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Community Participation In The Implementation Of The Drought Contingency Plan In Kupang City, East Nusa Tenggara Province

Benhard Benyamin Fobia[1], Lalu Ahmad Murdhani[2] Erfan Wahyudi[3]
Institut Pemerintahan Dalam Negeri, Sumedang, Indonesia[1-3]
Email Korespondensi: : arfomlf19@gmail.com erfan.wahyudie@gmail.com

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*ABS*TRACT
This study examines community participation in the implementation of the Drought Contingency Plan (Renkon) in Kupang City, East Nusa Tenggara Province. Kupang City is characterized by a semi-arid climate with low rainfall and extended dry seasons, making it highly susceptible to prolonged drought events. The Regional Disaster Management Agency (BPBD) of Kupang City has formulated a Contingency Plan as an instrument for anticipating and managing drought impacts; however, the effectiveness of this plan is heavily dependent on active community participation. This research employs a descriptive qualitative approach with an inductive perspective. Data were collected through in-depth interviews with six key informants from BPBD Kupang City, and community members, supplemented by field observations and documentation review. Findings indicate that community participation is manifested through involvement in Information, Education, and Communication (KIE) socialization activities and structured disaster simulation exercises (Gladi Ruang, Gladi Posko, and Gladi Lapang). However, participation remains suboptimal due to limited public knowledge of drought risks, uneven socialization coverage, low public trust in government programs, economic constraints, and socio-cultural factors. Optimization strategies include expanding socialization reach to all urban villages, engaging community and religious leaders as information agents, conducting multi-stage disaster simulations, strengthening inter-agency coordination, and increasing budget allocations for disaster management programs.
Keywords: Drought; Community Participation; Contingency Plan; Kupang City; Disaster Risk Reduction.

ABSTRAK
Penelitian ini mengkaji partisipasi masyarakat dalam implementasi Rencana Kontingensi Kekeringan (Renkon) di Kota Kupang, Provinsi Nusa Tenggara Timur. Kota Kupang bercirikan iklim semi-kering dengan curah hujan rendah dan musim kemarau yang panjang, sehingga sangat rentan terhadap kejadian kekeringan yang berkepanjangan. Badan Penanggulangan Bencana Daerah (BPBD) Kota Kupang telah merumuskan Rencana Kontingensi sebagai instrumen untuk mengantisipasi dan mengelola dampak kekeringan; namun, efektivitas rencana ini sangat bergantung pada partisipasi aktif masyarakat. Penelitian ini menggunakan pendekatan kualitatif deskriptif dengan perspektif induktif.

Data dikumpulkan melalui wawancara mendalam dengan enam informan kunci dari BPBD Kota Kupang, dan anggota masyarakat, dilengkapi dengan observasi lapangan dan tinjauan dokumentasi. Temuan menunjukkan bahwa partisipasi masyarakat terwujud melalui keterlibatan dalam kegiatan sosialisasi Informasi, Pendidikan, dan Komunikasi (KIE) dan latihan simulasi bencana terstruktur (Gladi Ruang, Gladi Posko, dan Gladi Lapang). Namun, partisipasi masih suboptimal karena keterbatasan pengetahuan masyarakat tentang risiko kekeringan, cakupan sosialisasi yang tidak merata, rendahnya kepercayaan masyarakat terhadap program pemerintah, kendala ekonomi, dan faktor sosial budaya. Strategi optimasi mencakup perluasan jangkauan sosialisasi ke seluruh desa perkotaan, melibatkan pemimpin masyarakat dan agama sebagai agen informasi, melakukan simulasi bencana multi-tahap, memperkuat koordinasi antar lembaga, dan meningkatkan alokasi anggaran untuk program manajemen bencana.
Kata kunci: *Kekeringan; Partisipasi Masyarakat; Rencana Kontingensi; Kota Kupang; Pengurangan Risiko Bencana.*

INTRODUCTION

Drought is one of the hydrometeorological disasters with the most significant impact on the availability of clean water and socio-economic resilience, particularly in dry tropical regions. Indonesia, strategically located between the Asian and Australian continents and straddling the equator (6°N–11°S and 95°E–141°E), faces substantial climate variability. The Indonesian Meteorological, Climatological, and Geophysical Agency (BMKG) recorded 2016 as the hottest year in Indonesia with an anomaly of +0.8°C relative to the 1981–2020 climatological reference period, followed by 2020 (+0.7°C) and 2019 (+0.6°C). This warming trend has intensified the frequency and severity of drought events nationwide.

