

Future proofing a basic social service: climate resilient rural water supply

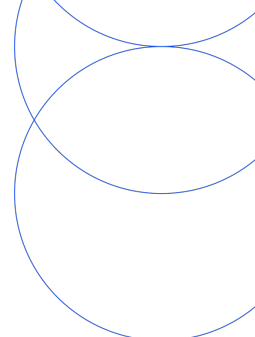
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Detailed Recommendations

Category	Recommendation	Target	Explanation and Example
A. Disaster Preparedness	1. Implement and link the CBO with an Early Warning System (EWS) that includes early detection of natural disasters and climate change that could potentially disrupt water supply. This system should be linked to CBOs for rapid response and coordination during emergencies. The EWS should include regular training for CBOs and village communities on disaster mitigation measures.	District government, CBO	<p>In Garut, BPBD has installed a system to monitor the water level in the upper reaches of the Cimanuk River. This system needs to be connected to the CBO. BMKG also frequently issues flood warnings that are linked to the BPBD. BMKG warnings can be used to prepare additional water storage at the household level. The time between the EWS warning and the actual disaster varies depending on the distance of the sensor and the location of the disaster. Three hours before the flood hit 13 sub-districts of Garut in mid-2022, BMKG had delivered its warning. This may be enough to make some preparations, such as turning off the electricity and panels used for pumps.</p> <p>Final workshop recommendation June 3, 2024:</p> <ul style="list-style-type: none"> a) BMKG has a historical record of climate change (30 years). Indonesia experiences three climate types: monsoon, equatorial, and local conditions. This should be a point of focus for anticipating climate change. The choice of technology, adaptation options, and mitigation measures must be adjusted accordingly. In Kalimantan, with its equatorial season and soil conditions, never drill bore wells. Their sustainability will certainly be problematic. b) BMKG needs to be involved first, followed by BPBD. BPBD is a disaster management agency that responds to disasters after they occur. Although BPBD can anticipate disasters, they need to understand climate change first. c) In terms of early warning system, if early detection tools are installed and then floods and other disasters occurred, who will be responsible for these tools? d) The community already understands

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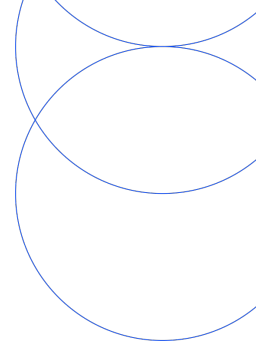
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			<p>that if heavy rain occurs, they need to anticipate flooding. How can this be applied at the local level? For example, if flooding occurs upstream, there could be a system to inform those downstream to prepare. This might be more effective and cost-efficient, possibly not involving physical tools but rather a system, such as using WhatsApp, that can be implemented locally.</p>
A. Disaster Preparedness	<p>2. Conduct technical training for pump repair for CBO staff on pump maintenance, basic repairs, and identification of technical problems to reduce reliance on external technicians.</p>	CBO	<p>CBOs using pumps often face difficulties when parts and/or pumps break down. None of the CBO staff we interviewed had the skills to repair their pumps and identify problems when pumps break down. CBOs rely on technicians outside their village (i.e. workshops in other cities such as Bandung) to come repair the pump or take the pump to a workshop. This takes a lot of time and money. Proper training related to pump maintenance, basic repairs, and identification of pump problems needs to be conducted so as to reduce the dependency of CBOs from outside technicians.</p> <p>Final workshop recommendation June 3, 2024: a) Technical training for KPSPAM (Community-Based Drinking Water Supply and Sanitation) technicians is necessary. Many KPSPAM technicians still cannot fix minor issues, such as repairing a waterpower system. This was not covered during training. Therefore, there needs to be a standard skill set for field technicians. During training, they should be able to repair the waterpower system and other specific tasks. This establishes a skill standard for field technicians.</p>
A. Disaster Preparedness	<p>3. Establish village-level Response and Recovery Teams to complement the work of existing CBOs, tm will be mobilized only when CBOs lack the</p>	Village Government	<p>In some of the CBOs we visited, the rainy season creates a tremendous burden on CBO operators forcing them to regularly repair breakdowns, even causing them to get sick from overwork. The village government therefore needs to take over the maintenance role which is beyond the capacity of the CBOs. We suggest the</p>

