

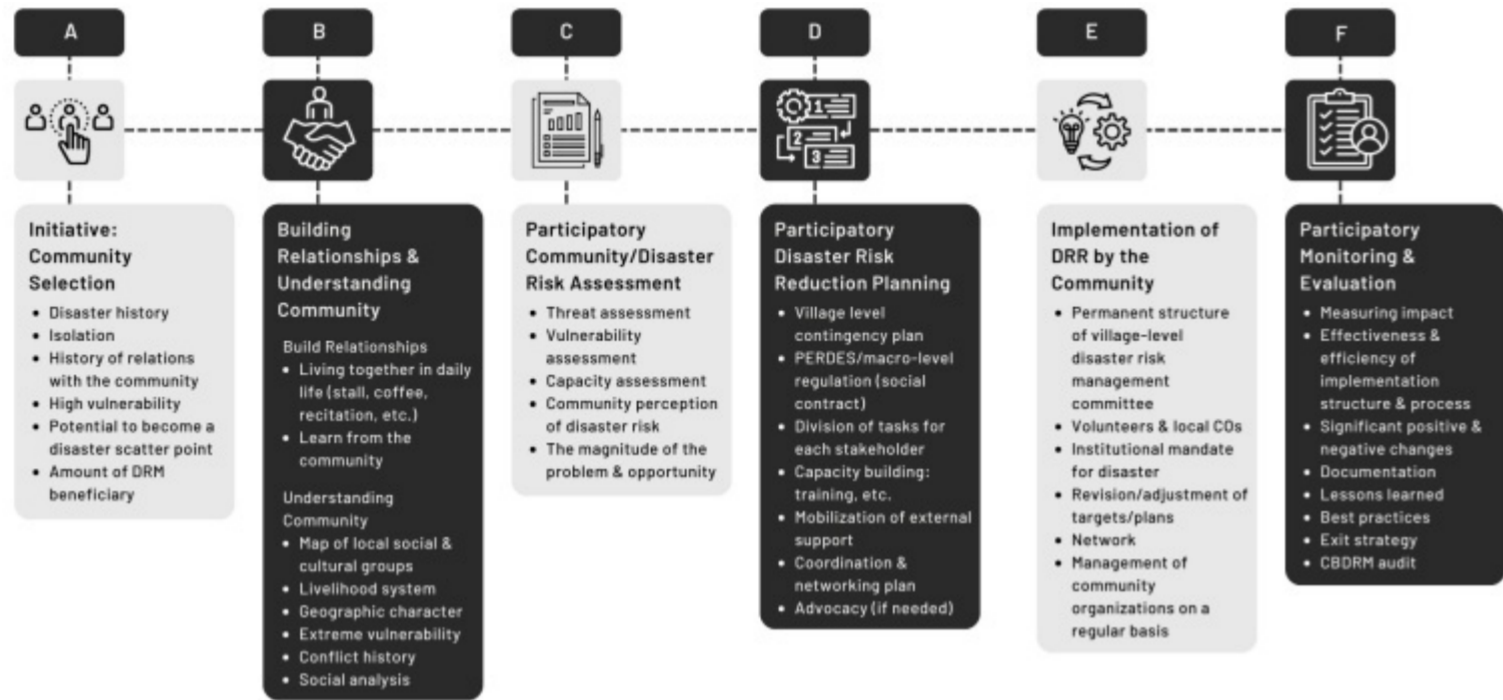
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Indonesia Disaster Knowledge Update - September 2022