According to data from the National Disaster Management Agency (BNPB), a total of 2,256 drought events were recorded in Indonesia from 2003 to 2023 [1]. Peak occurrences were observed in 2018 (130 events) and 2019 (124 events), with continued elevation in 2022 (43 events) and 2023 (45 events). The provinces of East Nusa Tenggara (NTT) consistently rank among the most affected regions, with six sub-districts in four regencies experiencing extreme drought conditions, and numerous sub-districts across 16 other regencies placed on drought alert status.

Kupang City, the provincial capital of East Nusa Tenggara, faces acute climate challenges characterized by minimal and unevenly distributed rainfall throughout the year. Rainfall data reveals a drastic decline particularly in 2023, when January recorded only 150 mm compared to 459 mm in the same month in 2021—a reduction of more than 67%. BMKG data indicates average annual rainfall in Kupang City ranges between 800–1,500 mm, significantly below the national average, classifying the region as one of the driest in Indonesia. Its proximity to the Australian continent, which creates significant atmospheric pressure gradients, further exacerbates these conditions.

The BMKG Consecutive Rainless Days (HTH) monitoring data released in August 2025 reveals that most of the NTT region, including Timor Island, Sumba, and southern Flores, shows alarming drought conditions.[2] This is compounded by rapid urbanization: data from the Regional Water Supply Company (PDAM) indicates only 43,051 households are connected to the water supply network, while the total number of households in Kupang City reached 102,998 as of 2019—a gap of nearly 60,000 households relying on alternative water sources.

In response, the national and regional governments, through BNPB and BPBD Kupang City, have formulated a Drought Contingency Plan (Rencana Kontinjensi/Renkon) as a policy instrument for disaster anticipation. This plan maps potential threats, establishes scenarios, and prepares countermeasures across multiple government agencies (OPDs). The legal framework governing this includes Law No. 24 of 2007 on Disaster Management, Law No. 23 of 2014 on Regional Government, Government Regulation No. 21 of 2008 on Disaster Management Implementation, and Governor Regulation of NTT No. 91 of 2021 on the Drought Contingency Plan.

However, the success of this Contingency Plan implementation depends critically on community participation. The global Sendai Framework for Disaster Risk Reduction 2015–2030 explicitly emphasizes the importance of a whole-of-society approach that involves all stakeholders, including the community, as active agents in every phase of disaster management. Previous research (Nugroho et al., 2025; Adat & Ciptagelar, 2024; Mojid, 2020) has demonstrated that community resilience to disasters is strongly influenced by local capacities and that community adaptation strategies without adequate institutional support are often uncoordinated and unsustainable.

Despite BPBD Kupang City implementing the Kampung Ramah Air Hujan (Water-Friendly Village) program, community participation levels remain low, potentially undermining the program's long-term effectiveness. This research therefore investigates: (1) the forms of community participation in the Drought Contingency Plan program; (2) the factors influencing such participation; and (3) strategies for optimizing community participation to enhance disaster risk reduction effectiveness in Kupang City.

METHODS.