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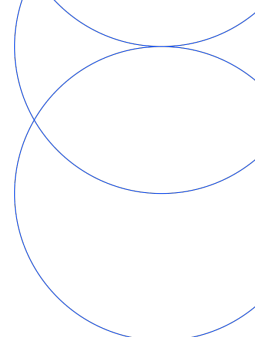
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	necessary manpower, technical expertise, or resources.		establishment of village-level "Response C Recovery Teams" to be mobilized only when CBOs lack the necessary manpower, technical expertise or resources. The team structure should include a coordinator responsible for overall decision-making, technical support for repair of pipes, ponds, and pumps, a logistics manager for distribution of equipment from the village emergency stock, and respected community members for mobilization of manpower and logistics.
A. Disaster Preparedness	4. Establish a village-level emergency stockpile that includes spare parts, water filtration kits, HDPE pipes and other supplies. Procurement and budgeting processes should be included in the RKP Desa and APBDes, and overseen by a team consisting of village government and CBO representatives.	Village government, CBO	Village-level emergency stocks are essential to sustain a rapid response to natural disasters during the rainy season. These stocks should include essential resources such as spare parts, water filtration kits, and HDPE pipes for example. The procurement and budgeting process for emergency stocks should follow the guidelines in Permendagri No. 20/2018. Stock procurement plans should be included in the Village RKP and APBDes, and overseen by a team consisting of village government and CBO representatives. Storage and distribution of stocks should be carefully planned with careful planning.
A. Disaster Preparedness	5. Adjust district water supply master plans (RISPAM) and regulations to mitigate identified climate risks. Ensure that RWSs at risk have access to backup water sources, especially in the most vulnerable locations.	District Government	Based on Component B research, the majority of the systems studied do not have alternative sources to support Pamsimas. From the research in Garut, alternative water sources are usually only sought after the main water source has dried up.
B. Risk Mitigation	6. Review the impact of land use practices on CBO operations, including agricultural	District government, village government, CBOs	Some of the impacts of land use on CBO operations include: a) Competition for water access and use, e.g. UPLAND projects that develop irrigation infrastructure and farmland in the uplands compete with community

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	<p>practices, deforestation and mining activities. Coordinate with relevant agencies to mitigate negative impacts.</p>		<p>water supplies. b) Disturbance of water sources and systems, e.g. construction of tourism facilities in Garut that may disturb water catchment areas, and mining activities in Wawoni that contaminate water sources in karst caves used by Pamsimas CBOs. c) Risk evaluation, e.g. the risk of CBO facilities to landslides and flooding increases due to the utilization of highlands for agricultural activities (e.g. use of mulch, lack of perennial plants, agricultural waste/garbage in upstream areas).</p> <p>Final workshop recommendation June 3, 2024:</p> <p>a) Regarding the impact of land use, there needs to be intervention or mediation from parties such as the sub-district or regency to mediate discussions on land use. For example, if a watershed is located in another village or sub-district, higher-level mediation is necessary to coordinate land use. This should be done early on, so it is known from the start that the water source and its recharge area are in neighboring villages or sub-districts. This needs to be mediated from the beginning before the Pamsimas project starts. An MOU (Memorandum of Understanding) is also needed to prevent changes in land use in the recharge area.</p>
<p>B. Risk Mitigation</p>	<p>7. Train CBO members and village government to conduct vulnerability assessments and adaptation planning. Facilitate knowledge sharing between government agencies and local communities.</p>	<p>District government, village government, CBOs</p>	<p>CBOs may already have knowledge of hazard typologies and vulnerable parts of the system based on their experience. However, local government agencies such as BPBD, the Environment Agency or the Agriculture Agency may have better information and data on potential future hazards and can thus inform CBOs and villages on the vulnerability of their water systems. Land use changes such as deforestation or designation of mining areas may increase the vulnerability of CBO systems. Land use agencies (mining, forestry or other) will be more informed about future land use plans than CBOs or village governments (example: nickel mining in Wawoni). On the other hand, government officials can learn from local knowledge and</p>