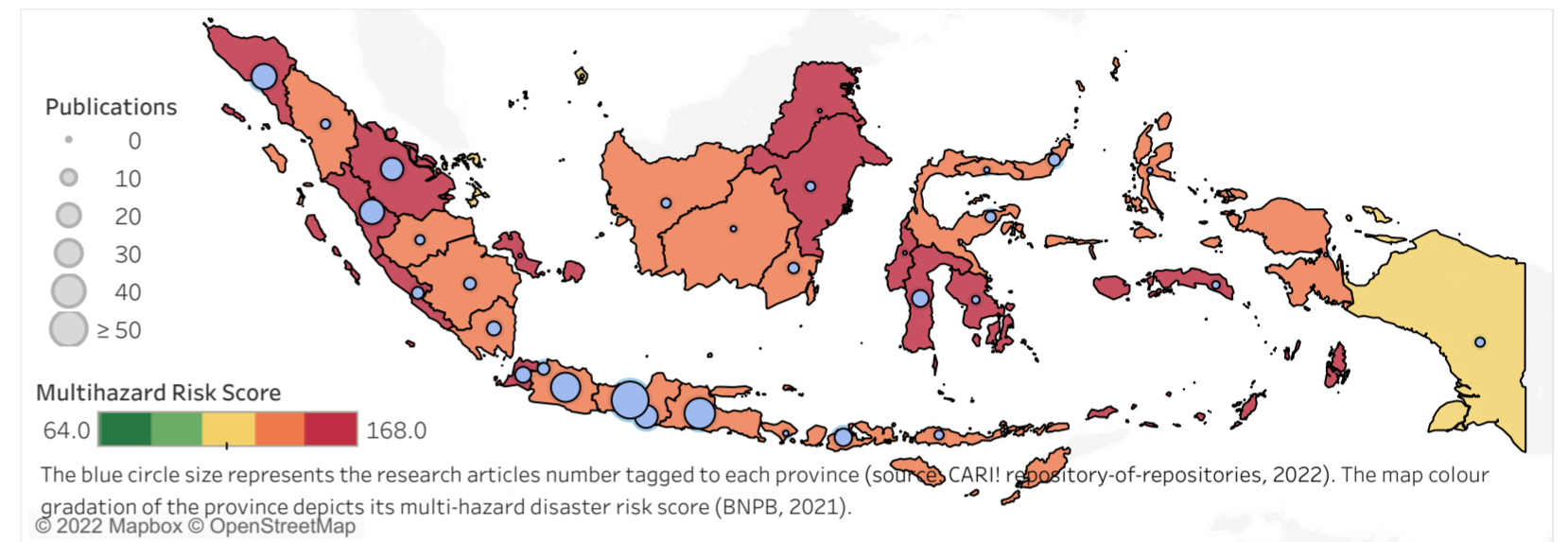
Research Publications about Community-Based Disaster Risk Management (CBDRM) in Indonesia



CBDRM Steps and Process



Research Articles Distribution Map



CARI! supports the annual event of "the National Conference on Community-based Disaster Risk Management (KN-PRBBK) XV" held by Masyarakat Penanggulangan Bencana Indonesia (MPBI) together with hundreds of local communities across Indonesia. With regard to those events, In September 2022 IDKU edition, CARI! reviews the landscape of scientific publications about community-based disaster risk management (CBDRM) research in Indonesia. In this review, we analyse various studies based on community type and the 6 steps and processes of CBDRM.

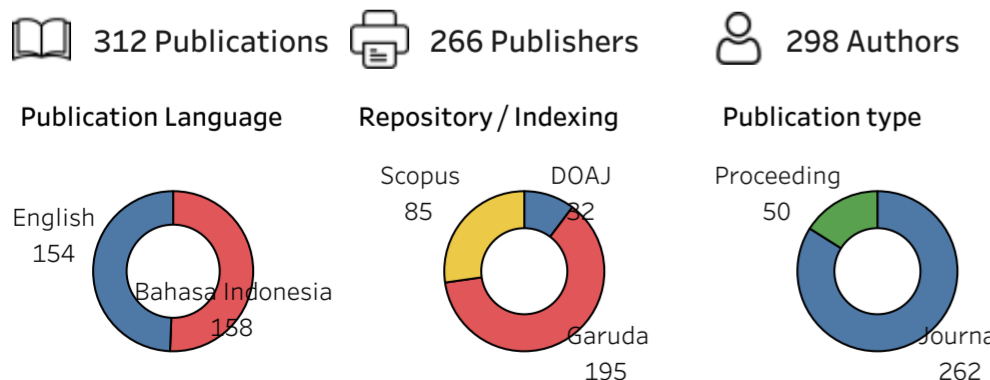
CBDRM is an approach that encourages grassroots communities to manage disaster risk at the local level. As a process, CBDRM has six main stages, namely (A) **Initiative: Community Selection**, which is the process of selecting the most vulnerable communities for possible support; (B) **Building Relationships & Understanding Community**, which is the stage of building relationships and trust with the local community; (C) **Participatory Community/Disaster Risk Assessment**, is a diagnostic process to identify the risks faced by the community and how they deal with these risks; (D) **Participatory Disaster Risk Reduction Planning**, namely identifying risk reduction actions that will reduce vulnerability and increase capacity; (E) **Implementation of DRR by the Community**, namely carrying out the planning agreement that has been formulated which is considered capable of reducing risk; and (F) **Participatory Monitoring & Evaluation**, is a communication system in which information flows between all people involved in the project. These six stages are then accommodated as standard procedures for ongoing CBDRM activities in the context of projects/programs, which are ended by the exit strategy and CBDRM audit stages.

