level.

Semarang represents a metropolitan city area that has been engaging in with global networks efforts to promote resilience, such as which include the ACCCRN network and 100RC programs. Tegal, on the other hand, is a medium-sized city that has grown rapidly in recent years despite the area being prone to flooding. Unlike Semarang, Tegal has never engaged in collaborative work with external partners to address flooding in the city. All programs related to flooding in Tegal are the responsibility of government at the local, provincial, and national levels. As noted, the scope of this research revolves around the examination ofes flooding as the most commonly experienced hazard. In line with outline of local development planning documents in Indonesia, T there are three basic elements to cover in-with regard

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to examining flood management policies: i) the scope of the programs, ii) budget allocation, and iii) the
role of government, including its capacity to expand collaboration.

This paper is organized into seven sections. Section 1 is provided an introduction to provide some context and rationale for the study. Section 2 elaborates the definition and developing framework of resilience as the theoretical background of the study, mostly in the context of urban resilience and disaster resilience. Section 3 describes types of development planning policies in Indonesia, to comprehend the documents providing context for framing those are used in the content analysis. Section 4 briefly explains the content analysis method including a list of the examined documents from National, Regional, and Local levels. Section 5 presents some findings, including the results of the content analyses. and This includes further examination on the local development plans followed by a discussion in section 6 onf operationalizing resilience and its-their connections from between the global to local level in the following section. Section 7,-In the finallast section the paper concludes with some remarks concerning on how the global commitments turn are into some operationalized into resilience actions in the at local levels, as well as key areas that that other contexts might learn from.

143 2. Defining Resilience, Urban Resilience, and Disaster Resilience

Developing interests in the resilience concept have led to various definitions of the term. Meerow et al. [2] for example, reveal that there are at least 25 definitions of resilience from different disciplines. In the initial resilience definition and application to socio-ecological systems, C.S. Holling [23016] applied a framing of socio-ecological systems, defininged resilience as the ability of a system to "bounce back" to face-from a disturbance. However, mostly in the context of urban resilience, the capacity to bounce back is not as simple as the ability to return to equilibrium in addressing a disturbance., but it-Indeed the may also cover recovery process highlights how the capacity of a system to might persist or maintain inherent vulnerabilities, and thus present the possibilities of or to-reaching a new threshold when it experiences relative to a disturbance. Davoudi et al. [1] have differentiated the resilience concept into two categories: "engineering resilience;" and, "ecological resilience." Engineering resilience is rooted in Holling's [23016] classic definition of resilience and focuses on a singular situation of equilibrium, while ecological resilience may capture multiple equilibrium situations non-static definition of equilibrium.

The urban planning system is comprised of ever-changing inter-related components. White and O'Hare [24117] further differentiate resilience in the planning perspective to incorporate into two main terms, namely, "equilibrist resilience" and "evolutionary resilience." Equilibrist resilience is similar to Holling's interpretation taken from engineering resilience, which aims to achieve a pre-existing normality, characterized as techno-rational, shorter term, and reactive. <u>e</u>Evolutionary resilience, on the other hand, is likely to be, characterized as a socioecological resilience per Davoudi's categorization. This notion aims to achieve a new, proactive normality, striving for new, improved thresholds, focusing on medium- to long-term achievements. Jabareen [3] believes that urban resilience should put more emphasis on ecological resilience, as disturbances may come from various external factors or in planning perspectives categorized as evolutionary resilience.

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220167Despite these developing concepts and definitions, there is now more evidences showing that application
of the resilience concept mostly in the context of to the urban resilience context [2,3,25218,26319,2740]
and in disaster resilience terms [129,26319,2740,2851]. Hegger] is important to be accommodated

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227	170	comprehensively on addressing multi-faceted of shocks and stresses. Along with the discourse,
220 229	171	urbanization also appears as one important phenomenaphenomenon to be better understood as
230	172	Furthermore, disasters from hydrometeorological hazards affected by mostly climate-related disasters
231	173	stressors are likely to occur happen in low-lying urban areas located in the coastal zone [2,4]. There are
232	174	mMore than 50% of people categorized as living in urban area worldwide [262], and most of them are
233	175	vulnerable to particular these types of climate-related vulnerabilities disaster [296]. FFloods are the most
234	176	common type-manifestation of these urban disaster vulnerabilities in Asia [30273], including and applies
235	177	in-to Java as well [31284]. Floods occur not only because of changing rainfall and sea level rise but also
236	178	due to uncontrolled development [32295]. Urbanization has created pressures to urban areas as it can be
238	179	reflected on the significant growth of built-up area within the city center. Mmore built up areas, as well
239	180	as slum areas and particularly informal communities, as well as slum areas create additional burdens
240	181	challenges on governments to provide safety for people relative to costly infrastructure improvements.
241	182	Based on this literature tThere is an urgent need to operationalize the term of resilience from
242	183	conceptional notions to be more to more practical applications. Some scholars explore some resilience-
243	184	oriented actions based on adaptation approaches. Lonszdale et al. [118] for example. (2015) differentiates
244 245	185	the approach into three different types of approaches: - coping:- incremental adaptation:- and
246	186	transformational adaptation. Similarly, Chelleri et al. [97](2015) categorizes three types of
247	187	actions/responses so called as under the headings of recovery, adaptation, and transformation. These
248	188	various -as-stages of resilience are based on their temporal-time horizons. Focusing on flood, -Hegger et
249	189	al. [129](2016) has translated the disaster resilience into three types of capacities: those are with the
250	190	capacity to resist;, capacity to absorb -and recover;, and, capacity to transform and adapt. Rooted from a
251	191	classical notions of resilience, [16,30] Folke, Helling, there are progressive approaches to have a more
202 253	192	concrete illustration of operationalizing disaster resilience concept in development policies. Figure 1
254	193	further illustrates evolving disaster resilience concepts, highlighting the move from theoretical to from
255	194	conceptional to a more operational.
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Conceptual	Engineering Resilience Equilibrist Resilience		 Socio-ecological Resilience Evolutionary Resilience 	[1] [<u>233</u> 0] [<u>3214]</u>
<u>station</u>	Recovery	Adaptation	Transformation	[74]
Adar	Coping Approach	Surviving/ Protecting	Pro-active & Transformative <u>Approach</u>	[<u>8</u> 5]
♦ Operational	Capacity to resist	Capacity to absorb and <u>recover</u>	Capacity to transform and <u>adapt</u>	[12 <mark>69</mark>]
Time frame	Short-term		► Long-term	
<u>Focus</u>	Single Equilibrium		Multiple Equilibrium	
Response	<u>Re-active</u>		Pro-active	
<u>Ype of</u> initiatives	Focus on maintaining current normal situation		 Focus on achieving new/ different normal situation 	
	- 			
	Conceptual	ConceptualEngineering ResilienceEquilibrist ResilienceEquilibrist ResilienceRecoveryCoping ApproachOperationalCapacity to resistTime frameShort-termFocusSingle EquilibriumResponseRe-activeType ofFocus on maintaininginitiativescurrent normal situation	Conceptual Engineering Resilience Equilibrist Resilience Equilibrist Resilience Recovery Adaptation Coping Approach Surviving/ Protecting Operational Capacity to resist Time frame Short-term Focus Single Equilibrium Response Re-active Type of Focus on maintaining initiatives current normal situation	Conceptual Engineering Resilience Socio-ecological Resilience Equilibrist Resilience Equilibrist Resilience Evolutionary Resilience Recovery Adaptation Transformation Coping Approach Surviving/ Protecting Pro-active & Transformative Operational Capacity to resist Capacity to absorb and Capacity to transform and Time frame Short-term Single Equilibrium Multiple Equilibrium Response Re-active Focus on maintaining Pro-active Type of Focus on achieving new// different normal situation

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283	1	l Neurophine prioritation in
284		spatial and development
285		**Example of Building higher dikes, re-build Early warning system.
286		actions/ broken house, fixing damage building higher house, (institutional mechanism for
287		address flood increasing threshold) developing insurance system all stakeholders to have new
288		perspective and end up with
289	100	<u>developing new approach)</u>
290	198	Nata
291	177	NOLE:
201	200	<u>Is used to further examine the programs applied in the research area (Semarang and Tegal)</u>
293	201	according to the indonesian policy framework, list of actions/initiatives can be traced in the development planning
200	202	document in the local level (see Fig. 2). They include name of the actions/initiatives stated as program, allocated
204	203	budget, and the responsible agency to execute the program.
296	204	Figure 1, Resilience Notions: From Conceptual to Operational
297		
208	205	
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300	206	
301	207	
302	207	
303	208	3. Development Planning Policies in Indonesia
304		
305	209	Development planning policies in Indonesia are divided into two categories: development planning
306	210	policies (non-spatial) and land use planning policies(spatial). Accordingly, integration and coordination
307	211	between these two types of policies are very important as they accompany one another. Law No. 26, 2007
308	212	provides details about the spatial planning system in Indonesia, and Law No. 25, 2004 explains strategic
309	213	development planning policy. Fig. $\frac{1}{2}$ explains the three levels of policy for both categories, classified as
310	214	National Regional (Provincial) and Local Policies Each level includes long-term policies (20 years) mid-
311	215	term policies (5 years) and planning implementation plan guidelinespolicies (1 year)
312	215	term policies (5 years), and <u>planning</u> implementation plantguidelinespolicies (1 year).
313	216	
314		
315	217	Some considerable challenges have emerged in the implementation of the spatial and strategic
316	218	development planning policies. Challenges include approaches to integration between spatial and non-
317	219	spatial plans and vertical integration between national, regional, and local development policies.
318	220	Furthermore, the decentralization policies, applied in 1999 provided more authority to local governments
319	221	and reduced the role of the provincial and national government After-Upon decentralizing authority to
320	222	the local government institutional canacity challenges began to show upwere evident including lack of
321	222	qualified human resources weaknesses in policy implementation and unclear accountability
322	223	quained numan resources, weaknesses in policy implementation, and unclear accountability
323	224	mechanisms. The authority changes also created substantial challenges regarding conflict of interest
324	225	among sectors to address particular cross-sector problems, especially in <u>addressing</u> the complexity of
325	226	addressing disasters. There are at least five important leading agencies included in disaster-related issues.
326	227	The Planning Board is the coordinating agency, the Public Works Agency is responsible for infrastructure
327	228	provision (to reduce/control the flooding events), the Disaster Management Agency is responsible for
328	229	early warning and preparedness, the Spatial Planning Agency for land use management. and the
329	230	Environmental Agency is mostly related-responsible forto waste management and other environmental
330	231	impact approvals.
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dimension. In line with the developing notions on disaster resilience (see Fig. 1), Tthere are three approaches to accommodate resilience in the planning process [10829]: (1) the coping approach to reduce the disaster risk, (2) the adaptation approach that includes involves surviving and protecting the current existing system, and (3) the proactive initiative for longer-term and transformational action. In terms of the type of the capacity [119Hegger], it resilience is categorized as (1) capacity to resist, (2) capacity to absorb and recover, (3) capacity to transform and adapt. –Accordingly, this study includes both development planning and spatial planning documents for the short-, mid-, and long-term to further examine the ability of the document to capture the sustainability and dimension of disaster resilience of the chosen cities. Data Collection and Analyses This study applies content analysis as the main method to capture inferences and logic of interpretation from selected documents. There are three types of inferences: (1) Deductive, that is, from general to particular, (2) Inductive, which is from particular to specific, and (3) Abductive, which is from one kind of particular to another kind of particular [26]. This study focuses on abductive inference since the term resilience is practically new in the Indonesian context. Therefore, the content analysis is applied to investigate how the term is articulated in the selected documents. Two main approaches are applied: examining the vocabularies and making contrasts/comparisons among the selected documents. Following the development planning system as illustrated in Fig. <u>12</u>, Table 1 describes the list of documents examined. The documents are classified into three levels based on the government hierarchy: national, regional (provincial), and local. The development planning documents are divided into two categories: development policy (long-term, mid-term, and short-term) and spatial planning document. Nineteen documents have been were analyzed from the national to the local level, and most of them are development planning policyies documents (15 out of 19). Apart from the listed documents, four reports of Resume on National progress reports on the implementation of the Hyogo framework were released every two years since 2007, which were also used as references to verify the content analyses results. Two main approaches are applied used, namely:: examining the vocabularies and making contrastings/comparinsongs among-the selected documents. Two FGDs (Focus Group Discussions) were also applied conducted in Tegal and Semarang to further clarify the findings from the content analysis. Based on literatures related to resilience operationalization and urban policy implementation, three leading questions as-provide the basis for the FGDs. These -were issues of (i) policy integration, (ii) equity principle in the implementation, and (iii) consideration of accommodating environmental problems and economic value. The participants weare from government agencies (see Table 1.) that have programs related to flood and/or disaster issues as the scope of this research is limited to examining the operationalization of flood resilience initiated by the government. Referring to the typology of resilience illustrated in Fig. 1, further examination was done conducted for local level (i.e., Semarang and Tegal) development planning documents. to-This was conducted in order to investigate types of action to promotinge disaster resilience. The investigations are-focuseding on the programs, budgets, and the responsible agenciesy.

292 Content analysis is applied to address the concept of resilience to further clarify the 293 operationalization of resilience articulated in the planning documents. Chelleri et al. [27] state 294 that one confusion of applying resilience is whether it is defined as engineering resilience or socio-

ecological resilience. In the context of disaster risk reduction, resilience is usually simply understood as engineering or equilibrist resilience that focuses on the shorter term and aims to achieve pre-existing normality [28]. The challenge for sustainability is for the discourse to focus on the longer term, on a multi-scale and wider dimension. There are three approaches to accommodate resilience in the planning process [29]: (1) the coping approach to reduce the disaster risk, (2) adaptation that includes surviving and protecting the current system, and (3) proactive initiative for longer term and transformational action. Accordingly, this study includes both development planning and spatial planning documents for short, mid, and long term to further examine the ability of the document to capture the sustainability and dimension of disaster resilience of the chosen cities.

306 <u>Research Objects</u>Case Study Sites

Creswell [3630] states that a case study is an approach in qualitative research in which the researcher focuses on a particular program, activity, or process to be investigated. This case study is focused on investigating the development plans of two study areas: Semarang City and Tegal City. The two cities are located on the northern coast of Central Java Province. Semarang is a metropolitan city with 1,500,000 inhabitants, and Tegal is an intermediate or medium-sized city of around 250,000 people. Semarang as a large city experiences higher rainfall compared to Tegal. The rainfall ranges between 550-750 mm/month in the rainy season in Semarang while Tegal experiences 450-650 mm/month in the same season. Semarang also has more significant flood events. It almost reaches 70 flood events in 2013 taking place in across 47 urban villages, mostly located in the coastal areas, while Tegal experiences 17 flood events [31284]. Both are growing and important cities located in the-low-lying and flood prone areas in coastal Java. However, due to its involvement in two global networks (i.e., ACCCRN and 100RC programs), Semarang is more advanced in addressing such disasters, as well as and more adept to addressing climate change and resilience issues compared to Tegal.