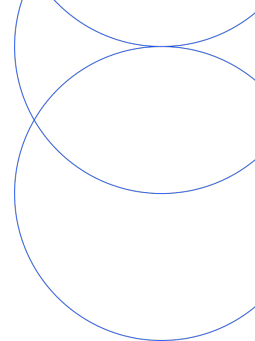
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			<p>community perceptions of RWS vulnerability.</p> <p>It is hoped that there will be the same standardization (related to the issues mentioned above) in human resources in Indonesia (through training/standardization) because it is BNSP and the certification has been recognized.</p> <p>Final workshop recommendation June 3, 2024:</p> <p>a) There should be a uniform standard for human resources in Indonesia, as certified by BNSP (National Professional Certification Agency). This certification is already recognized.</p>
B. Risk Mitigation	8. Integrate CBO disaster preparedness into village policies and regulations after conducting vulnerability assessments and adaptation planning.	Village Government	Some villages have regulations on rural water supply. Usually, these village regulations govern the collection of fees and protection of water sources. CBO Disaster Preparedness is usually not part of these village regulations. Following the training on vulnerability assessment and adaptation planning, village governments should follow up by integrating the training into their village policies and regulations.
B. Risk Mitigation	9. Increase safe household water storage through awareness campaigns and incentivization. Encourage ownership of water storage tanks through community-based initiatives such as arisan.	Village government, CBO	Community Based Organizations (CBOs) should focus on promoting household water storage capacity. Most households will store water with whatever containers are available after an announcement from the CBO about possible service disruptions. Higher income households will have larger and more durable water storage tanks. In many cases, we found used paint containers being used to store water during disruptions. This is harmful to human health as it may contain toxic substances. CBOs can encourage ownership of safe water storage tanks through arisan.
B. Risk Mitigation	10. Develop guidelines to assess pipeline vulnerability and prioritize relocation or deep burial of pipelines in	District government, CBO	Vulnerable Area Assessment. After the above thorough assessment of the water supply system, the CBO can estimate and identify areas where the pipeline is most vulnerable to damage from natural disasters or human activities. This assessment should

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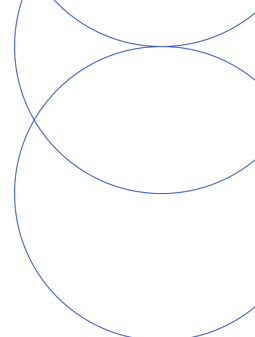
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	<p>high-risk areas. Provide technical assistance and financial support to CBOs for pipeline relocation projects.</p>		<p>consider factors such as proximity to water bodies, areas prone to land movement, high traffic areas, locations with heavy agricultural activity, and the occurrence of forest fires.</p> <p>Pipeline Relocation or Burial. Based on the above assessment, the CBO should develop a plan to relocate the pipeline from the high-risk area to a safer location. Pipeline rerouting has occurred in several CBOs during our field research as part of disaster recovery, usually around or near rivers. Pipelines may also be rerouted around flood-prone areas, away from unstable slopes prone to landslides, or from heavily traveled roads. We were informed that burying pipes is not done in accordance with the government's General Guidelines as this becomes part of gotong royong (in kind) while in some contexts this gotong royong is not very entrenched in the community.</p> <p>Final workshop recommendation June 3, 2024:</p> <ol style="list-style-type: none"> a) Recommendations regarding pipelines buried in the ground. b) Prioritize relocation or deep burial of pipes in high risk areas. This is a good idea but comes with challenges. How to detect leaks, and if repairs are needed, it will be more difficult to fix them if they are underground. These are the considerations, as both above-ground and underground pipes have their pros and cons.
<p>B. Risk Mitigation</p>	<p>11. Build additional reservoirs to increase clean water storage capacity. Place new reservoirs in areas less vulnerable to disaster risks and ensure equitable distribution to upstream and downstream villagers with good pipeline planning</p>	<p>Village government, CBO</p>	<p>In West Java, rural water supply systems often struggle during the rainy season due to flooding, soil erosion and infrastructure damage, causing water supply disruptions. Village governments should prioritize the construction of additional reservoirs to increase clean water storage capacity. New reservoirs should be located in areas less prone to disaster risks such as at higher elevations, close to water sources, easily accessible for maintenance, and ensure equitable distribution to upstream and downstream villagers with good pipeline planning and pressure regulation. Based on the information we received, the placement</p>