Reference: MPBI (2014). "Panduan Pengelolaan Risiko Bencana Berbasis Komunitas (PRBBK)".

As can be seen from the map, research on CBDRM in Indonesia is still skewed towards several provinces in the country. The provinces with the highest number of studies were Central Java (61 articles), East Java (34 articles), and West Java (31 articles). Provinces in Sumatra and Java tend to have more publications, while other provinces, especially in the central and eastern regions, have a more limited number of publications. Based on our record, we found that some provinces have no research publications at all, such as West Papua and West Sulawesi Provinces.

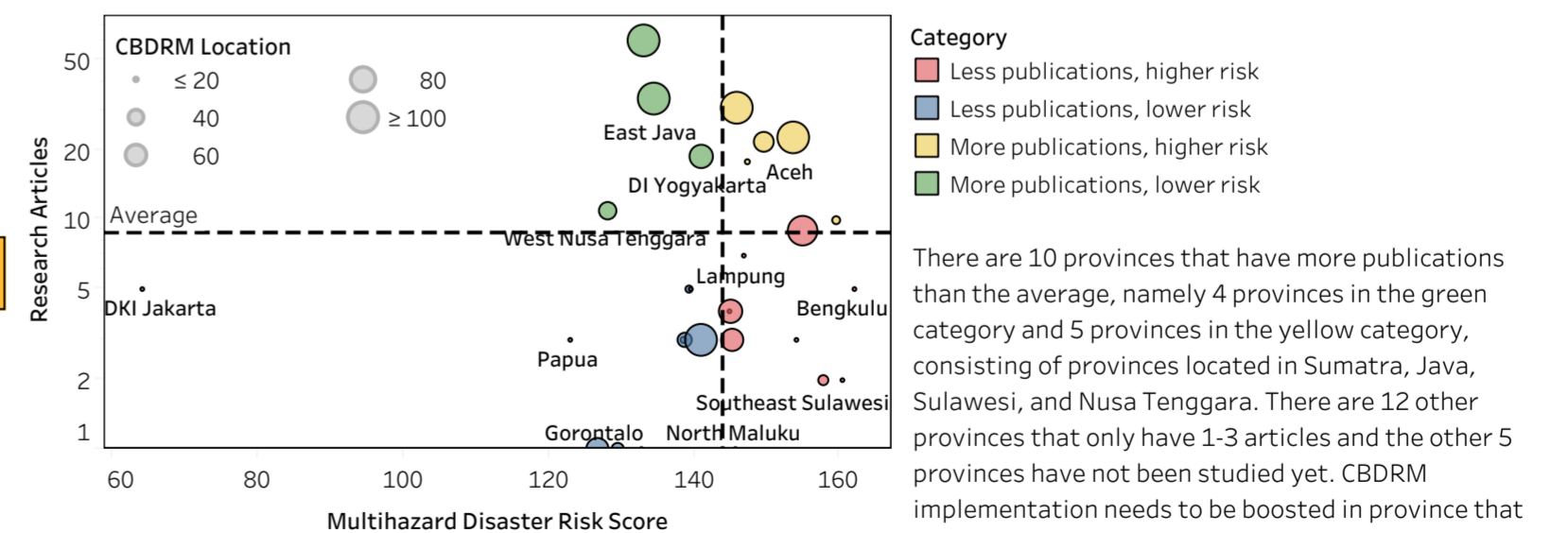
The word cloud shows the cities/regencies that have been researched, its size is proportional to the number of studies. Semarang City topped the rankings with more than 20 publications. Meanwhile, other cities/regencies with a significant number of publications are Gorontalo City, Bima, Central Jakarta, Palembang, Bogor Cilacap, Sukabumi, and others.

Research Articles Statistics



For analysis purposes, we examined research articles that investigated aspects of CBDRM in Indonesia. The scientific articles we used were obtained from CARI! Knowledge Engine sourced from Scopus, DOAJ, and Portal Garuda repositories. Based on the multi-stage filtration process, we used 50 keywords of related terms in CBDRM. We selected 312 research articles to be processed in the subsequent analysis.