Research Approach and Framework This study employs a descriptive qualitative research approach with an inductive perspective. The qualitative method was selected to provide a comprehensive and in-depth understanding of the experiences, perceptions, and participation patterns of community members and BPBD officials regarding drought Contingency Plan implementation. The inductive approach allows the research to move from specific empirical findings to broader conceptual conclusions about community participation dynamics.The conceptual framework is

anchored in the community participation theory of Fasli Djalal and Dedi Supriadi (2001), which identifies four dimensions of participation: (1) Cognitive Dimension—awareness and understanding of program importance; (2) Emotional Dimension—emotional commitment and concern toward programs; (3) Practical Dimension—direct involvement through concrete actions; and (4) Structural Dimension—involvement in decision-making and institutional structures. This framework was selected for its relevance to fostering community resilience against drought disasters.[3]Data Collection Data were collected through three primary methods. First, in-depth interviews were conducted with six key informants selected through purposive and snowball sampling techniques. Informants included: the Head of BPBD Kupang City (Ernest S. Ludji, S.STP., M.Si); the Head of Prevention and Preparedness Division (Elsje W.A. Sjioen, S.Sos., M.Si); the Head of Emergency and Logistics Division (Ricko Ahmadi Umar, S.Sos); the Head of Rehabilitation and Reconstruction Division (Yeneva Chr. Malelak, S.T., M.Si); and two community members from drought-affected areas. Interviews were conducted in January 2026 at BPBD Kupang City offices. Second, field observations were conducted to directly observe drought conditions, community coping mechanisms, and the physical implementation of the Contingency Plan in affected areas. Third, documentation review covered primary documents (interview transcripts, observational records) and secondary documents (regional regulations, official reports, BPBD operational documents, and BPS statistical data).Data AnalysisData analysis follows the Interactive Model by Miles, Huberman, and Saldaña (2014), consisting of three concurrent activities. Data Reduction involves selecting, focusing, and abstracting raw data relevant to community participation dimensions and influencing factors. Data Display organizes information into narrative text and matrices to illustrate the relationship between participation forms, influencing factors, and optimization strategies. Conclusion Drawing and Verification formulates findings grounded in empirical evidence from field interviews and observations.
Research location is BPBD Kupang City, East Nusa Tenggara Province, with additional data collection from related regional agencies. The research timeline spans August 2025 (guidance and preparation) through January 2026 (field data collection), with reporting in May–June 2026.

RESULTS AND DISCUSSION

This section presents findings on community participation forms, influencing factors, and optimization strategies in the Drought Contingency Plan implementation in Kupang City, analyzed through the lens of the Fasli Djalal and Dedi Supriadi (2001) community participation framework.

Forms of Community Participation in the Drought Contingency Plan

Community participation in the Drought Contingency Plan (Renkon) in Kupang City is primarily manifested through two main channels: involvement in

Information, Education, and Communication (KIE) socialization activities, and participation in structured disaster simulation exercises.

Regarding KIE socialization, BPBD Kupang City has conducted Information, Education, and Communication activities to educate the community on drought disaster types and appropriate response actions. As stated by the Head of Prevention and Preparedness Division: "BPBD has conducted KIE socialization on drought disaster types and what communities should do when drought occurs. Because the Contingency Plan document focuses more on the government's role in disaster management, each OPD and institution involved already has clearly defined tasks and responsibilities." This reflects the Cognitive Dimension of the participation framework, wherein community awareness of disaster risks is foundational to subsequent engagement.

The Contingency Plan document itself is not directly disseminated to the community; rather, community members receive targeted education on drought phenomena and appropriate responses. This design prioritizes accessibility and practicality over technical comprehensiveness, ensuring information is actionable at the community level.

Concerning disaster simulation exercises, the Contingency Plan incorporates structured simulation scenarios that require all stakeholders to progress through three mandatory training phases before full-scale exercises: Gladi Ruang (classroom simulation), Gladi Posko (command post exercise), and Gladi Lapang (field exercise). As confirmed by the Head of Emergency and Logistics Division: "In the Contingency Plan document, disaster scenarios or simulations are created where, before the simulation is conducted, three training phases must be completed: Gladi Ruang, Gladi Posko, and Gladi Lapang, so that all OPDs or institutions involved have a clear understanding of their respective roles and responsibilities." These exercises represent the Practical Dimension of participation, as community members engage in direct, concrete actions that build disaster preparedness capacity.