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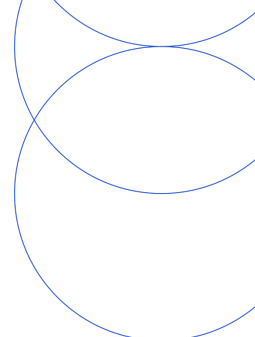
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	and pressure regulation.		<p>of the reservoir location depends on which land is willing to be donated, not topography or disaster considerations. Therefore, funding for land acquisition needs to be considered.</p> <p>Final workshop recommendation June 3, 2024: There is a need for backup water options. The constraint may be the cost and whether the water source backup option is sufficient at its limit to serve as a backup source.</p>
C. Knowledge Management	12. Ensure CBOs have access to detailed engineering designs and construction-related documents. Build a digital repository for easy access and long-term storage.	Ministry of PUPR, District Government, CBO	<p>Findings from component B revealed that CBOs rarely keep documents related to the initial design of the system. Our field research in Garut also showed that newly appointed CBO administrators often rely on the knowledge of previous administrators regarding system conditions, such as the location of underground pipes. For knowledge management purposes, all CBOs should be given access to detailed engineering designs and documents related to system construction and development. Pamsimas facilitators usually have access to these documents and hard copies can be kept at the village office. However, printed copies are often lost. Digital copies should be kept by Dinas PU or in a public repository (website).</p> <p>Final workshop recommendation June 3, 2024: Continuous support from facilitators in the Public Works (PU) Department is necessary. Usually, technical knowledge resides within the PU department at the regency level. Often, after a project is completed, there is no ongoing support. Perhaps there should be a special UPDT (Technical Implementation Unit) at the regency level or under the PUPR (Public Works and Housing) Department to provide continuous technical assistance.</p>
C. Knowledge Management	13. Update Water Security Plan (WSP) guidelines to include climate hazard assessment, risk	CBO	<p>Identify choke points: A "choke point" is a part of the system that would cause a major disruption if it were not functioning normally. Examples of choke points include: intake areas that are vulnerable to blockages from</p>

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	<p>categorization and contingency planning.</p>		<p>debris and sedimentation, transmission pipelines that are prone to cracks, breaks and leaks, pumps that can fail due to power outages or mechanical failures, and broncaptering systems that are at risk of being clogged or damaged by silt or debris. Categorization of hazard typology: Hazard typology involves identifying and categorizing potential threats that could adversely affect the water system as part of developing an effective Water Security Plan (WSP). The first step is to catalog disturbances and threats that can be identified when maintaining the water system (e.g., pipes that are frequently run over by vehicles or pipes located in landslide- prone areas). Analyzing the frequency and pattern of these events helps identify recurring hazards and anticipate potential future threats. The next step is risk assessment. This involves evaluating the likelihood and potential impact (severity) of the identified hazards. Risks are prioritized based on their potential to disrupt water services and safety (water quality) for consumers (villagers).</p>
<p>C. Knowledge Management</p>	<p>14. Provide guidance on how to incorporate seasonal variability and climate risk into CBO financial planning, budgeting, and asset management practices.</p>	<p>District government, CBO</p>	<p>Climatic conditions and seasons have an impact on CBO finances, making it necessary to improve accounting capacity to incorporate these variables into their finances. For the mountainous areas of West Java, high rainfall means more damage to infrastructure and more frequent repairs. On the other hand, the dry season could mean fewer repairs but higher demand for water by customers. Adjustments in their financial planning may include: Seasonal Reserve Funds, Cash Flow Projections, Contingency Budgets, Preventive Maintenance Scheduling. It should be noted that the above also depends on the "supply side" of the money, in this case the customers in the villages. The 2023 drought in West Java had a significant impact on farmers' income and thus affected their ability to pay. Conversely, the rainy season can also lead to crop failure which in turn affects CBO income.</p>

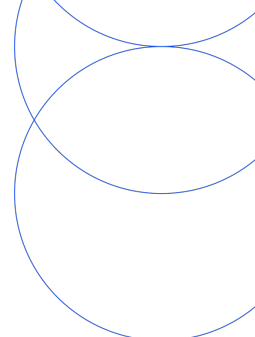
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D. Sustainable Agriculture Practices	15. Assess the impact of agricultural practices such as mulching and cultivation of cash crops on steep slopes. Develop guidelines for sustainable agricultural practices that minimize soil erosion and landslide risk. Enforce violations of these guidelines.	District government, village government, CBOs	The use of plastic mulch in upland vegetable farming, which aims to improve soil moisture retention and weed control, actually contributes to increased surface runoff and soil erosion during heavy rains. The cultivation of "cash crops" such as potatoes and carrots, often leads to the removal of perennial vegetation. This not only disrupts soil structure but also reduces the land's natural resistance to erosion. In areas such as Cikajang and Cikeris, Garut, where slopes exceed 60 degrees, safeguard measures such as planting durable perennial crops (such as coffee) are ignored in favor of environmentally unsustainable agricultural practices. All this leads to damage to the CBO pipeline disrupting supply. Similarly, agricultural runoff and waste exacerbated sedimentation in the river causing flooding and destruction of CBO springs and infrastructure near the river.
D. Sustainable Agriculture Practices	16. Issue a decree to convert critical water catchment areas into Hutan Adat to enhance community-based water protection and supply.	ATRBPN, KLHK, Garut Regency Government	In Cikandang, the head of KPSPAM expressed the need to protect the water catchment area. The area around the water source and catchment area is state-owned but managed under Perhutani (a forest management State-Owned Enterprise) under Hak Guna Usaha (HGU). After Perhutani's HGU expires, the CBO hopes that the land can be converted into customary forest, protection forest or other types of forest that can protect the water system. The HGU could be taken over by the state and then distributed to the community. However, further research is needed and it needs to be identified whether the transfer mechanism from the state to the community can be done through the agrarian reform object land program (TORA) or the Forest Area with Special Management (KHDPK).
D. Sustainable Agriculture Practices	17. Strengthen land use controls and zoning regulations to prevent encroachment and illegal activities in critical catchment	District Government, Village Government	In addition, there should be alignment between RTRW, RDTR and land use by land rights holders. In the case of Garut, and the UPLAND project, land rights holders (e.g. Perhutani or other Hak Guna Usaha holders) may not be aware that their agricultural practices are endangering other areas and/or may not be aware that their land has