Research Articles VS Multihazard Disaster Risk Score by Province



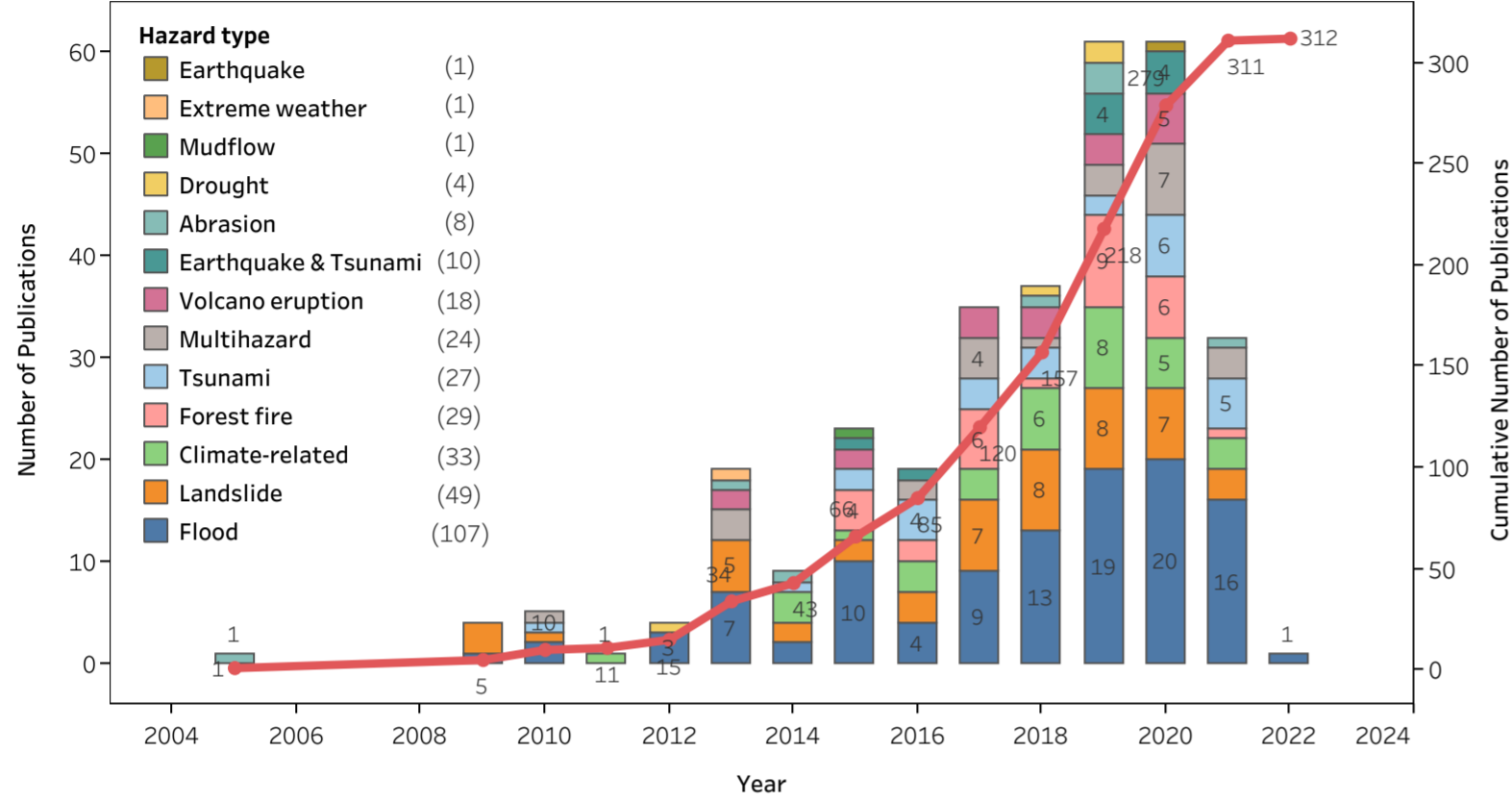
The quadrant plot shows the province's category (represented by different colours) based on the number of research articles and multi-hazard disaster risk score (source: BNPB, 2021). The circle's size depicts the number of CBDRM implementations in the province (source: BNPB, 2022).