The three-stage simulation structure serves a critical function in ensuring both government agencies and community members are operationally prepared. Community participation in these exercises embodies both the Emotional Dimension (commitment to disaster preparedness) and the Structural Dimension (involvement in institutionalized disaster management processes). However, field observations indicate that simulation exercises primarily engage government OPDs, with community involvement at the Gladi Lapang stage being more limited than institutional participation.

Factors Influencing Community Participation

Multiple interrelated factors shape the extent and quality of community participation in the Drought Contingency Plan program. Analysis of interview data and field observations identifies ten key determinants:

Knowledge and Awareness: Public understanding of drought risk is a foundational determinant of participation willingness. Communities with limited awareness tend to normalize drought as an annual phenomenon rather than recognizing it as a manageable disaster risk. As one community informant stated: "Honestly, before BPBD's socialization, I never thought of drought as a serious disaster. For us here, drought happens every year, so we're used to it. But after participating in the socialization, my eyes were opened—if not managed properly, the impacts can be catastrophic." This finding aligns with the Cognitive Dimension of the participation framework.

Socialization Coverage: The quality and frequency of KIE activities directly determine participation levels. BPBD acknowledges that socialization coverage has not yet reached all urban villages (kelurahan) in Kupang City, creating information gaps that limit community engagement with the Contingency Plan.

Public Trust in Government: Community confidence in BPBD and related agencies constitutes a critical participation driver. When communities perceive government programs as genuinely beneficial and reliable, their engagement increases substantially. Conversely, skepticism about program effectiveness creates participation barriers.

Economic Constraints: Kupang City's economic profile presents significant participation barriers. With 8.61% poverty rate and 3.7% extreme poverty rate (2024 data), many households prioritize daily livelihood activities over disaster preparedness training. As noted by the Head of Rehabilitation and Reconstruction: "We cannot ignore the economic factor. Most of our community members are still struggling to meet basic daily needs."

Socio-Cultural Factors: Kupang City's multi-ethnic composition—including indigenous Atoin Meto (Timor), Rote, Sabu, and Sumba communities, alongside migrants from Java, Sulawesi, and other regions—creates both opportunities and challenges. Strong gotong royong (mutual cooperation) traditions can enhance collective participation, while certain traditional beliefs may create barriers to adopting new disaster preparedness approaches.

Information Accessibility: Access to Contingency Plan information through social media, community meetings, and direct extension services significantly determines participation levels. Uneven information distribution leaves many community members unaware of available programs.

Community Leadership Roles: Trusted community leaders and religious figures serve as critical participation catalysts. Their endorsement and active involvement substantially increases community motivation to participate in disaster preparedness activities.

Previous Disaster Experience: Communities with direct experience of drought impacts demonstrate higher awareness and motivation for participation compared to those with limited disaster exposure.

Time Availability: Daily occupational demands, particularly among farming and daily wage-labor households, constrain participation in socialization, training, and simulation activities scheduled during working hours.

Policy and Regulatory Support: The existence of supportive regional policies and adequate budget allocation provides the institutional foundation for sustained, inclusive Contingency Plan implementation.

3.3. Optimization Strategies for Community Participation

Based on identified participation forms and influencing factors, BPBD Kupang City is implementing and planning multiple strategic approaches to optimize community participation in the Drought Contingency Plan.

The expansion of socialization reach constitutes the primary strategy. BPBD conducts routine KIE socialization to urban villages, though coverage remains incomplete. Planned expansion targets all kelurahan, with particular emphasis on areas historically underserved by information dissemination efforts. This strategy directly addresses the knowledge deficit and information accessibility factors.

Community-based leader engagement represents a high-impact strategy already employed by BPBD. By involving community leaders and religious figures in socialization activities, BPBD leverages existing social capital and trust networks to enhance participation motivation. This approach is particularly effective in Kupang City's multi-ethnic context, where respected community figures command significant social authority.