There are at least three types of floods that occur in the two cities. As they are both coastal areas, they both experience tidal flooding. Tidal floods occur mostly in the coastal villages because of land subsidence and rising sea levels. However, as low-lying areas, they also experience flash flooding and inundation from local rainfall and poor drainage maintenance infrastructure. Flash flooding can take place when there is a high rainfall event in the upstream areas that surpass the capacity to absorb rainfall into the ground and overflows the limits of rivers and drainage infrastructure to direct water to the sea. Villages prone to flash floods are mostly located along the riverbanks in midstream and downstream areas. The last type of flood inundation takes place in dense urban areas, where drainage is inadequate and poorly maintained. Poor waste management from settlement and commercial areas and inadequate collection systems also contribute to clogging the system.

331 Table 1 Selected Documents

No	Title of the document	Voor	Ty	/pe		Level			Planning Period	
		Teal	DP*	SP**	National	Regional	Local	Long	Mid	Short
1	National Long-Term Development Plan (RPJPN)	2005-2025	*		*			*		
2	Long-Term Development Plan of Central Java Province	2005-2026	*			*		*		
3	Regional Long-Term Development Plan of Semarang City	2005-2027	*				*	*		
4	Regional Long-Term Development Plan of Tegal City	2005-2028	*				*	*		
5	National Mid-Term Development Plan	2015-2019	*		*				*	
6	Mid-Term Development Plan of Central Java Province	2013-2018	*			*			*	
7	Mid-Term Development Plan of Semarang City	2016-2021	*				*		*	
8	Mid-Term Development Plan of Tegal City	2014-2019	*			*			*	
9	National Government Work Plan	2017	*		*	*				*
10	Annual Plan of Central Java Province	2017	*			*				*
11	Annual Plan of Semarang City	2017	*				*			*
12	Annual Plan of Tegal City	2017	*				*			*
13	National Spatial Plan	2007-2027		*	*			*		
14	Spatial Plan of Central Java Province	2009-2029		*		*		*		
15	Spatial Plan of Semarang City	2011-2031		* *		*	*			
16	Spatial Plan of Tegal City 2011-2031 * *		*	*						
17	National Disaster Management Plan	2015-2019	*		*				*	
18	Indonesia Disaster Risk (RBI)	2016	*		*					*
19	Flood Contingency Plan of Central Java Province	2011	*			*				*

*DP: Development Planning Policy (non-spatial)

**SP: Spatial Planning Policy

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336 5. Findings

Flood Resilience Programmes: From National to Local Development Policies

Following Carley's [3741] explanation on applying content analysis, investigating a manuscript may focus on counting the number of particular word(s) or terms used in the selected documents. The number or particular/chosen word(s) used in the documents indicates how important the term is from the government's perspective and may also indicate how the terms/words are comprehended. Accordingly, Table 2 shows the list of word(s) related to flood resilience used in the planning documents listed in Table 1.

Table 2 Number of Related Vocabulary Used in the Selected Documents

		Nat	lanal	Pagional			Lo	cal	
No	List of vocabulary			Regional		Semarang		Tegal	
		DP*	SP**	DP*	SP**	DP*	SP**	DP*	SP**
1	Resilience*), Resilient*), Resilience, Resilience, Resilient	94	4	96	3	89	3	33	4
2	Sustainable development*), Sustainable development	22	0	3	0	10	1	8	1
3	<i>Climate change</i> *), climate change, climate change adaptation	55	1	22	1	26	0	1	0
4	<i>Disaster</i> *), disaster, disaster management, disaster control, disaster prevention, disaster mitigation, disaster anticipation, disaster risk, disaster risk reduction, impact of the disaster, post-disaster, recovery, preparedness, early warning system	131	20	141	23	305	97	72	43
5	Flood	17	6	45	4	139	30	31	7
6	Vulnerability	33	1	25	0	8	0	5	0
7	Local government, community capacity, Government capacity, institutional capacity, infrastructure capacity	132	5	107	21	129	45	183	38

*DP: Development Planning Policy (non-spatial)

**SP: Spatial Planning Policy

*) Stated in English

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Table 2 presents several interesting findings. The word "resilience" and other similar words (there are several ways that Indonesians translate resilience) are used in all documents but not necessarily in the context of disaster. Disaster resilience appears only 6-six times out of 98 words related to resilience in the national documents and 2-two times out of 99 words in provincial documents. Even for Semarang and Tegal, the word resilience is applied in various contexts (food, economy, and infrastructure) but not directly in addressing disaster. Hence, the idea of resilience is somehow implied in the documents under the theme of sustainable development. Sustainable development and resilience are mostly applied in the discourse of food security and economic resilience. Food security is the most frequently-used term likely

to have the closest context to resilience. It is in line with national regulation, Law No. 7, 1996 which states that food security is "the fulfillment of food for every community that is reflected from the availability of adequate food, both in quantity and quality, safe, equitable, affordable, and base on the diversity of local resources." This definition is also closely related to the word vulnerability, as it can also be applied to address vulnerability to food and disaster. Economic resilience is applied to address some socioeconomic issues, namely poverty, and unemployment. Even though the term resilience is unlikely to be stated in the context of disaster, disaster is recognized as the major issue mentioned in all documents. There are 300 instances of disaster specified in the Semarang city planning document, which is much higher than the national document, where it is stated only around 150 times. Additionally, it is important to note that Semarang also expanded the discourse on disaster in the context of climate change adaptation while there is still no attention on climate change or climate change adaptation in Tegal City. As elaborated in Reeds et al. [26319], the involvement of Semarang city in ACCCRN has led to the programs mainstreamed in the city's policy documents. Following the-conversations on disaster, it is also clear that Semarang also flooding is regards floodinged as a big major challenge for at all policy levels, including in Semarang and Tegal, as the word flood is mentioned many times; even in Semarang, it (appearings more than 130 times). Another emerging issue is that spatial planning policies have not accommodated disaster-prone areas and climate change as a critical problem that should be carefully addressed. This is indicated by comparing the related words used in development policy and spatial planning policy. All those words are considered to be related with disaster resilience are used less frequently in spatial planning documents in comparison to development planning documents for all government levels (see Table 2). Though However, there are many scholars who have been calling for further attention on the importance of spatial planning to address flood and disaster resilience [77, 107, 217]. Table 3 further summarizes the articulation of disaster resilience across planning documents across at the three different levels of government and between the two cities.

Table 3 Comparing National, Regional, and City Level of Planning Documents

663	507					
664			National	Regional		Local
665			National	Kegional	Semarang	Tegal
665 667 668 669 670 671	1	Scope of discussion	Disaster (flood) resilience is not explicitly addressed. Resilient/resilience is stated in the context of food security, national security, socio-economic, and cultural aspect. Disaster issues focus_on coastal based disasters considering	Flood is an issue to be addressed. However, similar to the national level, the context of resilience/resilient is applied for different aspects, mostly food security and socio-economic resilience.	Flooding is a big issue for Semarang. Even though there are not any explicit statements on disaster resilience, resilience is mentioned in various contexts (similar to national and regional levels), the closest to flood resilience is community resilience	Flooding is not considered a big issue even though it happens several times a year. Resilience is mentioned only in the context of food security.
672			Indonesia as an archipelago		to address disaster.	
673			country			
674		Strategies	Three main focuses: (1) disaster	Role of community appears to be an	There are two main strategies: (1)	There is not any specific strategy to
675			risk reduction within the	important theme to address disaster.	disaster risk reduction through	cope with disaster. The importance
676			development: 2) reducing	strengthening local institutions and	infrastructure improvement.	of community participation in addressing disaster is only generally
677			vulnerability; 3) enhancing the	improving local people's		mentioned in the long-term
678			capacity of government	knowledge/awareness to address		development policy.
679			and communities in disaster	disaster. Thus, it may lead to the		
080		Programs/	No specific/explicit statements on		There are programs/plans for at lea	st three different tonics.
600		Plans	flood and/or resilience programs	development/improvement is the	(1) infrastructure provision, (2) com	munity engagement, and (3)
683				program priority. It includes reservoir	environment and land use manager	nent. However, since Semarang has
684				building and maintenance, river	more adverse flood problems, the c	ity has more varied approaches
685				conservation.	compared to regal.	
686	390					
687	391					
688	392					
689	072					
690						
691						
692						
693						

394 Local Development Plan Elaboration: Comparing Semarang and Tegal

• Programmes and Budget Allocation

As a big city, Semarang has a much better larger financial capacity compared to Tegal. As an illustration of 2017, the total development budget for Semarang is US\$340,-000, much higher compared to Tegal, which is around US\$190,.000. Table 4 displays programs stated in in the mid-term planning process and government budget executed in 2017 in Semarang and Tegal related to flooding. There are 14 programs listed in Semarang and 7 programs in Tegal. The budget allocated for flood disaster-related programs is 8 percent of the total allocation for Semarang and only 1 percent for Tegal. It is also indicated from the data in-Table 4 also indicates that Semarang distributes the budget allocation slightly more evenly compared with Tegal.

By examining the name of the programs, it is identified that most of the budgets for flood disaster-related programs focus on infrastructure. Flood control has the highest allocation for both cities. Even for Tegal, more than 70 percent of the total budget is allocated only for irrigation development and flood control. There are four actions identified for the flood control program in Semarang. They are constructions of polders, development of a coastal embankment, river normalization, and drainage improvement and maintenance. In Tegal, the actions are similar to Semarang as they include polders, pool retention, and dike construction, river normalization, sea-wall development, as well as drainage improvement and maintenance. However, despite the direct infrastructure provision programs, Semarang also allocated a significant amount of its budget to maintain green open space and waste management, and the allocation is much higher as a percentage when compared to Tegal.

Following the foremost action programs in infrastructure provision, a very small amount of budget is allocated for disaster risk reduction and/or disaster management. It At the moment there is less than 5 percent budget allocation for disaster risk reduction and/or disaster management for both cities. The aAllocation in Tegal is slightly higher compared to Semarang. It happens that all disaster-related programs in Tegal are the responsibility of the local government, but due to the involvement in the ACCCRN and 100RC program, there is some support from external partners to work together with local government to address flooding in Semarang. The Zurich Flood Resilience Program supported by the Zurich Foundation is recognized as one of the programs conducted in Semarang in 2017 to improve community preparedness in addressing flooding —(https://www.acccrn.net/blog/improving-community-preparedness-along-semarang-flood-canal).

426 Table 4 Programmes and Budget Allocation of Semarang City and Tegal City

		Semarang City				Tegal City			
No	Programmes Annual Budget		dget	Proportion t to mid-year budget		Annual Budget		Proportion to mid-year budget	
	_	\$ (000)	%	\$ (000)	%	\$ (000)	%	\$ (000)	%
1	Drainage channel construction	2,543	8.97	30,711	9	127	9.32	1,837	20
2	Irrigation development and management	2,657	9.37	25,214	17	278	20.40	486	20
3	Flood control	8,516	30.03	43,259	22	731	53.68	5,744	21

758							
759				Se	emarang Ci	tv	
760			-	50		Propor	tion
761		No	Programmes	Annual Bu	dget	to mid-	year
762			_			budg	et
763				\$ (000)	%	\$ (000)	%
764 765		4	Drainage improvement and maintainance	1,451	5.12	1,451	10
766		5	Land use controlling	148	0.52	776	19
767		6	Spatial planning	998	3.52	941	21
768 769		7	Green open space management	6,518	22.98	20,759	18
770		8	Waste management	4,766	16.81	18,189	18
771 772		9	Pollution control and environmental destruction	456	1.61	1,337	34
773 774 775		10	Natural resources protection and conservation	91	0.32	483	19
776		11	Climate change mitigation	9	0.03	126	7
777		12	Climate change adaptation	27	0.09	142	19
779 779		13	Disaster management	125	0.44	876	14
780 781		14	Disaster prevention and preparedness	55	0.20	486	11
782			Total	28,36	100		
783 784 785 786 787 788 788 789 790	427 428 429 430 431 432 433 434	Note: 1 - 6 7 und 8 - 12 13 - 1 •	under the responsibility of Public ler the responsibility of Housing a 2 under the responsibility of Envir 14 under the responsibility of Disc Stakeholders involvement	Works and Spa nd Settlement A onmental Agen Ister <u>M</u> manage	tial Plannin \gency cy ment Ageno	g Agency cy	
790 791	435	Fig.	3 further illustrates the r	esponsible a	agency <mark>te</mark>	execut	inge
792	436	distr	idution of responsibility be	etween Sema	arang and	a legal i	IS SI
793	437	Spat	ial Planning Agency have	the greate	st respo	nsibility	to
794	438	prog	ram <u>ming</u> s. Unfortunately, I	most of the a	llocation	of the p	rog
795	439	than	spatial planning Even as th	ne responsibl	e agency	for the c	lisa

ecutinge the programs listed in Table 3. The al is similar in general. The Public Works and lity to execute the conduct disaster-related e program is closer to the area of public works than spatial planning. Even as the responsible agency for the disaster risk reduction program, the Disaster Management Agency has a very small responsibility, indicating lower commitment from the local government to address flooding from the perspective of disaster risk reduction.

Tegal City

%

2.73

7.71

0.41

2.03

0.30

3.41

Annual Budget

\$ (000)

1,361

%

Proportion

to mid-year

budget \$ (000)

1,264

2,818

%

A comparison of between the number of programs and budget allocations is another interesting aspect for further elaboration. As illustrated in Fig. 32, the number of programs under the Public Works and Spatial Planning Agency is less than the budget allocation while in other agencies, the situation is the opposite. This indicates that apart from any programs in the area of infrastructure, the allocated budget for each program is relatively low. To further illustrate, the environmental agency in Tegal is responsible for 40 percent of the total program regarding flooding, but the agency only owns 4 percent of the total budget. The biggest program of the agency is related to waste and environmental destruction. Considering

450 the amount of the budget, the program may not be able to show a relevant outcome/impact for 451 promoting disaster resilience.



As the follow up to implementing the Hyogo Framework for Action and Sendai Framework for Disaster Risk Reduction, the Indonesian National Board for Disaster Management (INBDM) performs as the coordinator to manage and integrate any disaster initiatives in the national level. The institution is established - in _____-INBDM and has Disaster Management Boards (DMB) in regional (provincial), and local (city) level as their main partners those are responsible for any actions/initiatives stated in the development planning documents. Mostly, DMB agencies is were initiated in 2011-2012 as expected to perform as representation of INBDM in the lower level of government units.