There are 10 provinces that have more publications than the average, namely 4 provinces in the green category and 5 provinces in the yellow category, consisting of provinces located in Sumatra, Java, Sulawesi, and Nusa Tenggara. There are 12 other provinces that only have 1-3 articles and the other 5 provinces have not been studied yet. CBDRM implementation needs to be boosted in province that already has higher publications, such as Riau and South Sulawesi Province. Furthermore, research on CBDRM in Indonesia needs to be improved, especially in provinces with high-risk categories, such as Maluku..

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Growth of Research Publication



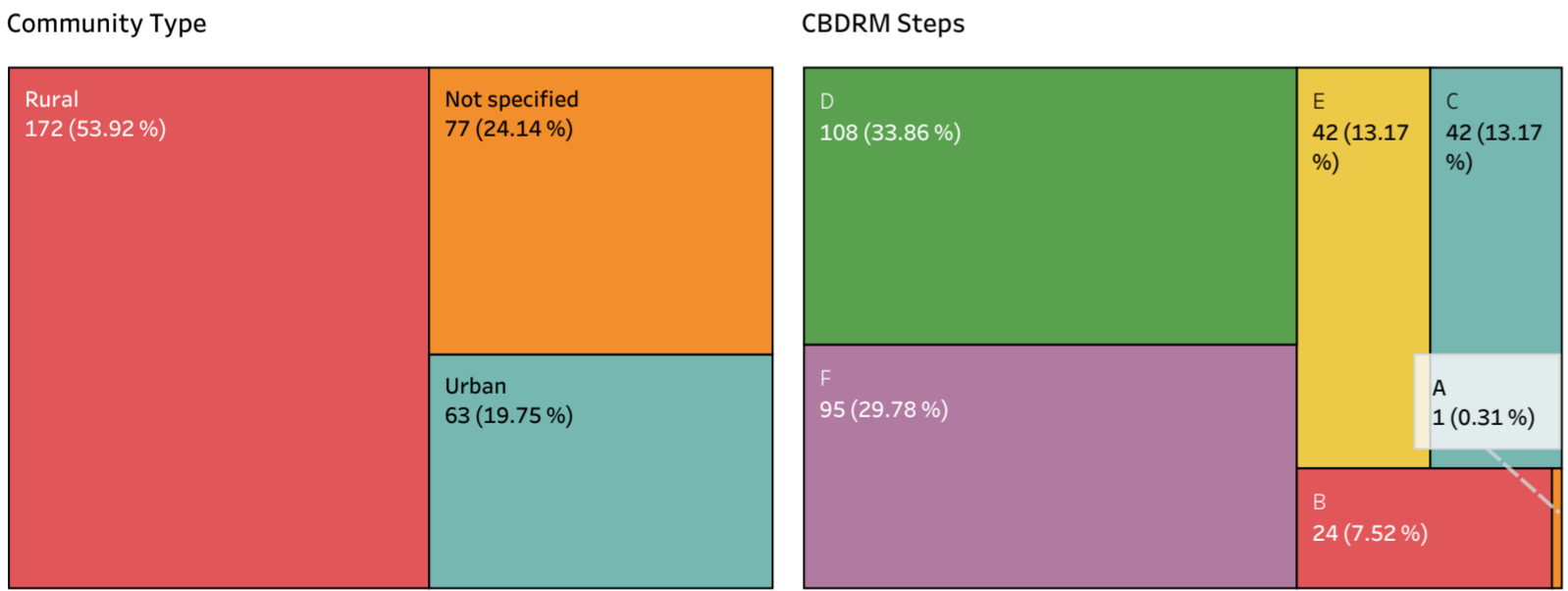
Top Research Articles

- Framing the application of adaptation pathways for rural livelihoods and global change in eastern Indonesian islands**
Butler J. et al | Global Environmental Change
Published on September 1, 2014 | Cited by 71 articles
- Integrating Top-Down and Bottom-Up Adaptation Planning to Build Adaptive Capacity: A Structured Learning Approach**
Butler J. et al | Coastal Management
Published on July 4, 2015 | Cited by 44 articles
- Priming adaptation pathways through adaptive co-management: Design and evaluation for developing countries**
Butler J. et al | Climate Risk Management
Published on January 1, 2016 | Cited by 36 articles
- Water, water everywhere: Toward participatory solutions to chronic urban flooding in Jakarta**
Padawangi, R.; Douglass, Mike | Pacific Affairs
Published on January 1, 2015 | Cited by 27 articles
- Character of community response to volcanic crises at Sinabung and Kelud volcanoes**
Andreastuti, S. et al | Journal of Volcanology and Geothermal Research
Published on September 15, 2019 | Cited by 18 articles