Multi-stage disaster simulation exercises, structured through the three-phase Gladi sequence, ensure comprehensive preparedness at both institutional and community levels. Gradual skill-building through these phases reduces participation barriers by providing structured, progressive learning experiences that build confidence alongside competency.

Strengthening inter-agency coordination within the Contingency Plan framework addresses the structural dimension of participation by ensuring that all OPDs and community organizations have clear, coordinated roles. This clarity reduces duplication, minimizes gaps in service delivery, and creates more efficient pathways for community engagement.

As acknowledged by the Head of BPBD Kupang City: "The biggest challenges we face are community economic conditions and budget limitations. However, we continue to strive to ensure this program is truly beneficial and directly felt by the Kupang City community. Fundamentally, obstacles are not reasons to stop—rather, they are what drives us to find more innovative and appropriate solutions." This commitment reflects the institution's recognition that meaningful community participation requires sustained investment and adaptive management.

Summary Matrix of Findings

The following matrix summarizes the relationship between factors influencing community participation, identified forms of participation, and corresponding optimization strategies:Table 3.1. Matrix of Participation Factors, Forms, and Optimization StrategiesFactors Affecting Community Participation Form of Participation Optimization StrategyLow knowledge & awareness of drought risk Participation in KIE socialization activities Expansion of socialization reach to all urban villagesUneven distribution of KIE socialization Involvement in disaster simulations (Gladi Ruang, Gladi Posko, Gladi Lapang) Utilization of community leaders and religious figures as information agentsLow public trust in government programs Community contribution to disaster risk preparednessConducting 3-stage disaster simulations

Economic constraints limiting participation time Contribution of knowledge and skills in disaster management Strengthening inter-agency coordination within Contingency Plan framework Cultural factors and local wisdom Social participation through community networks Increasing budget allocation for disaster management programsThis matrix illustrates that optimizing community participation in the Drought Contingency Plan in Kupang City requires a multi-dimensional approach that simultaneously addresses knowledge deficits, information access barriers, trust-building requirements, economic constraints, and the need for inclusive institutional frameworks.

CONCLUSION

This study presents three principal conclusions regarding community participation in the implementation of the Drought Contingency Plan in Kupang City, East Nusa Tenggara Province.

First, community participation in the Drought Contingency Plan program is manifested primarily through involvement in KIE (Information, Education, and Communication) socialization activities organized by BPBD Kupang City, and through participation in structured disaster simulation exercises progressing through Gladi Ruang, Gladi Posko, and Gladi Lapang phases. Participation reflects both cognitive engagement (awareness of drought risks) and practical engagement (direct involvement in preparedness exercises). However, participation remains concentrated in socialization activities, with more limited community involvement in the simulation phases.

Second, community participation is shaped by multiple interconnected factors including: limited public knowledge and awareness of drought risks; uneven KIE socialization coverage across urban villages; insufficient public trust in government programs; economic constraints that prioritize livelihood over preparedness activities; socio-cultural factors encompassing both enabling (gotong royong traditions) and constraining (traditional beliefs) elements; limited information access in underserved areas; the influence of community leadership;

prior disaster experience; time availability limitations; and the strength of supporting policy and regulatory frameworks.

Third, effective optimization of community participation requires a coordinated set of strategies: expanding socialization reach to all kelurahan including previously underserved areas; strategically engaging community leaders and religious figures as trusted information intermediaries; implementing structured multi-stage disaster simulations that progressively build community competency; strengthening inter-agency coordination within the Contingency Plan framework; and securing adequate budget allocations to sustain comprehensive community engagement activities.

This research contributes to the theoretical understanding of community participation in disaster management within semi-arid urban contexts, and provides practical recommendations for BPBD Kupang City and the Kupang City Government to develop more effective, inclusive, and sustainable Contingency Plan implementation strategies. Future research should examine the long-term impact of specific participation strategies on measurable disaster risk reduction outcomes in Kupang City.

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