472 • Capacity building

Even though the institutional framework has been were set up and supported by some regulations to ensure integrative works, there are still challenges resulting mainly because of from lack of capacity of the involved-institutions including government and local community. There are at least three main issues: (1) access to information; (2) limited resources; (3) unclear institutional mechanisms [2017Torabi et al.].- Most of the stakeholders including government and community are not familiar with disaster-related issues and therefore, it is resultsed to in low levels of awareness and that lack of local level initiatives. There are also a limited supply including of qualified human resources and financinge. DMB are still a -regards as-new agency in some areas, (including in Tegal, and have not

¹ There are four progress reports: 2007-2009. 2009-2011, 2011-2013, 2013-2015

869		
870		
871	181	been able to identify and assert their role). Accordingly Tthe institutional mechanisms are is still in
872	401	the a transitional stagenbase
873	102	Policy mainstroaming
874	403	• Folly manific canning The lives Fremework provides suidenes for sovernments to implement disaster resilience actions
875	484	The Hyogo Framework provides guidance for governments to implement disaster resilience actions.
876	485	There are some priorities stated that should be accommodated in the development policies of the form
8//	486	disaster management. It is important to note that under the decentralization regulation, local
878	487	governments act as the spearhead for many policy implementations. Guidance from the upper level
880	488	(National and Regional) is very important to ensure the harmony and integration, including guidance
881	489	to accommodate global commitment. However, the content analysies result shows that national and
882	490	regional policies have not provided clear direction on disaster management, despite the fact that the
883	491	<u>disaster in not acknowledged in the perspective of disaster resilience frameworks-yet.</u>
884	492	• Budget
885	493	There is a special regulation from the national government to ensure that local governments haves
886	494	the budget for Disaster Risk Reduction and other related action/initiatives. The allocated budget
887	495	supported by national government is still limited. According to the Resume of National Progress
888	496	report, national government allocates only 0,1%-0,38% for disaster risk reduction effort in at the local
889	497	level. Based on examination of the programmes and budget allocations for each responsible agency
890	498	in the local level (see Fig. 3), another problem may also come arises from unfair budget allocations.
891	499	To illustrate this point, the Disaster Management Agency in Semarang holds 14% of total programmes
092 803	500	on flood/disaster resilience but is only be able to manage 1% of the total available budget. On the
894	501	other hand, the Housing and Settlement Agency is only responsible for 7% of the total program, but
895	502	the agency may have 23% of total available budget. Ssimilar situation conditions also applyies for
896	503	in the case of Tegal-City.
897		
898	504	
899	505	6. Discussion
900	506	
901	507	Engineering resilience towards socio-ecological resilience
902	508	Following the reflection of some development practitioners that aims to mMainstreaming urban disaster
903	509	resilience into policy [32,33] the planning process is critical to build urban resilience [3852,3963]. Fig.
904 905	510	3Following conceptual framework explained in Fig. 1, Table 5e illustrates typology of disaster
906	511	resilience programs in Semarang and Tegal development programmes in Semarang and Tegal to address
907	512	flood-according to different types of resilience and stages implementation developed by some scholars
908	513	[1,13,14,27,29,34]. By classifying the programmes based on some items those indicating different types
909	514	of resilience, it is identified that actions/initiatives in Semarang and Tegal can be characterized into either
910	515	the coping approach or surviving/protecting approach. There is still lack of long-term consideration and
911	516	framework for transformative action. This is exactly similar to the case of Eko Atlantic City, Nigeria [40375]
912	517	where most of the resilience-related initiatives in the city do not really address the root of the problems
913	518	in addition to some cases those lead to maladaptation strategies. These findings are also further
914	519	confirmed by the FGD results which showing that the participants mostly consider that all of the
910	520	programmes implemented in the cities are likely to be re-active rather than pro-active. The current
917	521	initiatives are focused on dealing with current problems without further consideration to understand

917 521 initiatives are focused on dealing with current problems without further consideration to understand
 918 522 potential future issues. Though, as has been revealed by Kernaghan and Siłlva [41386], Semarang through
 919 523 the ACCCRN program has been successful in including climate change mitigation and climate change

- 920 524 <u>adaptation initiatives which sound more transformative.</u>

Table 54 Disaster Resilience Typology in Semarang and Tegal

	Type of Initiatives	Time Frame	Focus	Response
Programmes	Current Normal New Normal Orientation Orientation	Short-term Long-term	Single Equilibrium	Re-active
Drainage channel	Categorized as maintaining current	No objective and no impact for	Very much focused on single	As the programmes may regard
<u>construction</u>	normal (business as usual). The actions	long-term perspective	<u>equilibrium.</u>	as business as usual, the
Drainage improvement and	dominated by periodic maintenance,			typology more into re-active
maintenance	and construction in some areas those			<u>rather than pro-active to</u>
Irrigation development and	are not served by good drainage			address flood in particular area.
management	<u>system yet.</u>			
	Apart from daily activities to control	It may have long-term impact if	Some actions may lead to	
	flood such as river normalization and	the programmes supported by	multiple equilibrium	
	utilizing water pumps, there are some	good monitoring and evaluation		
	big integrated initiatives mostly in	mechanism to ensure good		
<u>Flood control</u>	coastal area with new normal	implementation.		
	orientation. They include developing			
	polder system, build retention pond			
	and land use management in the			
Land use controlling	surrounding area.	-		
Land use controlling	Inere is national regulation for land			
	The level severement, however, is			
Spatial planning	likely to 'play saye' by focusing on			
	surrent normal situation			
Green open space	Most of the actions categorized as	-	Mainly because of lack of	
management	maintaining current normal. Not too		commitment from the policy	
Waste management	much hudget on these area as more		maker to have more awareness	
Pollution control and	hudget is allocated on more economic		on environmental problems	
environmental destruction	orientation program. Waste bank is a		the programs in these areas are	
Natural resources protection	good example because it combines		very much focused on single	
and conservation	economic as well as environment.		equilibrium.	
Disaster management	Most of the actions categorized as	Establishment of Local Preparedne	ss Group, Disaster Preparedness	
	maintaining current normal.	Village, and Disaster Discussion For	um (DDF) are good examples of	
		actions that may provide a good fra	amework towards a more long-	
Disaster prevention and		term perspective of actions and lea	ds to multiple equilibrium.	
preparedness				
Climate change mitigation	If the programme could be	It may have long-term impact and	d leads to multiple equilibrium if	Solar panel is one good
(solar panel, public	implemented as planned, this is a good	there are sustain commitment	from the policymaker, and the	example of pro-active actions
transportation improvement)	example of initiatives those are focus	programmes are supported by a	good monitoring and evaluation	while other programmes are

	<u>Climate change adaptation</u> (mangrove, floating house)	on new normal situation.	mechanism to ensu	re decent implementation.	likely more into re-active
528			·		· · · ·
529					
530					
531			1		
532			i I	, , , , , , , , , , , , , , , , , , ,	
		Drainage channel	1		
	()	construction Irrigation development and ma	nagement		
		Flood control		1	
	4	Drainage improvement and ma	aintenance		
		Land use controlling	i T		
	2	Enact spatial planning docume	mt		
	\triangleleft	Green open space manageme	nt		
		Waste management		l I	
		Pollution control and environm	ental destruction		
	X	Natural resources protection a	nd conservation		
		*Climate change mitigation (Se	olar Panel)	1	
		*Climate change adaptation (M	langrove and Climate Friendly Kan	ipong Development)	
	-	Disaster management	Ĩ		
		Disaster prevention and prepa	rddness		
	Chelleri et al. (2015)		Adaptation	Transformation	
	EAA (2016)	Coping Approach	I Surviving/Protecting	Pro-active and Transformative Approach	
	Folke (2006) Davoudi et al. (2012)	Engineering Resilience -		→ Socio-ecological Resilience	
	White and O'hare (2014)	Equilibrist Resilience		Evolutionary Resilience	
533	*applied only in Semaran	g City			
534					

By classifying the programmes into three different stages, it is identified that type of the programmes in Semarang and Tegal can be characterized into either the coping approach or surviving/protecting approach. There is still lack of long-term consideration and framework for transformative action. This is exactly similar to the case of Eko Atlantic City, Nigeria [35] where most of the resilience-related initiatives in the city do not really address the root of the problems in addition to some cases those lead to maladaptation strategies. These findings are also further confirmed by the FGD results which showing that the participants mostly consider that all of the programmes implemented in the cities are likely to be re-active rather than pro-active. The current initiatives are focused on dealing with current problems without further consideration to understand potential future issues. Though, as has been revealed by Kernaghan and SIlva [36], Semarang through the ACCCRN program has been successful in including climate change mitigation and climate change adaptation initiatives (see Fig. 3) which are more transformative.

Business as usual towards opportunity for better planning mechanism •

Another fundamental aspect is the important role of local government [3852] as following the decentralization era, the local (city) government contributes a very important role in executing any programmes related to flood mitigation, preparedness, as well as adaptation at the local level. There is an interesting lesson learned from Melbourne [1529] on the critical role of vertical and horizontal of regional alliance to address cross-sectoral issues related to operationalizing resilience which need multi-level government involvement and cooperation among local government.— In Indonesia, the national government generally provides guidance, while provincial governments focus on the cross-border and outlying coastal areas. The local government is the vanguard that executes direct impacted policies at the local level. However, with the reference of [3] principles to operationalize resilience in urban policy, there are no established mechanisms for good coordination among different level of government and to ensure that integration principles applied in Semarang and Tegal. As concerning on flood, further integration is needed mostly related to river management. As stated in Law No. 23 2014 on Local Government, there are distributed responsibility on all matters related to river. Floods that flow from upstream to downstream areas are likely to across different administrative boundaries of local government, and sometimes also provincial government. Accordingly, high levels of cooperation are required to manage the river among the local or provincial government. The Resume National Progress Report on the Implementation of the Hyogo Framework for Action has also confirmed that INBDM may not perform optimally yet to act as the coordinating agency to manage the DMB in provincial and local level as there are still challenges in capacity of the people (i.e., human resource), limited budget, as well as overlapping regulation.

> There are some interesting findings from the FGD confirming the challenge of integration in operationalizing the resilience principles:

- Disaster management agency has an initiative to establish local preparedness group so--called KSB (Kelompok Siaga Bencana), similar program also initiated by Provincial Red Cross Organization (PMI) called community-based preparedness group or SIBAT (Siaga Bencana Berbasis Masyarakat). It seems like each agency develop similar activities without communication each other.
- The problem in infrastructure provision is also interesting. From the FGD, it is found out that some initiative leads by Public Works Agency to elevate roads those are prone to flood is then not really effective because it will cause flood in other roads section. The problems become more complicated

- because there are also a lot of local initiative from the community to elevating the road which are not coordinated each other, so it is like road elevation competition.
- River management and land use planning is also regards as a big challenge as it requires a strong • coordination of the government in the upstream area and in the downstream area. As the river is located across administrative boundaries, the involved government stakeholders are also included the Provincial Government of Central Java and also National Government.

Following the integration issue, there is not also a consideration on equity principle yet to ensure the programme has addressed the targeted vulnerable people/area. The equity-related issue can be also indicated from the budget allocation as the responsibility of the programmes implementation is also not distributed proportionally in line with the role and responsibility for each agency. It is found out from the FGD that due to the establishment of new national regulation (i.e., Government Regulation No. 18, 2016) regarding role of agency in local level, there is also changes on responsibility in executing particular programme. Previously, public works, water management, and spatial planning established separately as a single agency with specific responsibility. Following the establishment of the new regulation on new government structure, they are now merge into one agency and therefore, has less authorities and fewer responsibilities to execute such programme meanwhile, as stated clearly in the mid-term planning (RPJMD), flood is a priority problem to be addressed in both cities (Semarang and Tegal) that needs appropriate level of authority and indeed, require greater responsibility.

Despite all the emerging discourse, budget should be taken into account as the biggest concern and therefore, program prioritization is very important as most of the actions is very much depend on the government budget. Accordingly, programmes execution which are likely to be more environment rather than economic is not popular as economic problem is still taken as the greatest concern for cities in developing regions like Central Java. Surprisingly, -Torabi_et al. (-[2017]) found similar finding also for Australia where the development is pretty much more advanced compared to Indonesia. Taken into account consideration of environmental and economic value, there has been so far, the most common program that has been accommodate both values are waste bank program. Tthe FGD participants acknowledge waste bank program initiated by the environmental agency in both cities (Semarang and Tegal) as a good example. Waste is regard as a big contributor to flood as there are a very significant amount of garbage found in the river. People need to be educated not to throw garbage into the river. Through the waste bank program, local people are trained to manage the garbage, so it has economic value by using the 3R principles (Reuse, Reduce, and Recycle).

Last but not least, there is also a challenge to have more longer time perspective and sustain initiatives. Friend et al. [385] believes that there are two models on understanding the planning and implementation of development policy. The first is the linear model where policy is comprehended as simple cyclical stages. The initiatives are planned based on research and evidence. The main challenge of this model is when sometimes policy formulation is not very much in line with the implementation because of many reasons such as lack of capacity, miss communication/information, and bad project management mechanism. The second is the clumsy and wicked model where policy regards as communication, negotiation, and networking process of different actors/stakeholders with various interest. In the first model, technocratic approach is very critical to be done and regard as the basis for the policy formulation process. However, it will not lead to a sustain implementation if there is lack of comprehension and

625 commitment from the policymaker. Therefore, the clumsy process is likely providing more guaranteed to
 626 have a more sustain and longer-term initiative implementation. In this model, public dialogue and more
 627 public/stakeholder participation is regard as the most critical factor in mainstreaming such development
 628 issues/challenges.

7. Conclusion

This study has shown the complexity of operationalizing resilience particularly to address flood disaster in two different cities in Central Java. The content analysis results has revealed that resilience is not a terminology commonly applied for-in urban and- disaster-related contexts even though, it is very clear that disasters mainly such as flooding, is are a big issue that requiring re a lot of concern for the case of attention in Semarang and Tegal. The national and regional development policy document has not stated explicitly stated the concept of resilience as a concern/priority concern. On the other hand, the global commitment as stated in the Hyogo framework has forced some priorityies actions in the area of disaster management and disaster risk reduction. Different local governments may give different respond differently howeverses. Furthermore, the cCapacity mostly to access information, limited resources, and lack of concern on environmental issues, are significant barriers to ensure local government-may have enough commitment to promote transformational outcomes on disaster resilience initiatives. In addition, there is also still a challenge ion-the horizontal and vertical coordination as-between National and, and Regional development policies, which as yet have y has not provided a clear direction yet.

-The content analysis result has revealed that resilience is not a terminology commonly applied for disaster-related context even though, it is very clear that disaster mainly flood is a big issue that require a lot of concern for the case of Semarang and Tegal. Following previous studies of disaster resilience, many various literatures suggest that the operationalization of disaster resilience should be integrative and comprehensive, requiringe both, short-term actionable initiatives and also needs-long-term and transformative frameworks. The scope of these initiatives is are also multidisciplinary, and therefore, it involves different agencies with various scope of interventions. Thus, horizontal and vertical coordination is very important. However, this study has shown that most of initiatives stated in the development policy are still characterized as having a short-term orientation, re-active, and focus on single equilibrium. Considering clumsy and wicked model suits more for the planning and implementation required of in development policy, then, it requires intensive communication and involvement of different development actors to promote more transformative approaches on operationalizing the resilience principle in the future.

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1601	945	[31] -	- K. Carley, Coding choices for textual analysis: A comparison of content analysis and map analysis,
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1604	948		resilience into policy and planning; reflections from Asia, Urban Climate, 7 (2014) 100-108,
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1617	954	[35]	I. Ajibade, Can a future city enhance urban resilience and sustainability? A political ecology
1018	955		analysis of Eko Atlantic city, Nigeria, International Journal of Disaster Risk Reduction, 26 (2017) 85-
1619	956		92. https://doi.org/10.1016/i.jidrr.2017.09.029
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1622	958		change in Asian cities, Urban Climate, 7 (2014) 47-63,
1623	959		https://doi.org/10.1016/j.uclim.2013.10.008
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Response to comments from the editors and reviewers

Thank you so much for all the valuable comments/inputs. They have been very useful in helping us improve the manuscript. We provide our explanations and revisions to the paper based on the following explanations.