Research on CBDRM in Indonesia has existed since 2005, but after that, it disappeared and only reappeared in 2009. The trend shows that the increasing number of research on CBDRM accelerated after 2018 and peaked in 2021. Almost every year there are research publications on CBDRM within the context of flood hazards, sometimes followed by similar research on CBDRM and erosion and forest fire hazards. By 2022, research on CBDRM is declining and is only represented by 1 publication.

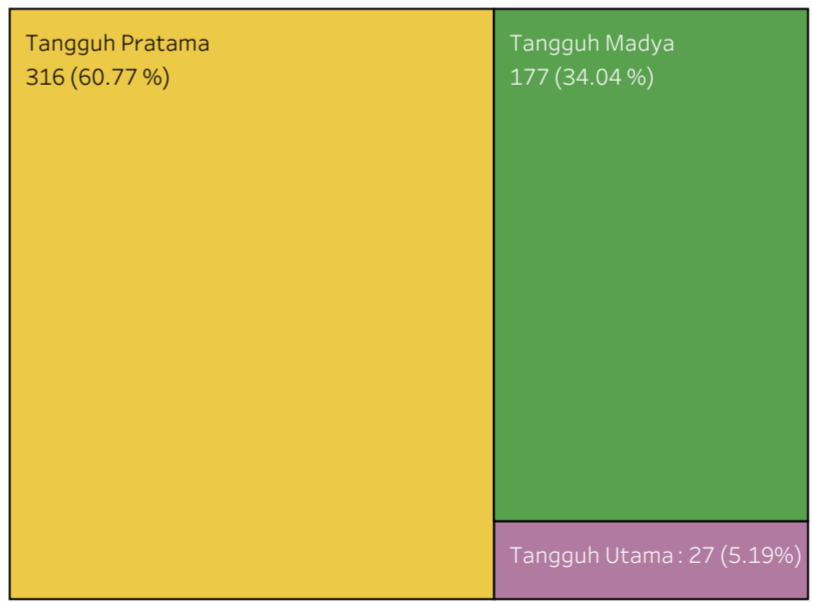
The list above is the top-five research articles on themes related to CBDRM in Indonesia, which ranked by the number of citations from 2005 to 2022. The record is sourced from the Scopus directory. Butler and his colleague is the most prominent author of CBDRM in Indonesia which shows by his top 3 articles with a high citation number.

Exploration of CBDRM Publications in Indonesia



Most of the CBDRM research publications examined communities in rural areas (173 articles), some 69 articles researched urban communities, and the other 77 articles examined general communities or unspecified. Concerning the framework of the steps and processes of CBDRM, the most publications researched on stage D (participatory disaster risk reduction planning), as many as 109 publications; and stage F (participatory monitoring & evaluation), which is as many as 95 publications. Research on stage B (Building relationships & understanding community) and stage A (community selection) is still not adequate yet.

Disaster Resilient Village Assessment



An assessment of disaster-resilient villages (Destana) has been carried out by BNPB and 316 villages fall into the Tangguh Pratama category (score <58.33). Meanwhile, 177 and 27 other villages are categorized as Tangguh Madya (score 58.33 – 83.33) and Tangguh Utama (score >83.33). Aside from being a simple tool for measuring the level of resilience, these results are also used as a basis or reference in developing disaster-resilient villages. For further information on disaster resilient village assessments, click [here](#). Based on the list of keywords used, "community participation" is the most frequent word founds in literature.