Reviewer 1

	Comments	Explanation
1.	The authors did not describe the frequency and losses of flood disasters in two cities, so it is impossible to judge whether the policy and budget are reasonable.	We have now explained in the section entitled "Case Study Sites", particularly line 253-256.
2.	Resilience is a comprehensive concept. In the findings, the authors did not integrate analysis of the resilience and describe it effectively.	The findings are now explained based on 4 research questions (line 96-104). The research question is now framed as the following: (1) to what extent are planning policies accommodating the terms resilience to address flooding in planning documents? (2) How are they connecting local action with global, national, and regional priorities? (3) what kind of resilience approaches are applied in the proposed programs? Could such approaches be categorized as a transformative resilience approach geared towards a long-term perspective or are they more re-active and of shorter-term orientation? Finally, (4) what are the important lessons for future planning policies and how can they be geared towards a more holistic resilience orientation? We have also made significant changes to the framework based on our literature review on disaster resilience (Figure 1). This now
3.	The author's conclusion is too general and lack of details. It is suggested that the author conclude his own conclusions based on the detailed analysis of two cities.	We have re-structured and added more detailed statements in the conclusion. Please see the revisions now included in that section.

Reviewer 2

	Comments	Explanation
1.	In the abstract, it writes 'examination	Thank you for highlighting this point. We have
	of operationalization through	thoroughly addressed this issue throughout the paper.
	development plans, programs, and	Indeed the programs and budgets we examine in the
	budgets in Indonesian cities.' Then,	case studies belong to sub-national development plans.
	the next sentence, 'Therefore, in an	However, we have now clarified this point in the

1		
	effort to connect global commitments	abstract, and in the section on research methods
	to local action, this paper examines	(particularly line 244-245). We engage in the case
	local development plans', also in the	studies to also make a broader point about global
	paper, it includes the programs and	initiatives. We hope that the current version clearly
	budgets parts, all three aspects are	articulates this point. Also see the notes in Figure 1.
	important for the connecting to	
	global. Or do you mean the programs	
	and budgets belong to the	
	development plans, in a sub level.	
2.	In the abstract, it shows the purpose	We have significantly re-arranged the structure of the
	of this paper is to find the connection	paper. The paper is now developed based on 4
	between global and local - from	questions, as noted above. We have also changed the
	national, regional and local, but it is	explanation in the abstract.
	hard to find the relationship among	
	national, regional and local, if consider	We have also highlighted additional points in the
	it is a network.	findings section to explain how global commitments are
3.	The finding shown in the abstract	followed up in Indonesia, and also influence planning
	should be the relationship, include	efforts in Semarang and Tegal.
	cooperation and integration of the	
	different levels of government	
	agencies, no how many plans or	
	programs find in the local level.	
4.	The operationalization should be one	Thank you. We have included this as one of our
	of the keywords	keywords.
5.	Conception of resilience is very	We believe that Figure 1 now provides a better
5.	Conception of resilience is very important, but not the only key point	We believe that Figure 1 now provides a better explanation about this point. We have also added
5.	Conception of resilience is very important, but not the only key point of this paper. The definition of	We believe that Figure 1 now provides a better explanation about this point. We have also added several additional text that responds to this point. On
5.	Conception of resilience is very important, but not the only key point of this paper. The definition of resilience, urban resilience, disaster	We believe that Figure 1 now provides a better explanation about this point. We have also added several additional text that responds to this point. On the one hand we have clearly explained in more depth
5.	Conception of resilience is very important, but not the only key point of this paper. The definition of resilience, urban resilience, disaster resilience, look like both described in	We believe that Figure 1 now provides a better explanation about this point. We have also added several additional text that responds to this point. On the one hand we have clearly explained in more depth our conceptualization of resilience. Furthermore, we
5.	Conception of resilience is very important, but not the only key point of this paper. The definition of resilience, urban resilience, disaster resilience, look like both described in the first and second chapters. The	We believe that Figure 1 now provides a better explanation about this point. We have also added several additional text that responds to this point. On the one hand we have clearly explained in more depth our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our
5.	Conception of resilience is very important, but not the only key point of this paper. The definition of resilience, urban resilience, disaster resilience, look like both described in the first and second chapters. The conception of resilience is not clear	We believe that Figure 1 now provides a better explanation about this point. We have also added several additional text that responds to this point. On the one hand we have clearly explained in more depth our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related
5.	Conception of resilience is very important, but not the only key point of this paper. The definition of resilience, urban resilience, disaster resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two	We believe that Figure 1 now provides a better explanation about this point. We have also added several additional text that responds to this point. On the one hand we have clearly explained in more depth our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives.
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6.	Conception of resilience is very important, but not the only key point of this paper. The definition of resilience, urban resilience, disaster resilience, look like both described in the first and second chapters. The conception of resilience is not clear defined in chapter 2, the first two paragraphs looks like resilience category and differentiate, and urban resilience and disaster resilience are not independent. Document from national and regional level all shows more disaster than resilience, but they are relative. It looks strange in table 2 and 3, in the national level, there is such less number of disaster resilience, since flooding and tsunami are the serious disasters in Indonesia and the 100BC is	We believe that Figure 1 now provides a better explanation about this point. We have also added several additional text that responds to this point. On the one hand we have clearly explained in more depth our conceptualization of resilience. Furthermore, we have also provided more nuance in describing our notion of resilience and local notions of disaster-related initiatives. We agree and have considered this point in our changes. This fact is one element that emerges in the results of our content analysis. We have included this point as one of our concerns as well.
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report on the implementation of the	
Hyogo Framework for Action' from	
2007, I do not know if these relative to	
your research, based on the table 1, I	
think these maybe useful.	

Reviewer 3

General comment:					
This paper provides a content analysis of flood disaster planning in two coastal cities of Central Java,					
Indonesia. The aim of this content analysis is to operationalise a resilience approach and therewith					
cont	contribute to the wider literature on resilience. This is a relevant and timely topic and it is my				
impi	ression that the authors have valuable empirica	l material at their disposal. However, I have			
seve	several issues with the paper as it currently stands which point to the need for revision.				
	Detail Comments	Explanation			
1.	First, in terms of literature, the authors do refer to key papers including those of Folke and Davoudi. However, they seem to overlook more specific literature that has tried to operationalise and specify the	Thank you so much for recommending this additional literature to us. We have added included these papers in different parts of the paper, mostly in the 1 st (introduction) and 2 nd (defining resilience) parts of the paper. This			
	resilience concept. These papers might be of interest:	allowed us to situate resilience as a term in more effective ways.			
	Wardekker, J.A., de Jong, A., Knoop, J.M., van der Sluijs, J.P. Operationalising a resilience approach to adapting an urban delta to uncertain climate changes (2010) Technological Forecasting and Social Change, 77 (6), pp. 987-998.	We hope that the paper, in its current form, now address the various debates in defining resilience, as well as the broader point we are trying to make about operationalizing resilience. We hope that our analysis, and particularly the case studies provide greater depth and reach to these conceptual debates relative to their real			
	Hegger, D.L.T., Driessen, P.P.J., Wiering, M., Van Rijswick, H.F.M.W., Kundzewicz, Z.W., Matczak, P., Crabbé, A., Raadgever, G.T., Bakker, M.H.N., Priest, S.J., Larrue, C., Ek, K. Toward more flood resilience: Is a diversification of flood risk management strategies the way forward? (2016) Ecology and Society, 21 (4), art. no. 52.	applications.			
	Both papers try to unpack the notion of resilience and specify it to the context of delta cities and floods respectively. The authors can use these and related papers to give a more complete overview of the resilience debate in section 2 and to relate their findings back to that debate in their discussion.				

2.	Second, the paper's line of argumentation	We have tried very hard to work on structure
	needs to be improved. The authors need to	and line of argument and have accordingly made
	be more explicit about the steps taken in	various changes to the paper.
	the paper. Some specific suggestions:	
2a.	In the introduction, try to formulate a	We have added a set of key research questions
	research aim and main research question.	and have more closely sought to respond to
	The research aim seems to be to contribute	these research questions throughout the paper.
	to literature and practice of resilience by	We have included more explanation about the
	making a content analysis of disaster	content analysis as it relates the formulation of
	policies in Central Java, Indonesia. The	this broader question. We have also included a
	introduction needs to write explicitly what	section that breaks down the content of each of
	the latter (making the content analysis)	the sections to help to signpost and guide the
	could possibly contribute to the former	reader through the density of the paper – both in
	(contributing to literature and practice). I	terms of the discussion on resilience as well as
	suggest to end the introduction with an	the more richer case study analysis in the paper.
	overview of the steps that will follow. Write	
	explicitly what each section is going to	
	contribute to reaching a conclusion.	
2b.	section 2: as written before, the literature	Thanks for this suggestion. We have expanded
	review needs to be expanded. Furthermore,	the literation review. We have also created a
	the review should culminate in a more	more explicit analytical framework with a clear
	explicitly formulated analytical framework.	articulation of concepts, as suggested (figure 1).
	Try to end with a figure, table, list of bullets	We hope this now provides the clarity you had
	(I have no preference for a specific mode of	intended in this comment.
	presentation) that shows the reader at one	
	glance what you are going to look for in the	
	empirical material and why.	
2c.	methods: try to build up the methods	We believe the methods section is now much
	according to more formal methodological	Improved and responds to these very helpful
	terms that explicate why your content	suggestions. We have divided the methods
	analysis is valuable. For instance, write	section into several sub-parts to nelp achieve this
	down what your unit of analysis is – policies	goal, which include: (1) content analysis, (2) data
	in two coastal cities in Java. Why is this an	collection and analysis), and (3) case study sites
	studying this contribute to global debates?	
	Next explicate what your research chiests	
	are: policy documents, of which you have	
	studied the content. Why are these policy	
	documents a good way to study your unit of	
	analysis (and what are limitations, since this	
	is mainly desk research)? Then you can	
	explicate how you collected and selected	
	the documents (data collection). Finally, vou	
	need to write more explicitly how you	
	analysed the data and how the framework	
	developed in section 2 provided you with	
	the guidance for this. Consider using terms	
	like 'unit of analysis', 'research objects',	

	'data collection' and 'data analysis' as headings. This will help the reader to	
	logically lead to a sound conclusion.	
2d.	Iogically lead to a sound conclusion. findings: unless I overlooked something, the structure that was used to present the findings comes a bit out of the blue. The findings section has headings such as 'budget allocation', 'stakeholder involvement' etc. These have not been explicitly introduced (e.g. in your framework or methods) as important categories that you will look at. I would expect the findings to have a structure that is in line with the framework introduced in section 2, for instance: indicators of an engineering resilience approach vs. indicators of an ecological resilience approach. I am not suggesting that this is the only way to structure the results, but in any case the structure should be more explicitly connected to what you discussed in provious eactions	We have now developed the findings based on the research questions. As for the discussion in Table 5, this is based on the typology explained in Figure 1.
2e.	discussion: there is a discussion of the results. But these results need to be connected more explicitly to existing literature. Try to be more explicit about whether your findings are new, or whether they corroborate or contradict what others have written. You also need to give a critical reflection on your own research (strengths and limitations) and suggest next research steps. So to summarize, I think that the paper is pote existing literature needs to be strengthened a needs to be brought out much more explicitly trust that this paper provides a valuable contra-	We hope that the resultant Table 5 may provide a better illustration that links the literature to the findings and discussion sections. There are also additional paragraphs in the discussion and conclusion section that speak to this point. We put some explanation to indicate the corroborate and contradict with other papers. For example, line 454-457 and line 506-509. Entially interesting. However, its embedding in nd the overall logic of the line of argumentation . If the authors manage to address these issues, I ibution to the literature.


Wiwandari Handayani <wiwandari.handayani@pwk.undip.ac.id>

IJDRR Reviews complete and decision pending for your manuscript IJDRR_2018_483_R1

1 message

International Journal of Disaster Risk Reduction <EviseSupport@elsevier.com> Reply-To: ijdrr@elsevier.com 18 December 2018 at 12:56

To: wiwandari.handayani@pwk.undip.ac.id

Reference: IJDRR_2018_483_R1 Title: Operationalizing resilience: A content analysis of flood disaster planning in two coastal cities of Central Java, Indonesia Journal: International Journal of Disaster Risk Reduction

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4 messages

Sébastien Penmellen Boret (International Journal of Disaster Risk Reduction)

18 December 2018 at 13:38

<EviseSupport@elsevier.com> Reply-To: sebastien.boret@icloud.com To: wiwandari.handayani@pwk.undip.ac.id

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Kind regards,

Dr Boret Associate Editor International Journal of Disaster Risk Reduction

Comments from the editors and reviewers:

-Reviewer 1 Accept

--Reviewer 2

- the current version modified based on the comments from previous reviewers, reorganized with the four detailed research questions, add more references related to the paper suggested by the reviewers, and it shows the relationship among national, regional and local government agencies in developing disaster resilience. figure 1 and table 5 are still a litter bit hard to understand. just as discuss, to my opinion, resilience as a whole nation concept, it should be the complex network of compose of all kinds of policies.

-Reviewer 3

-

The authors have substantially revised their manuscript, taking into account comments of all three reviewers. The literature review has been expanded, the methods have been clarified, revisions have been made in the discussion and conclusion section, besides various smaller revisions. In my view, the manuscript has much improved. The manuscript provides detailed and interesting empirical findings that contribute to the debate on operationalizing resilience. I do have some remaining comments though:

1) figure 1 needs to be referred to more explicitly in the text. What is it showing, and (how) are you going to use the categories contained in the figure in the results/discussion section?

2) I have difficulties to understand the structure of section 5 and 6 – the headings that are being used don't seem to have been introduced before and don't seem to be explicitly connected to the categories identified in section 2. This needs to be explained more explicitly.

3) Related to this, the names of the columns in the table in the discussion seem to be important analytical categories that should be based on an analytical framework – but again I don't see the explicit connection with section 2. Please explain.

4) The quality of the English, in general, is ok, but is weaker in the discussion and conclusion – this requires a detailed check of the text in these sections.

Smaller comments:

- End of section 1: when you mention which sections will follow, there is no need to mention section 1.

- Sometimes simple present is used while the text refers to past events (e.g. in line 314, 'reaches' instead of 'reached').

- The first paragraph of section 5 seems to belong to the methods section.

- Open question: isn't the fact that apparently in Indonesia there are several translations of the word 'resilience' an interesting notion that deserves to be unpacked, since it may point to important context issues that might help us understand why resilience is operationalized in a certain way?

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Wiwandari Handayani <wiwandari.handayani@pwk.undip.ac.id> To: mega.febrina18@pwk.undip.ac.id 18 December 2018 at 13:48

[Quoted text hidden]

Wiwandari Handayani <wiwandari.handayani@pwk.undip.ac.id> To: Dolores Foley <dolores@hawaii.edu>, micahrf@hawaii.edu 18 December 2018 at 14:19

Dear Bu Dolores and Micah...

We already have the result from IJDRR. Minor revision. I will try to improve soon as possible and send the revision to you.

... and may I send you an initial warmest greeting prior to Christmas and end year holidays. Hope you will have a great plan for end year season.

Best, Wiwiek

------Forwarded message ------From: **Sébastien Penmellen Boret (International Journal of Disaster Risk Reduction)** <EviseSupport@elsevier.com> Date: Sel, 18 Des 2018 pukul 13.38 Subject: IJDRR Revision requested for IJDRR_2018_483_R1 To: <wiwandari.handayani@pwk.undip.ac.id>

[Quoted text hidden]

Micah Fisher <micahrf@hawaii.edu> To: Wiwandari Handayani <wiwandari.handayani@pwk.undip.ac.id> Cc: Dolores Foley <dolores@hawaii.edu> 18 December 2018 at 15:08

Congratulations Ibu Wiwiek!

Nice comments from the reviewers and doesn't seem like much needs to be done.

Let me know if I can help, especially clean up the English language sections in the discussion and conclusion as noted by Review 3.

Thanks,

Micah [Quoted text hidden]

5. 2nd Revised Version Submitted



IJDRR Received revision IJDRR_2018_483_R2

1 message

International Journal of Disaster Risk Reduction <EviseSupport@elsevier.com>

14 January 2019 at 15:00

To: wiwandari.handayani@pwk.undip.ac.id

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Operationalizing resilience: A content analysis of flood disaster planning in two

3 coastal cities in Central Java, Indonesia

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5 Abstract

6 Global concern has sought to connect resilience with the field of disaster risk reduction, which was prominent in the Hyogo Framework for Action (2005–2015) and updated in the Sendai Framework for 7 8 Disaster Risk Reduction (2015–2030). However, Dedefining disaster risk reduction and resilience as policy 9 goals geared towardsto reducinge vulnerability and minimizinge risk requires a closer examination. of This 10 research examines operationalization of resilience through in programs and budgets of development 11 plans- including the , programs , and budgets in Indonesian cities. Therefore, , in an effort to connect global 12 commitments to local action, this paper examines local development plans (i.e., RPJP, RPJMD, and RKPD) 13 in two coastal cities in Central Java: Semarang and Tegal. <u>t</u>This paper investigates the documentation of 14 planning policies in the Indonesian context, examining from National to local level efforts. The research 15 (locus on Semarang and Tegal) to understand-specifically how the analyzes case studies at two cities, 16 Semarang and Tegal, and highlights how these sitesdocuments- have accommodated the term of 17 resilience to address flooding., how they are connected, and what are the proposed program to provide 18 lessons for future planning policies in Indonesia. The scope of the research focuses on flooding as it is the 19 most commonly experienced hazard across Indonesia. Content analysis is applied to assess the 20 corresponding identified planning documents. The content analysis is further verified through focus group 21 discussions among key stakeholders. Findings indicate that there are fourteen areas of plans/programs in 22 terms of reduced exposure to hazards, lessened vulnerability of people and property, improved 23 management of land and the environment, and improved preparedness for adverse events that to address 24 flooding in the two selected cities-under the responsibility of four local agencies. The elaboration of the 25 resilience-related programmes provides important lessons that operationalizing resilience should be 26 integrative and comprehensive, and require both short-term actionable initiative(s) and long-term 27 transformative frameworks. 28

29 Keywords: Resilience, Operationalizing Resilience, Flood, Disaster Risk Reduction, Central Java

32 1. Introduction

33

30 31

34 Resilience is an emerging terminology discussed across various perspectives, and its meaning continues 35 to be interpreted, re-interpreted, and contested. Because of its complexity, Davoudi et al. [1] believe that 36 resilience will be no more than another "buzzword" if the definition is not clarified and put in the right 37 context. Meerow et al. [2] and Jabareen [3] further highlight the ways that resilience is a multifaceted 38 term, that is characterized in differently ways depending on the discipline. Urban resilience appears as 39 offers one important emerging study areadiscourse as more people live in urban areas, and that much of 40 the gap to meet resilience will occur among medium sized cities, across the Asia-Pacific region-in the 41 current decade [4,5]. Scholars also emphasize the importance of defining urban resilience 42 comprehensively, which is done in an integrative approach to accommodate urban complexity.

43 Despite the continuing interest in resilience and the continuing conversation about its definition, there 44 are global movements seeking to convey urban resilience for policy mainstreaming. Therefore, repeated 45 calls are being made—especially among administrators who must implement resilience plans—to be more 46 practical in implementation. Beginning in 2008, the Asian Cities Climate Change Resilience Network 47 (ACCCRN) provided groundbreaking work to bring resilience into the global conversation in the context of 48 climate change and the promoting efforts for climate adaptation approach. ACCCRN has developed a 49 framework to promote urban resilience through an inclusive process involving government, communities, 50 and other stakeholders to empower people and member cities (https://www.acccrn.net/about-acccrn). 51 Following the establishment of the ACCCRN program in 10 Asian countries, in 2013, the Rockefeller 52 Foundation also established the 100 Resilient Cities (100RC) program to promote urban resilience in a 53 more comprehensive way by providing a framework for resilience. The foundation's approach presented 54 a lens to examine the major drivers of vulnerability, which is called the blue wheel, providing an impetus 55 for member cities across the world to become more resilient (http://www.100resilientcities.org/about-56 us/). The Hyogo Framework for Action 2005–2015 [64] and Sendai Framework for Disaster Risk Reduction 57 2015–2030 [75] have connected the importance of resilience to-with disaster risk reduction. The 58 frameworks introduce disaster resilience as a global commitment. In Indonesia, global action is 59 interpreted and enacted through the establishment of the Indonesian National Board for Disaster 60 Management (INBDM) at the national level, and, in turn, regionally as Disaster Management Boards 61 (DMB). Since 2007, INBDM presents publishes a National Progress Report on the Implementation of the 62 Hyogo Framework for Action in Indonesia every two years since 2007.

63 <u>In the Among global disaster resilience frameworks, resilience is defined as the capacity or ability of a system, community, or society exposed to hazards to be able to adapt and recover in the minimum possible time [64]. Accordingly, Forino et al. [6] further some scholars conceptualize disaster resilience as any adaptation approach to address emerging hazards or initiatives that seek to reduce high-risk areas and activity address on disaster recovery [8,96,107,118 Chelleri, EAA/Lonsdale]. Focusing on flood resilience, Hegger et al. [129](2016) has translated the disaster resilience by combining Flood Risk Management (FRM) principles with particular forms of capacity.</u>

70 As-In an effort to reinforce the implementation of resilience initiatives/plans, some scholars develop a 71 conceptual framework showing that urban governance is an elementary aspect that requires further reference-investigation [2,3,13107]. Urban governance is suggested as the mechanism to-for managinge 72 73 urban resilience because it encompasses any determination efforts to improve quality of life, spatial 74 organization, environmental management, and economic activity [1418]. Urban governance concepts 75 may include the decision-making process, inclusivityeness, and collaboration to address the resilience 76 challenges. Accordingly, urban policy serves as a guidance to for understand-translating the governance 77 principles aspect in of resilience, and therefore, can is very important and influencetial approaches for to 78 creatinge a resilient city.

79

Nevertheless, some studies show evidence of challenges in addressing disaster resilience in development
 planning policies. Moloney and Fünfgeld [1529] revealed the important role of local government in their

82 examination of multi-level climate governance and adaptive capacity building in Melbourne, Australia.

83 River et al. [1063] investigated policy integration as critical for disaster management in Nicaragua. Based

84 on the study in Shah Alam City in Malaysia, Khailani and Perera [1741] revealed a proposition to improve

85 the capacity of local authorities, including elements engaging local communities, to promote disaster

86 resilience. Focusing on disaster management, Madan and Routray [1285] also did a study on Delhi, India, 87 and reached a similar conclusion as Khailani and Perera [1741], to focus on building key capacities. 88 However, there is still a lack of studies on the amalgamation of disaster resilience into planning policies, 89 mainly-particularly in Asian countries. Some research has elaborated resilience approaches to be more 90 operationalized. Wardekker et al. [196], in which they(2010) examineds how local actors in Rotterdam 91 appliedy resilience principles to discuss shape policy discussions and develop options for maintaining delta 92 areas those that are prone because of to emergent effects from climate change. Hegger et al. [129](2016) 93 operationalizes the term-of "flood resilience" and links that-it with Flood Risk Management (FRM) 94 approaches in some European Countries. The limited research available has used-utilized content analysis 95 as a way to investigate examine particular policies related to resilience, climate change adaptation, and 96 disaster resilience. Torabi et al. [20173] examined two-local government policies in two cities in Australian 97 cities. Forino et al. [6] have also unpacked development policies in among three Australian local 98 governments. In the UK, White and Richards [21184] have elaborated on the link between planning policy 99 and flood risk at the national and local levels, and Chmutina et al. [22195] further examined 30 policy 100 documents in the country to understand how resilience is understood, and what kind of actions are 101 executed to make areas within the nation becoming more resilient.

102 Considering the critical role of urban policies to promote resilience in disaster risk reduction and resilience 103 as a policy goals to reduce vulnerability and minimize risk compels us to more closely examine the 104 operationalization of resilience policies among development plans, including features present among the-105 programs, and budgets, and the responsible agencies in Indonesian cities. There are four main research 106 questions: (1) to what extent are the planning document-planning policies have accommodatinged the 107 terms of resilience to address flooding in planning documents? (2) How are they are connecting local 108 actioned with from-global, national, and regional priorities, to local action? (3) what kind of resilience 109 approaches are applied in the proposed programs? Could that such approaches be categorized as a 110 transformative resilience approach with geared towards a long-term perspective or it is just a are they 111 more re-active and of shorter-term orientation?- And Finally, (4) what are the important lessons for future 112 planning policies and how can they be geared towards a those are sounds more holistic resilience 113 orientation?. The research aim is to contribute to literature and practices of resilience by making a content 114 analysis of disaster policies in Central Java, Indonesia. Therefore, in an effort to connect global 115 commitments to local action, this paper examines local development plans in two coastal cities in Central 116 Java: Semarang and -Tegal. This paper also investigates Another benefit of this analysis is the overall 117 examination of how local commitment ----is connected to regional and national policies and 118 priroities priorities. Accordingly, we focus the unit of analysis of the research is the policy document from 119 national to local level.

120 Semarang represents a metropolitan city area that has been engaging in-with global networks efforts to 121 promote resilience, such as which include the ACCCRN network and 100RC programs. Tegal, on the other 122 hand, is a medium-sized city that has grown rapidly in recent years despite the area being prone to 123 flooding. Unlike Semarang, Tegal has never engaged in collaborative work with external partners to 124 address flooding in the city. All programs related to flooding in Tegal are the responsibility of government 125 at the local, provincial, and national levels. As noted, tThe scope of this research revolves around the 126 examination ofes flooding as the most commonly experienced hazard. In line with outline of local 127 development planning documents in Indonesia, Tthere are three basic elements to cover in-with regard

128 <u>to examining</u> flood management policies: <u>i)</u> the scope of the programs, <u>ii)</u> budget allocation, and <u>iii)</u> the 129 role of government, including its capacity to expand collaboration.

This paper is organized into seven sections. Following provided an introduction to provide some context 130 131 and rationale for the study, section 2 elaborates the definition and developing framework of resilience as 132 the theoretical background of the study, mostly in the context of urban resilience and disaster resilience. Section 3 describes types of development planning policies in Indonesia, to comprehend the documents 133 134 providing context for framing those are used in the content analysis. Section 4 briefly explains the content 135 analysis method including a list of the examined documents from National, Regional, and Local levels. 136 Section 5 presents some findings, including the results of the content analyses. and This includes further 137 examination on program of the local development plans, budget, stakeholder involvement, and the 138 implication of global commitment to the national/local initiatives followed by a discussion in section 6 onf 139 operationalizing resilience based on literature review on the resilience notion. their sbetween the Section 140 7. In the finallast section the paper concludes with some remarks concerning on how the global 141 commitments turn are into some operationalized into resilience actions in the at local levels, as well as 142 key areas that that other contexts might learn from.

143

145

144 2. Defining Resilience, Urban Resilience, and Disaster Resilience

146 Developing interests in the resilience concept have led to various definitions of the term. Meerow et al. 147 [2] for example, reveal that there are at least 25 definitions of resilience from different disciplines. In the 148 initial resilience_definition and application to socio_ecological systems, C.S. Holling [23016] applied a 149 framing of socio-ecological systems, defininged resilience as the ability of a system to "bounce back" to 150 face from a disturbance. However, mostly in the context of urban resilience, the capacity to bounce back 151 is not as simple as the ability to return to equilibrium in addressing a disturbance., but it-Indeed the may 152 also cover recovery process highlights how the capacity of a system to might persist or maintain inherent 153 vulnerabilities, and thus present the possibilities of or to-reaching a new threshold when it experiences 154 relative to a disturbance. Davoudi et al. [1] have differentiated the resilience concept into two categories: 155 "engineering resilience," and, "ecological resilience." Engineering resilience is rooted in Holling's [23016] 156 classic definition of resilience and focuses on a-singular situation of equilibrium, while ecological resilience 157 may capture multiple equilibrium situationsa non-static definition of equilibrium.

158 The urban planning system is comprised of ever-changing inter-related components. White and O'Hare 159 [24117] further differentiate resilience in the planning perspective to incorporate into two main terms, 160 namely, "equilibrist resilience" and "evolutionary resilience." Equilibrist resilience is similar to Holling's 161 interpretation taken from engineering resilience, which aims to achieve a pre-existing normality, 162 characterized as techno-rational, shorter term, and reactive. <u>e</u>Evolutionary resilience, on the other hand, 163 is likely to be, characterized as a socioecological resilience per Davoudi's categorization. This notion aims 164 to achieve a new, proactive normality, striving for new, improved thresholds, focusing on medium- to 165 long-term achievements. Jabareen [3] believes that urban resilience should put more emphasis on 166 ecological resilience, as disturbances may come from various external factors or in planning perspectives 167 categorized as evolutionary resilience.