Top Keywords of CBDRM



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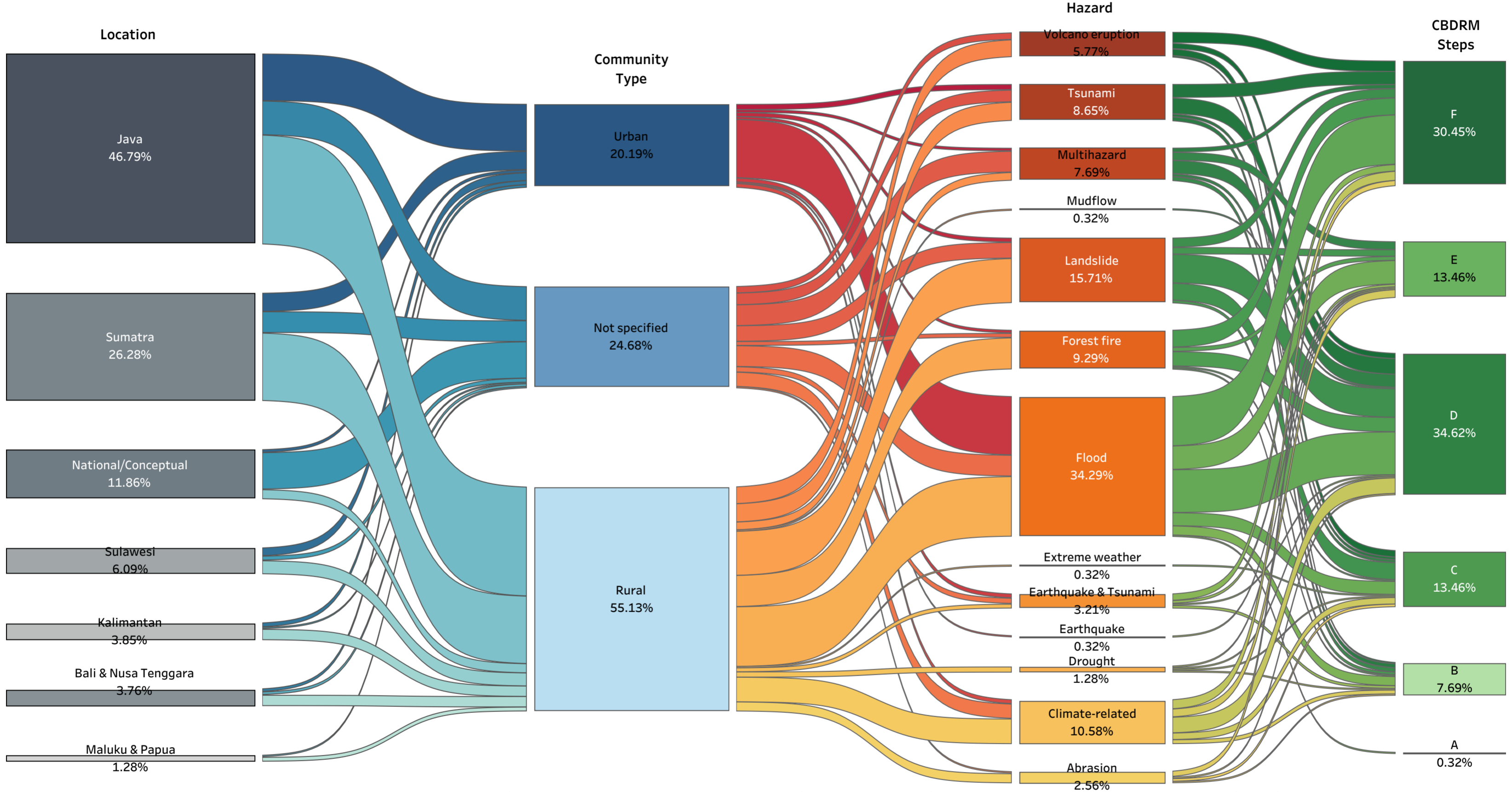


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Sankey Diagram of Publications: Location to Community Type to Hazard Type to CBDRM Steps



The Sankey diagram is visualized proportionally to the number of publications. The larger size of the box and the wider lines indicate a greater number of publications accounted for them. The Sankey diagram illustrates the distribution of scientific publications and their relations across locations, type of hazards, disaster management phase, and community type.

From Sankey above, we can see that the Java region tops the list with the largest number of publications, where most of the research is related to rural communities, focuses on flood hazards, and focuses more on the participatory disaster risk reduction planning step. Research in the Sumatra region occupies the second position with the most publications which are majorly related to rural communities. Urban community studies tend to polarise on flood hazards, whereas rural community studies are more spread in all hazard types. Regardless of the type of community and the hazard, all studies tend to study more activities relevant to the participatory disaster risk reduction planning stage (D), especially related to climate hazards. Another significant number of studies have studied activities relevant to the participatory monitoring & evaluation stage (F) in the context of flood hazards. With these findings, we recommend more research activities needs be conducted in regions that also have a particular number of vulnerable communities.