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Despite these developing concepts and definitions, there is now more evidences showing that application
 of the resilience concept mostly in the context of to the urban resilience context [2,3,25218,26319,2740]

170 and in disaster resilience terms [129,26319,2740,2851]. -, Hegger] is important to be accommodated 171 comprehensively on addressing multi-faceted of shocks and stresses. Along with the discourse, 172 urbanization also appears as one important phenomenaphenomenon to be better understood as 173 Furthermore, disasters from hydrometeorological hazards affected by mostly-climate-related disasters 174 stressors are likely to occur happen in low-lying urban areas located in the coastal zone [2,4]. There are 175 mMore than 50% of people categorized as living in urban area worldwide [262], and most of them are 176 vulnerable to particular these types of climate-related vulnerabilities disaster [296]. FFloods are the most 177 common type manifestation of these urban disaster vulnerabilities in Asia [30273], including and applies 178 in to Java as well [31284]. Floods occur not only because of changing rainfall and sea level rise but also 179 due to uncontrolled development [32295]. Urbanization has created pressures to urban areas as it can be 180 reflected on the significant growth of built up area within the city center. Mmore built up areas, as well 181 as slum areas and particularly informal communities, as well as slum areas create additional burdens 182 challenges on governments to provide safety for people relative to costly infrastructure improvements. 183 Based on this literature, tThere is an urgent need to operationalize the term of resilience from 184 conceptional notions to be more to more practical applications. Some scholars explore some-resilience-185 oriented actions based on adaptation approaches. Lonszdale et al. [118] for example, (2015) differentiates 186 the approach into three different types of approaches: ;- coping;; incremental adaptation;; and 187 transformational adaptation. Similarly, Chelleri et al. [97](2015) categorizes three types of 188 actions/responses so called as under the headings of recovery, adaptation, and transformation. These 189 various -as-stages of resilience are based on their temporal-time horizons. Focusing on flood, -Hegger et 190 al. [129](2016) has translated the disaster resilience into three types of capacities: those are with the 191 capacity to resist;, capacity to absorb -and recover;, and, capacity to transform and adapt. Rooted from a 192 classical notions of resilience, [16,30](Folke, Holling) there are progressive approaches to have a more 193 concrete illustration of operationalizing disaster resilience concept in development policies. Figure 1 194 further illustrates evolving disaster resilience concepts, highlighting the move from theoretical to -from 195 conceptional to a more operational. 196

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198					
	i <u>Conceptual</u> sul i i 되고	Engineering Resilience		 Socio-ecological Resilience Evolutionary Resilience 	[<u>1]</u> [2 330] [3 2±4]
	ce Disc laptatic pproac	Recovery	Adaptation	Transformation	<u>[74]</u>
	esiliend	Coping Approach	I Surviving/ Protecting I	<u>Pro-active & Transformative</u> <u>Approach</u>	[8 5]
	[™] I V Operational	Capacity to resist	Capacity to absorb and recover	<u>Capacity to transform and</u> <u>adapt</u>	[12 69]
	Jime frame	Short-term		► <u>Long-term</u>	
	Focus	Single Equilibrium		Multiple Equilibrium	
	Type of initiatives	<u>Re-active</u> Focus on maintaining current normal situation		<u>Pro-active</u> <u>Focus on achieving new/</u> <u>different normal situation</u>	

199 200 201 202 203 204 205 206 207 208	Note: **Example of actions/ initiatives to increasing threshold) Building higher dikes, re-build broken house, fixing damage developing insurance system, building higher house, developing insurance system New policy orientation in spatial and development planning, floating house instructions in code (any action to increasing threshold) Note: **according to further examine the programs applied in the research area (Semarang and Tegal) in Table 5. **according to the Indonesian policy framework, list of actions/initiatives can be traced in the development planning document in the local level (see Fig. 2). They include name of the actions/initiatives stated as program, allocated budget, and the responsible agency to execute the program. Figure 1. Resilience Notions: From Conceptual to Operational By further elaborating the resilience term from the perspective of conceptual By combining the resilience term from the perspective of conceptual to operational, table to operational to operational to operational to operational.	Formatted: Highlight
209 210	these types of actions are re-active and very much focused on maintaining the most normal situation.	
211 212	These will lead to most likely single equilibrium of resilience. While, on the contrary, there are types of initiatives which are focused on long-term perspective to achieve 'new' normal situation, very much pro-	
213	active and therefore, the orientation is multiple equilibrium in character. Thus, the application of	
214 215	resilience concept is various, depends on the types of actions and in which perspective of adaptation approach is we stand for.	
216		
217		
218		
219	3. Development Planning Policies in Indonesia	
220 221 222 223 224 225 226 226 227	Development planning policies in Indonesia are divided into two categories: development planning policies (non-spatial) and land use planning policies(spatial). Accordingly, integration and coordination between these two types of policies are very important as they accompany one another. Law No. 26, 2007 provides details about the spatial planning system in Indonesia, and Law No. 25, 2004 explains strategic development planning policy. Fig. <u>1-2</u> explains the three levels of policy for both categories, classified as National, Regional (Provincial), and Local Policies. Each level includes long-term policies (20 years), midterm policies (5 years), and <u>planning</u> implementation plan guidelinespolicies (1 year).	

Some considerable challenges have emerged in the implementation of the spatial and strategic 228 229 development planning policies. Challenges include approaches to integration between spatial and non-

230 spatial plans and vertical integration between national, regional, and local development policies.

231 Furthermore, the decentralization policiesy applied in 1999 provided more authority to local governments

232 and reduced the role of the provincial and national government. After-Upon decentralizing authority to 233 the local government, institutional capacity challenges began to show upwere evident, including lack of 234 qualified human resources, weaknesses in policy implementation, and unclear accountability 235 mechanisms. The authority changes also created substantial challenges regarding conflict of interest 236 among sectors to address particular cross-sector problems, especially in addressing the complexity of 237 addressing disasters. There are at least five important leading agencies included in disaster-related issues. 238 The Planning Board is the coordinating agency, the Public Works Agency is responsible for infrastructure 239 provision (to reduce/control the flooding events), the Disaster Management Agency is responsible for 240 early warning and preparedness, the Spatial Planning Agency for land use management, and the 241 Environmental Agency is mostly related responsible forto waste management and other environmental 242 impact approvals.





243

246 4. Methods

247 Applying Content Analysis

248 This study applies content analysis as the main method to capture inferences and logic of interpretation

- 249 <u>from selected documents. There are three types of inferences: (1) Deductive, that is, from general to</u>
- 250 particular, (2) Inductive, which is from particular to specific, and (3).-Abductive, which is from one kind of
- 251 <u>particular to another kind of particular [34126]</u>. This study focuses on abductive inference since the term
- 252 resilience is practically new as a policy in the Indonesian context. Therefore, the content analysis is applied
- to investigate how the term is articulated in the selected documents. According to Carley's [35]

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explanation on applying content analysis, investigating a manuscript may focus on counting the number
 of particular word(s) or terms used in the selected documents. The number or particular/chosen word(s)
 used in the documents indicates how important the term is from the government's perspective and may

- also indicate how the terms/words are comprehended.
- 258
- 259

260

261 Content analysis is applied to address the concept of resilience to further clarify the operationalization of 262 resilience articulated in the planning documents. Chelleri et al. [297] state that one confusion of rom 263 applying resilience is whether it is defined as engineering resilience or socio-ecological resilience. In the 264 context of disaster risk reduction, resilience is usually simply understood as engineering or equilibrist 265 resilience that focuses on the shorter term and aims to achieve pre-existing normality [365228]. The 266 challenge for sustainability is for the discourse-to focus on the longer term, on a multi-scale and wider 267 dimension. In line with the developing notions on disaster resilience (see Fig. 1), Hthere are three 268 approaches to accommodate resilience in the planning process [10829]: (1) the coping approach to reduce 269 the disaster risk, (2) the adaptation approach that includes involves surviving and protecting the current 270 existing system, and (3) the proactive initiative for longer-term and transformational action. In terms of 271 the type of the-capacity [119Hegger], it-resilience is categorized as (1) capacity to resist, (2) capacity to 272 absorb and recover, (3) capacity to transform and adapt. -Accordingly, this study includes both 273 development planning and spatial planning documents for the short-, mid-, and long-term to further 274 examine the ability of the document to capture the sustainability and dimension of disaster resilience of 275 the chosen cities.

276

277 <u>Data Collection and Analyses</u>

278 This study applies content analysis as the main method to capture inferences and logic of interpretation 279 from selected documents. There are three types of inferences: (1) Deductive, that is, from general to 280 particular, (2) Inductive, which is from particular to specific, and (3) Abductive, which is from one kind of 281 particular to another kind of particular [26]. This study focuses on abductive inference since the term 282 resilience is practically new in the Indonesian context. Therefore, the content analysis is applied to 283 investigate how the term is articulated in the selected documents. Two main approaches are applied: 284 examining the vocabularies and making contrasts/comparisons among the selected documents. Following 285 the development planning system as illustrated in Fig. 42, Table 1 describes the list of documents 286 examined. The documents are classified into three levels based on the government hierarchy: national, 287 regional (provincial), and local. The development planning documents are divided into two categories: 288 development policy (long-term, mid-term, and short-term) and spatial planning document. Nineteen 289 documents have been were analyzed from the national to the local level, and most of them are 290 development planning policyies documents (15 out of 19). Apart from the listed documents, four reports 291 of Resume on National progress rreports on the implementation of the Hyogo framework were released 292 every two years since 2007, which were also used as references to verify the content analyses results.

293 Two main approaches are applied used, namely: examining the vocabularies and making 294 contrastings/comparinsongs among the selected documents. Two FGDs (Focus Group Discussions) were 295 also applied-conducted in Tegal and Semarang to further clarify the findings from the content analysis. 296 Based on literatures related to resilience operationalization and urban policy implementation, three 297 leading questions as provide the basis for the FGDs. These -were issues of (i) policy integration, (ii) equity 298 principle in the implementation, and (iii) consideration of accommodating environmental problems and 299 economic value. The participants weare from government agencies (see Table 1.) that have programs 300 related to flood and/or disaster issues as the scope of this research is limited to examining the 301 operationalization of flood resilience initiated by the government. Referring to the typology of resilience 302 illustrated in Fig. 1, further examination was doneconducted for local level (i.e., Semarang and Tegal) 303 development planning documents. to-This was conducted in order to investigate types of action to 304 promotinge disaster resilience. The investigations are-focuseding on the-programs, budgets, and the 305 responsible agenciesy.

307 Content analysis is applied to address the concept of resilience to further clarify the 308 operationalization of resilience articulated in the planning documents. Chelleri et al. [27] state 309 that one confusion of applying resilience is whether it is defined as engineering resilience or socio-310 ecological resilience. In the context of disaster risk reduction, resilience is usually simply understood as engineering or equilibrist resilience that focuses on the shorter term and aims to 311 312 achieve pre-existing normality [28]. The challenge for sustainability is for the discourse to focus 313 on the longer term, on a multi-scale and wider dimension. There are three approaches to 314 accommodate resilience in the planning process [29]: (1) the coping approach to reduce the 315 disaster risk, (2) adaptation that includes surviving and protecting the current system, and (3) 316 proactive initiative for longer-term and transformational action. Accordinaly, this study includes 317 both development planning and spatial planning documents for short-, mid-, and long-term to 318 further examine the ability of the document to capture the sustainability and dimension of 319 disaster resilience of the chosen cities.

321 Research ObjectsCase Study Sites

322 Creswell [37630] states that a case study is an approach in qualitative research in which the researcher 323 focuses on a particular program, activity, or process to be investigated. This case study is focused on 324 investigating the development plans of two study areas: Semarang City and Tegal City. The two cities are 325 located on the northern coast of Central Java Province. Semarang is a metropolitan city with 1,500,000 326 inhabitants, and Tegal is an intermediate or medium-sized city of around 250,000 people. Semarang as a 327 large city experiences higher rainfall compared to Tegal. The rainfall ranges between 550-750 mm/month 328 in the rainy season in Semarang while Tegal experiences 450-650 mm/month in the same season. 329 Semarang also has more significant flood events. It almost reaches reached 70 flood events in 2013 taking 330 place in-across 47 urban villages, mostly located in the coastal areas, while Tegal experiences 17 flood 331 events [31284]. Both are growing and important cities located in the-low-lying and flood prone areas in 332 coastal Java. However, due to its involvement in two global networks (i.e., ACCCRN and 100RC programs), 333 Semarang is more advanced in addressing such disasters, as well as and more adept to addressing climate 334 change and resilience issues compared to Tegal.

335

306

336 There are at least three types of floods that occur in the two cities. As they are both coastal areas, they 337 both experience tidal flooding. Tidal floods occur mostly in the coastal villages because of land subsidence 338 and rising sea levels. However, as low-lying areas, they also experience flash flooding and inundation from 339 local rainfall and poor drainage maintenance infrastructure. Flash flooding can take place when there is a 340 high rainfall event in the upstream areas that surpass the capacity to absorb rainfall into the ground and 341 overflows the limits of rivers and drainage infrastructure to direct water to the sea. Villages prone to flash 342 floods are mostly located along the riverbanks in midstream and downstream areas. The last type of flood 343 inundation takes place in dense urban areas, where drainage is inadequate and poorly maintained. Poor 344 waste management from settlement and commercial areas and inadequate collection systems also 345 contribute to clogging the system.

346 Table 1 Selected Documents

No	Title of the document	Veer	Ту	pe		Level		Pla	iod	
NO	The of the document	fear	DP*	SP**	National	Regional	Local	Long	Mid	Short
1	National Long-Term Development Plan (RPJPN)	2005-2025	*		*			*		
2	Long-Term Development Plan of Central Java Province	2005-2026	*			*		*		
3	Regional Long-Term Development Plan of Semarang City	2005-2027	*				*	*		
4	Regional Long-Term Development Plan of Tegal City	2005-2028	*				*	*		
5	National Mid-Term Development Plan	2015-2019	*		*				*	
6	Mid-Term Development Plan of Central Java Province	2013-2018	*			*			*	
7	Mid-Term Development Plan of Semarang City	2016-2021	*				*		*	
8	Mid-Term Development Plan of Tegal City	2014-2019	*				*		*	
9	National Government Work Plan	2017	*		*					*
10	Annual Plan of Central Java Province	2017	*			*				*
11	Annual Plan of Semarang City	2017	*				*			*
12	Annual Plan of Tegal City	2017	*				*			*
13	National Spatial Plan	2007-2027		*	*			*		
14	Spatial Plan of Central Java Province	2009-2029		*		*		*		
15	Spatial Plan of Semarang City	2011-2031		*			*	*		
16	Spatial Plan of Tegal City	2011-2031		*			*	*		
17	National Disaster Management Plan	2015-2019	*		*				*	
18	Indonesia Disaster Risk (RBI)	2016	*		*					*
19	Flood Contingency Plan of Central Java Province	2011	*			*				*

*DP: Development Planning Policy (non-spatial)

**SP: Spatial Planning Policy

- 348
- 349
- 350

351 5. Findings

352 Flood Resilience Programmes: From National to Local Development Policies

353

354 Following Carley's [3741] explanation on applying content analysis, investigating a manuscript may focus 355 on counting the number of particular word(s) or terms used in the selected documents. The number or 356 particular/chosen word(s) used in the documents indicates how important the term is from the 357 government's perspective and may also indicate how the terms/words are comprehended. the 358 explanation on how content analyses is applied in previous section, Accordingly, Table 2 shows the list of 359 word(s) related to flood resilience used in the planning documents listed in Table 1.

361 Table 2 Number of Related Vocabulary Used in the Selected Documents

360 362

		National F		Bog	ional		Lo	cal	
No	List of vocabulary			кед	ionai	Sem	arang	Tegal	
		DP*	SP**	DP*	SP**	DP*	SP**	DP*	SP**
1	<i>Resilience*), Resilient*),</i> Resilience, Resilience, Resilient	94	4	96	3	89	3	33	4
2	Sustainable development*), Sustainable development	22	0	3	0	10	1	8	1
3	<i>Climate change*</i>), climate change, climate change adaptation	55	1	22	1	26	0	1	0
4	Disaster*), disaster, disaster management, disaster control, disaster prevention, disaster mitigation, disaster anticipation, disaster risk, disaster risk reduction, impact of the disaster, post-disaster, recovery, preparedness, early warning system	131	20	141	23	305	97	72	43
5	Flood	17	6	45	4	139	30	31	7
6	Vulnerability	33	1	25	0	8	0	5	0
7	Local government, community capacity, Government capacity, institutional capacity, infrastructure capacity	132	5	107	21	129	45	183	38

**SP: Spatial Planning Policy

*) Stated in English

363

364 Table 2 presents several interesting findings. The word "resilience" and other similar words (there are several ways that Indonesians translate resilience) are used in all documents but not necessarily in the 365 366 context of disaster. Disaster resilience appears only 6-six times out of 98 words related to resilience in the 367 national documents and 2-two times out of 99 words in provincial documents. Even for Semarang and 368 Tegal, the word resilience is applied in various contexts (food, economy, and infrastructure) but not 369 directly in addressing disaster. Hence, the idea of resilience is somehow implied in the documents under 370 the theme of sustainable development. Sustainable development and resilience are mostly applied in the

371 discourse of food security and economic resilience. Food security is the most frequently-used term likely to have the closest context to resilience. It is in line with national regulation, Law No. 7, 1996 which states that food security is "the fulfi<u>l</u>ment of food for every community that is reflected from the availability of adequate food, both in quantity and quality, safe, equitable, affordable, and base on the diversity of local resources." This definition is also closely related to the word vulnerability, as it can also be applied to address vulnerability to food and disaster. Economic resilience is applied to address some socioeconomic issues, namely poverty₄ and unemployment.

378

379 Even though the term resilience is unlikely to be stated in the context of disaster, disaster is recognized 380 as the major issue mentioned in all documents. There are 300 instances of disaster specified in the 381 Semarang city planning document, which is much higher than the national document, where it is stated 382 only around 150 times. Additionally, it is important to note that Semarang also expanded the discourse 383 on disaster in the context of climate change adaptation while there is still no attention on climate change 384 or climate change adaptation in Tegal City. As elaborated in Reeds et al. [26319], the involvement of 385 Semarang city in ACCCRN has led to the programs mainstreamed in the city's policy documents. Following 386 the conversations on disaster, it is also clear that Semarang also flooding is regards floodinged as a big 387 major challenge for at all policy levels, including in Semarang and Tegal, as the word flood is mentioned 388 many times; even in Semarang, it (appearings more than 130 times).

389

Another emerging issue is that spatial planning policies have not accommodated disaster-prone areas and climate change as a critical problem that should be carefully addressed. This is indicated by comparing the related words used in development policy and spatial planning policy. All those words are considered to be related with disaster resilience are used less frequently in spatial planning documents in comparison to development planning documents for all government levels (see Table 2). ThoughHowever, there are many scholars who have been calling for further attention on the importance of spatial planning to address flood and disaster resilience [77,107,217].

397

398

Table 3 further summarizes the articulation of disaster resilience across planning documents across at the three different levels of government and between the two cities.

403 Table 3 Comparing National, Regional, and City Level of Planning Documents

Ì

	National	Pagianal		Local
	National	Regional	Semarang	Tegal
Scope of discussion	Disaster (flood) resilience is not explicitly addressed. Resilient/resilience is stated in the context of food security, national security, socio-economic, and cultural aspect. Disaster issues focus_on coastal based disasters considering Indonesia as an archipelago country	Flood is an issue to be addressed. However, similar to the national level, the context of resilience/resilient is applied for different aspects, mostly food security and socio-economic resilience.	Flooding is a big issue for Semarang. Even though there are not any explicit statements on disaster resilience, resilience is mentioned in various contexts (similar to national and regional levels), the closest to flood resilience is community resilience to address disaster.	Flooding is not considered a big issue even though it happens several times a year. Resilience is mentioned only in the context of food security.
Strategies	Three main focuses: (1) disaster risk reduction within the framework of sustainable development; 2) reducing vulnerability; 3) enhancing the capacity of government and communities in disaster management.	Role of community appears to be an important theme to address disaster. There are several strategies such as strengthening local institutions and improving local people's knowledge/awareness to address disaster. Thus, it may lead to the concept of disaster resilience.	There are two main strategies: (1) disaster risk reduction through community participation, and (2) infrastructure improvement.	There is not any specific strategy to cope with disaster. The importance of community participation in addressing disaster is only generally mentioned in the long-term development policy.
Programs/ Plans	No specific/explicit statements on flood and/or resilience programs	Infrastructure development/improvement is the program priority. It includes reservoir building and maintenance, river normalization, and coastal area conservation.	There are programs/plans for at lea (1) infrastructure provision, (2) com environment and land use manager more adverse flood problems, the c compared to Tegal.	st three different topics: munity engagement, and (3) nent. However, since Semarang has ity has more varied approaches

409 Local Development Plan Elaboration: Comparing Semarang and Tegal

408 409 410

411 • Programmes and Budget Allocation

As a big city, Semarang has a much better-larger financial capacity compared to Tegal. As an illustration 412 413 of 2017, the total development budget for Semarang is US\$340,-000, much higher compared to Tegal, 414 which is around US\$190,-000. Table 4 displays programs stated in in the mid-term planning process and 415 government budget executed in 2017 in Semarang and Tegal related to flooding. There are 14 programs 416 listed in Semarang and 7 programs in Tegal. The budget allocated for flood disaster-related programs is 8 417 percent of the total allocation for Semarang and only 1 percent for Tegal. It is also indicated from the data 418 in-Table 4 also indicates that Semarang distributes the budget allocation slightly more evenly compared 419 with Tegal.

420 By examining the name of the programs, it is identified that most of the budgets for flood disaster-related 421 programs focus on infrastructure. Flood control has the highest allocation for both cities. Even for Tegal, 422 more than 70 percent of the total budget is allocated only for irrigation development and flood control. 423 There are four actions identified for the flood control program in Semarang. They are constructions of 424 polders, development of a coastal embankment, river normalization, and drainage improvement and 425 maintenance. In Tegal, the actions are similar to Semarang as they include polders, pool retention, and 426 dike construction, river normalization, sea-wall development, as well as drainage improvement and 427 maintenance. However, despite the direct infrastructure provision programs, Semarang also allocated a 428 significant amount of its budget to maintain green open space and waste management, and the allocation 429 is much higher as a percentage when compared to Tegal.

430 Following the foremost action programs in infrastructure provision, a very small amount of budget is 431 allocated for disaster risk reduction and/or disaster management. Ht At the moment there is less than 5 432 percent budget allocation for disaster risk reduction and/or disaster management for both cities. The 433 →Allocation in Tegal is slightly higher compared to Semarang. It happens that all disaster-related programs 434 in Tegal are the responsibility of the local government, but due to the involvement in the ACCCRN and 435 100RC program, there is some support from external partners to work together with local government to 436 address flooding in Semarang. The Zurich Flood Resilience Program supported by the Zurich Foundation 437 is recognized as one of the programs conducted in Semarang in 2017 to improve community preparedness 438 in addressing flooding__(https://www.acccrn.net/blog/improving-community-preparedness-along-439 semarang-flood-canal).

440

441 Table 4 Programmes and Budget Allocation of Semarang City and Tegal City

		Ser	narang Ci	ty		Т	Tegal City				
No	Programmes	Annual Bud	get	Proport to mid- budg	tion year et	Annual Bud	get	Proport to mid-y budge	tion year et		
		\$ (000)	%	\$ (000)	%	\$ (000)	%	\$ (000)	%		
1	Drainage channel construction	2,543	8.97	30,711	9	127	9.32	1,837	20		
2	Irrigation development and management	2,657	9.37	25,214	17	278	20.40	486	20		
3	Flood control	8,516	30.03	43,259	22	731	53.68	5,744	21		

		Se	emarang Ci	ty		٦	Fegal City		
No	Programmes	Annual Bu	Annual Budget		tion year get	Annual Budget		Proportion to mid-year budget	
	=	\$ (000)	%	\$ (000)	%	\$ (000)	%	\$ (000)	%
4	Drainage improvement and maintainance	1,451	5.12	1,451	100				
5	Land use controlling	148	0.52	776	19			46	20
6	Spatial planning	998	3.52	941	21	37	2.73	145	20
7	Green open space management	6,518	22.98	20,759	18	105	7.71	1,264	24
8	Waste management	4,766	16.81	18,189	18	6	0.41	2,818	31
9	Pollution control and environmental destruction	456	1.61	1,337	34	28	2.03	537	21
10	Natural resources protection and conservation	91	0.32	483	19	4	0.30		
11	Climate change mitigation	9	0.03	126	7				
12	Climate change adaptation	27	0.09	142	19				
13	Disaster management	125	0.44	876	14				
14	Disaster prevention and preparedness	55	0.20	486	11	46	3.41	11	20
	Total	28,36	100			1,361	100		

442 Note:

443 1 – 6 under the responsibility of Public Works and Spatial Planning Agency

444 7 under the responsibility of Housing and Settlement Agency

445 8 – 12 under the responsibility of Environmental Agency

 446
 13 – 14 under the responsibility of Disaster Mmanagement Agency

 447

448 • Stakeholders involvement

449

Fig. 3 further illustrates the responsible agency to executinge the programs listed in Table 3. The distribution of responsibility between Semarang and Tegal is similar in general. The Public Works and Spatial Planning Agency have the greatest responsibility to <u>execute the conduct</u> disaster-related programmings. Unfortunately, most of the allocation of the program is closer to the area of public works than spatial planning. Even as the responsible agency for the disaster risk reduction program, the Disaster Management Agency has a very small responsibility, indicating lower commitment from the local government to address flooding from the perspective of disaster risk reduction.

457

A comparison of <u>between</u> the number of programs and budget allocations is another interesting aspect for further elaboration. As illustrated in Fig. <u>32</u>, the number of programs under the Public Works and Spatial Planning Agency is less than the budget allocation while in other agencies, the situation is the opposite. This indicates that apart from any programs in the area of infrastructure, the allocated budget for each program is relatively low. To further illustrate, the environmental agency in Tegal is responsible for 40 percent of the total program regarding flooding, but the agency only owns 4 percent of the total budget. The biggest program of the agency is related to waste and environmental destruction. Considering

the amount of the budget, the program may not be able to show a relevant outcome/impact for promoting disaster resilience.

467



¹ There are four progress reports: 2007-2009. 2009-2011, 2011-2013, 2013-2015

496 been able to identify and assert their role}. Accordingly, -Tthe institutional mechanisms are is still in
 497 the a transitional stagephase.

498 • Policy mainstreaming

499 The Hyogo Framework provides guidance for governments to implement disaster resilience actions. 500 There are some priorities stated that should be accommodated in the development policies of y for 501 disaster management. It is important to note that under the-decentralization-regulation, local 502 governments act as the spearhead for many-policy implementations. Guidance from the upper level (National and Regional) is very important to ensure the harmony and integration, including guidance 503 504 to accommodate global commitment. However, the content analysies result shows that national and 505 regional policies have not provided clear direction on disaster management, despite the fact that the 506 disaster in not acknowledged in the perspective of disaster resilience frameworks vet.

507 • Budget

508 There is a special regulation from the national government to ensure that local governments haves 509 the budget for Disaster Risk Reduction and other related action/initiatives. The allocated budget 510 supported by national government is still limited. According to the Resume of National Progress 511 report, national government allocates only 0,1%-0,38% for disaster risk reduction effort in-at the local 512 level. Based on examination of the programmes and budget allocations for each responsible agency 513 in the local level (see Fig. 3), another problem may also come arises from unfair budget allocations. 514 To illustrate this point, the Disaster Management Agency in Semarang holds 14% of total programmes 515 on flood/disaster resilience but is only be able to manage 1% of the total available budget. On the 516 other hand, the Housing and Settlement Agency is only responsible for 7% of the total program, but 517 the agency may have 23% of total available budget. SSimilar situation conditions also applyies for 518 inthe case of Tegal-City.

520 6. Discussion

519

521

522 • Engineering resilience towards socio-ecological resilience

523 Following the reflection of some development practitioners that aims to mMainstreaming urban disaster 524 resilience into policy [32,33] the planning process-is critical to build urban resilience [3852,3963]. Fig. 525 3Following conceptual framework and the setup of resilience characteristic/typology explained in Fig. 1 526 ..., Table 5e illustrates typology of disaster resilience programs in Semarang and Tegal development 527 programmes in Semarang and Tegal-to address flood-according to different types of resilience and stages 528 implementation developed by some scholars [1,13,14,27,29,34]. By classifying the programmes based on 529 some items those indicating different types of resilience, it is identified that actions/initiatives in Semarang and Tegal can be characterized into either the coping approach or surviving/protecting 530 531 approach. There is still lack of long-term consideration and framework for transformative action. This is 532 exactly similar to the case of Eko Atlantic City, Nigeria [40375] where most of the resilience-related 533 initiatives in the city do not really address the root of the problems in addition to some cases those lead 534 to maladaptation strategies. These findings are also further confirmed by the FGD results which showing 535 that the participants mostly consider that all of the programmes implemented in the cities are likely to be 536 re-active rather than pro-active. The current initiatives are focused on dealing with current problems 537 without further consideration to understand potential future issues. Though, as has been revealed by 538 Kernaghan and Sillva [41386], Semarang through the ACCCRN program has been successful in including 539 climate change mitigation and climate change adaptation initiatives which sound more transformative.

Table 54 Disaster Resilience Typology in Semarang and Tegal

	Type of Initiatives	Time Frame	Focus	Response
Programmes	Current Normal New Normal	Short-term	Single Multiple	Re-active Pro-
	Orientation Orientation		Equilibrium Equilibrium	active
Drainage channel	Categorized as maintaining current	No objective and no impact for	Very much focused on single	As the programmes may regard
<u>construction</u>	normal (business as usual). The actions	long-term perspective	<u>equilibrium.</u>	as business as usual, the
Drainage improvement and	dominated by periodic maintenance,			typology more into re-active
<u>maintenance</u>	and construction in some areas those			rather than pro-active to
Irrigation development and	are not served by good drainage			address flood in particular area.
<u>management</u>	system yet.			
	Apart from daily activities to control	It may have long-term impact if	Some actions may lead to	
	flood such as river normalization and	the programmes supported by	multiple equilibrium	
	utilizing water pumps, there are some	good monitoring and evaluation		
	big integrated initiatives mostly in	mechanism to ensure good		
Flood control	coastal area with new normal	implementation.		
	orientation. They include developing			
	polder system, build retention pond			
	and land use management in the			
	surrounding area.			
Land use controlling	There is national regulation for land			
	use controlling and spatial planning.			
Spatial planning	The local government, however, is			
<u>Spatial planning</u>	likely to 'play save' by focusing on			
	current normal situation.			
Green open space	Most of the actions categorized as		Mainly because of lack of	
management	maintaining current normal. Not too		commitment from the policy	
Waste management	much budget on these area as more		maker to have more awareness	
Pollution control and	budget is allocated on more economic		on environmental problems,	
environmental destruction	orientation program. Waste bank is a		the programs in these areas are	
Natural resources protection	good example because it combines		very much focused on single	
and conservation	economic as well as environment.		equilibrium.	
Disaster management	Most of the actions categorized as	Establishment of Local Preparednes	ss Group, Disaster Preparedness	
	maintaining current normal.	Village, and Disaster Discussion For	um (DDF) are good examples of	
Disaster prevention and		actions that may provide a good fra	amework towards a more long-	
preparedness		term perspective of actions and lea	ds to multiple equilibrium.	
Climate change mitigation	If the programme could be	It may have long-term impact and	d leads to multiple equilibrium if	Solar panel is one good
(solar panel, public	implemented as planned, this is a good	there are sustain commitment f	from the policymaker, and the	example of pro-active actions
transportation improvement)				

Climate change adaptation	example of initiatives those are	e focus program	mes are supported by a good monit	oring and evaluation	while other programme		
(mangrove, floating house)	on new normal situation.	sm to ensure decent implementation.	re decent implementation. likely more into re-active				
		1	1	1			
				i			
	Drainage channel		1	1			
	construction	anagomont					
S C		нападетнени					
<u><u> </u></u>	Hood control						
	Drainage improvement and r	maintenance					
A	Land use controlling	l i i i i i i i i i i i i i i i i i i i	1	1			
4	Enact spatial planning docur	nent	1				
▼	Green open space manager	nent					
	Waste management						
(b)	Pollution control and environ	nental destruction	1	1			
X	Natural resources protection	and conservation		1			
U	*Climate change mitigation (Solar Panel)					
	*Climate change adaptation	, - (Manarove and Cl	mate Friendly Kampona Developme	nt)			
0 -	Disaster management			<u>, 1</u>			
	Disaster prevention and prep	aredness					
Chellen et al. (2015)	Recovery	Adapta	ion Iransformatio	n			
			Pro-active and	1			
EAA (2016)	Coping Approach	Surviving/Pro	ecting Transformative				
			Approach				
Folke (2006)	Engineering Resilience —		Socio-ecologi	cal			
Davoudi et al. (2012)			Resilier				
White and O'hare (2014)	Equilibrist Resilience		Evolutionary Resilier	ice i			

Fig. 3 Resilience Related Programmes in Semarang City and Tegal City Based on Resilience Concept-

553 By classifying the programmes into three different stages, it is identified that type of the programmes in 554 Semarang and Tegal can be characterized into either the coping approach or surviving/protecting 555 approach. There is still lack of long term consideration and framework for transformative action. This is 556 exactly similar to the case of Eko Atlantic City, Nigeria [35] where most of the resilience-related initiatives 557 in the city do not really address the root of the problems in addition to some cases those lead to 558 maladaptation strategies. These findings are also further confirmed by the FGD results which showing that 559 the participants mostly consider that all of the programmes implemented in the cities are likely to be re-560 active rather than pro-active. The current initiatives are focused on dealing with current problems without 561 further consideration to understand potential future issues. Though, as has been revealed by Kernaghan 562 and SIlva [36], Semarang through the ACCCRN program has been successful in including climate change 563 mitigation and climate change adaptation initiatives (see Fig. 3) which are more transformative.

• Business as usual towards opportunity for better planning mechanism

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566 Another fundamental aspect is the important role of local government [3852] as following the 567 decentralization era, the local (city) government contributes a very important role in executing any 568 programmes related to flood mitigation, preparedness, as well as adaptation at the local level. There is an 569 interesting lesson learned from Melbourne [1529] on the critical role of vertical and horizontal of regional 570 alliance to address cross-sectoral issues related to operationalizing resilience which need multi-level 571 government involvement and cooperation among local government.— In Indonesia, the national 572 government generally provides guidance, while provincial governments focus on the cross-border and 573 outlying coastal areas. The local government is the vanguard that executes direct impacted policies at the 574 local level. However, with the reference of [3] principles to operationalize resilience in urban policy, there 575 are no established mechanisms for good coordination among different level of government and to ensure 576 that integration principles applied in Semarang and Tegal. As concerning on flood, further integration is 577 needed mostly related to river management. As stated in Law No. 23 2014 on Local Government, there 578 are distributed responsibility on all matters related to river. Floods that flow from upstream to 579 downstream areas are likely to across different administrative boundaries of local government, and 580 sometimes also provincial government. Accordingly, high levels of cooperation are required to manage 581 the river among the local or provincial government. The Resume National Progress Report on the 582 Implementation of the Hyogo Framework for Action has also confirmed that INBDM may not perform 583 optimally yet to act as the coordinating agency to manage the DMB in provincial and local level as there 584 are still challenges in capacity of the people (i.e., human resource), limited budget, as well as overlapping 585 regulation.

587 There are some interesting findings from the FGD confirming the challenge of integration in 588 operationalizing the resilience principles:

- Disaster management agency has an initiative to establish local preparedness group so_-called KSB
 (*Kelompok Siaga Bencana*), similar program also initiated by Provincial Red Cross Organization (PMI)
 called community-based preparedness group or SIBAT (*Siaga Bencana Berbasis Masyarakat*). It seems
 like each agency develop similar activities without communication each other.
- The problem in infrastructure provision is also interesting. From the FGD, it is found out that some initiative leads by Public Works Agency to elevate roads those are prone to flood is then not really effective because it will cause flood in other roads section. The problems become more complicated

because there are also a lot of local initiative from the community to elevating the road which are not
 coordinated each other, so it is like road elevation competition.

- River management and land use planning is also regards as a big challenge as it requires a strong coordination of the government in the upstream area and in the downstream area. As the river is located across administrative boundaries, the involved government stakeholders are also included the Provincial Government of Central Java and also National Government.
- 603 Following the integration issue, there is not also a consideration on equity principle yet to ensure the 604 programme has addressed the targeted vulnerable people/area. The equity-related issue can be also 605 indicated from the budget allocation as the responsibility of the programmes implementation is also not 606 distributed proportionally in line with the role and responsibility for each agency. It is found out from the 607 FGD that due to the establishment of new national regulation (i.e., Government Regulation No. 18, 2016) 608 regarding role of agency in local level, there is also changes on responsibility in executing particular 609 programme. Previously, public works, water management, and spatial planning established separately as 610 a single agency with specific responsibility. Following the establishment of the new regulation on new 611 government structure, they are now merge into one agency and therefore, has less authorities and fewer 612 responsibilities to execute such programme meanwhile, as stated clearly in the mid-term planning 613 (RPJMD), flood is a priority problem to be addressed in both cities (Semarang and Tegal) that needs 614 appropriate level of authority and indeed, require greater responsibility.
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616 Despite all the emerging discourse, budget should be taken into account as the biggest concern and 617 therefore, program prioritization is very important as most of the actions is very much depend on the 618 government budget. Accordingly, programmes execution which are likely to be more environment rather 619 than economic is not popular as economic problem is still taken as the greatest concern for cities in 620 developing regions like Central Java. Surprisingly, -Torabi et al. (...[2017]) found similar finding also for 621 Australia where the development is pretty much more advanced compared to Indonesia. Taken into 622 account consideration of environmental and economic value, there has been so far, the most common 623 program that has been accommodate both values are waste bank program. Ithe FGD participants 624 acknowledge waste bank program initiated by the environmental agency in both cities (Semarang and 625 Tegal) as a good example. Waste is regard as a big contributor to flood as there are a very significant 626 amount of garbage found in the river. People need to be educated not to throw garbage into the river. 627 Through the waste bank program, local people are trained to manage the garbage, so it has economic 628 value by using the 3R principles (Reuse, Reduce, and Recycle). 629

630 Last but not least, there is also a challenge to have more longer time perspective and sustain initiatives. 631 Friend et al. [385] believes that there are two models on understanding the planning and implementation 632 of development policy. The first is the linear model where policy is comprehended as simple cyclical 633 stages. The initiatives are planned based on research and evidence. The main challenge of this model is 634 when sometimes policy formulation is not very much in line with the implementation because of many 635 reasons such as lack of capacity, miss communication/information, and bad project management 636 mechanism. The second is the clumsy and wicked model where policy regards as communication, 637 negotiation, and networking process of different actors/stakeholders with various interest. In the first 638 model, technocratic approach is very critical to be done and regard as the basis for the policy formulation 639 process. However, it will not lead to a sustain implementation if there is lack of comprehension and

640 commitment from the policymaker. Therefore, the clumsy process is likely providing more guaranteed to

have a more sustain and longer-term initiative implementation. In this model, public dialogue and more

642 <u>public/stakeholder participation is regard as the most critical factor in mainstreaming such development</u>
 643 issues/challenges.

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645 7. Conclusion

646 This study has shown the complexity of operationalizing resilience particularly to address flood disaster in 647 two different cities in Central Java. The content analysis results has revealed that resilience is not a 648 terminology commonly applied for-in urban and- disaster-related contexts even though, it is very clear 649 that disasters mainly such as flooding, is are a big issue that requiring re a lot of concern for the case of 650 attention in Semarang and Tegal. The national and regional development policy document has not stated 651 explicitly stated the concept of resilience as a concern/priority concern. On the other hand, the global 652 commitment as-stated in the Hyogo framework has forced some priorityies actions in the area of disaster 653 management and disaster risk reduction. Different local governments may give different respond 654 differently howeverses. Furthermore, the cCapacity mostly to access information, limited resources, and 655 lack of concern on environmental issues, are significant barriers to ensure local government-may have 656 enough commitment to promote transformational outcomes on disaster resilience initiatives. In addition, 657 there is also still a challenge ion-the horizontal and vertical coordination as-between National and, and 658 Regional development policies, which as yet have y has not provided a clear direction yet. -The

content analysis result has revealed that resilience is not a terminology commonly applied for 659 660 disaster related context even though, it is very clear that disaster mainly flood is a big issue that require 661 a lot of concern for the case of Semarang and Tegal. Following previous studies of disaster resilience, many 662 various literatures suggest that the operationalization of disaster resilience should be integrative and 663 comprehensive, requiringe both, short-term actionable initiatives and also needs-long-term and 664 transformative frameworks. The scope of these initiatives is are also multidisciplinary, and therefore, it 665 involves different agencies with various scope of interventions. Thus, horizontal and vertical coordination 666 is very important. However, this study has shown that most of initiatives stated in the development policy 667 are still characterized as having a short-term orientation, re-active, and focus on single equilibrium. 668 Considering clumsy and wicked model suits more for the planning and implementation required of in 669 development policy, then, it requires intensive communication and involvement of different development 670 actors to promote more transformative approaches on operationalizing the resilience principle in the 671 future.

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Response to comments from the editors and reviewers

Thank you so much for all the valuable comments/inputs. They have been very useful in helping us improve the manuscript. We provide our explanations and revisions to the paper as follows:

Reviewer 1

-

Reviewer 2

General comment:						
the	the current version modified based on the comments from previous reviewers, reorganized with the					
fou	four detailed research questions, add more references related to the paper suggested by the					
rev	reviewers, and it shows the relationship among national, regional and local government agencies in					
dev	eloping disaster resilience	2.				
	Detail comment	Explanation				
1.	figure 1 and table 5	We added one paragraph (line 178-188) and provided additional info in				
	are still a litter bit hard	Table 5. We also included information in the note of Figure 1 to provide				
	to understand. just as	a more explicit link between Figure 1 and Table 5.				
	discuss, to my opinion,					
	resilience as a whole	Yes, indeed, resilience connects to whole nation initiatives, particularly				
	nation concept, it	as related to better understanding how the concept connects to				
	should be the complex	operationalization.				
	network of compose	Although we provide a detailed discussion on resilience definitions and				
	of all kinds of policies.	conceptual uses in the literature section, Table 5 is intended to be more				
		specific by elaborating only the operationalization of disaster resilience				
		(i.e. flood) of two selected cities (Semarang and Tegal). The Table also				
		tries to engage with the more specified intent of the paper, which is to				
		unpack the case study settings based on (1) type of initiatives, (2) time				
		frame, (3) focus, and (4) response. These 4 items were applied by				
		previous scholars as a framework to understand different forms of				
		resilience (explained in Figure 1)				

Reviewer 3

General comment:

The authors have substantially revised their manuscript, taking into account comments of all three reviewers. The literature review has been expanded, the methods have been clarified, revisions have been made in the discussion and conclusion section, besides various smaller revisions. In my view, the manuscript has much improved. The manuscript provides detailed and interesting empirical findings that contribute to the debate on operationalizing resilience. I do have some remaining comments though:

	Detail comment	Explanation			
1.	figure 1 needs to be referred to more	Figure 1 is used to explain Table 5 and as noted			
	explicitly in the text. What is it showing, and	above we have made the link more explicit. We			
	(how) are you going to use the categories	add one paragraph (line 178-188) to also better			
	contained in the figure in the	explain how we apply the categories.			
	results/discussion section?				

2.	I have difficulties to understand the	We have attempted to provide a more detailed
	structure of section 5 and 6 – the headings	explanation at the outset of the paper. We hope
	that are being used don't seem to have	this now highlights the organization and how the
	been introduced before and don't seem to	pieces of the paper fit together. Also see the last
	be explicitly connected to the categories	paragraph of the introduction in lines 119-129.
	identified in section 2. This needs to be	
	explained more explicitly.	The categories described in section 2 directly
		relate to shaping the framework of our
		discussion in section 6. Section 5 on the other
		hand, explains the initiatives/programs from the
		national to local – our main empirical section and
		object of analysis – which we believe provides a
		nice precursor to the discussion in section 6 and
		bridges to the subsequent findings
	Related to this, the names of the columns in	We believe this point has not been addressed
	the table in the discussion seem to be	helping to make much more explicit the concepts
	important analytical categories that should	and connections across the paper. Figure 1 is
	be based on an analytical framework – but	used to explain Table 5. We add one paragraph
	again I don't see the explicit connection with	lines 178-188) and provide additional info (Table
	section 2. Please explain.	5) in the note of Figure 1 to provide a better link
		of Figure 1 and Table 5.
	4) The quality of the English, in general, is	We have tried to re-check again the English.
	ok, but is weaker in the discussion and	
	conclusion – this requires a detailed check	Related to your last question on translation of
	of the text in these sections.	'resilience', we add footnote at page 10 to
		highlight translation of resilience in Bahasa.
	Smaller comments:	
	 End of section 1: when you mention which 	Thank you so much for your valuable inputs.
	sections will follow, there is no need to	
	mention section 1.	
	 Sometimes simple present is used while 	
	the text refers to past events (e.g. in line	
	314, 'reaches' instead of 'reached').	
	- The first paragraph of section 5 seems to	
	belong to the methods section.	
	- Open question: isn't the fact that	
	apparently in Indonesia there are several	
	translations of the word 'resilience' an	
	interesting notion that deserves to be	
	unpacked, since it may point to important	
	context issues that might help us	
	understand why resilience is operationalized	
	in a certain way?	

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Action Links	IJDRR_2018_483	Operationalizing resilience: A content analy	vsis of flood disaster planning in tw	vo coastal cities of Central Java, Indonesia	May 15, 2018	Jan 24, 2019	Completed - Accept	Jan 24, 2019	Accept	
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Corresponding Author:

Wiwandari Handayani

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