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	areas and disaster-prone zones.		<p>important functions to protect water catchments, water resources and the water system as a whole.</p> <p>Final workshop recommendation June 3, 2024:</p> <p>a) We need to conduct joint supervision between local government and central government agencies such as PTPN and Perhutani, to oversee and coordinate efforts. This allows for reviewing the conditions of the land in various areas to determine if they are critical and require rehabilitation, or if the land use permits (HGU) have expired and need to be returned to the state and reclassified. Integrated supervision authority can coordinate policies needed to address regional issues.</p>
D. Sustainable Agriculture Practices	18. Develop and promote sustainable agricultural practices that minimize environmental impacts and increase resilience to climate change. Provide incentives and extension services to farmers for adoption. This should be done in collaboration between CBOs and DPMD.	District government, CBOs, Department of Agriculture	<p>The Ministry of Agriculture issued Minister of Agriculture Regulation No. 47/Permentan/OT.140/10/2006 on General Guidelines for Agricultural Cultivation in Mountainous Land. However, this guideline is considered irrelevant to the situation in Garut, as it does not regulate the use of plastic mulch and does not provide adequate information regarding annual crops. The guideline focuses on agricultural cultivation on mountainous land that is not prone to landslides and erosion. Based on the document, the types of vegetables suitable for farming in mountainous areas with a wet climate located more than 700 meters above sea level are: Cabbage, Gambas, Celery, Lettuce, Potato, Asparagus, Broccoli, Carrot, Tomato, Radish, Leek, Beetroot, Mustard, Lettuce, Kale, Chicory, Tomato, Chili, Carica (Mountain Papaya). The definition of wet climate is an area with annual rainfall >2500 mm with dry months (rainfall <100 mm/month) lasting less than 3 months.</p>
D. Sustainable Agriculture Practices	19. Develop strategies and guidelines for managing	District government, agricultural extension	<p>To address agricultural waste and sedimentation, there are several things that need to be done. First, identify land use designations in the area to ensure that land</p>

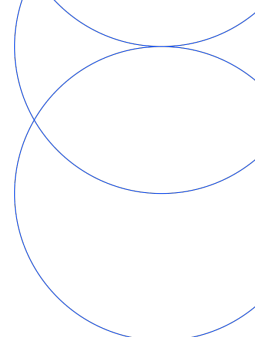
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	<p>agricultural waste in rivers to reduce flood risks and protect water infrastructure. Promote proper waste management practices among farmers.</p>	<p>workers, CBOs, Environment and Forestry Office</p>	<p>use is in accordance with the RTRW and RTDR. Second, identify land rights holders in agricultural areas. Land rights holders have a responsibility to ensure that agricultural practices in their areas do not harm others. In this regard, CBOs and villagers affected by agricultural waste, sedimentation and erosion can discuss with relevant government agencies (e.g. Department of Agriculture and Department of Environment and Forestry) to talk to land rights holders about their agricultural practices. The Department of Agriculture has the authority to guide land rights holders to implement good agricultural practices, while the Department of Environment and Forestry has the authority to assess whether or not the land is in a critical state and whether it may pose an environmental risk to the surrounding area.</p>
E. Water and Soil Conservation	<p>20. Prioritize the construction of retention facilities such as and retaining walls and infiltration ponds in upstream areas to reduce flood risk and increase groundwater recharge.</p>	<p>District government, village government, CBOs</p>	<p>In general, land use is regulated in the Spatial Planning Law No. 26/2007 and Law No. 6/2023 on the Stipulation of Government Regulation in Lieu of Law No. 2/2022 on Job Creation into Law. Based on Article 14 paragraph (2) of Government Regulation No. 2/2022, spatial planning in general consists of national, provincial and district/city spatial planning. Law No. 6/2023 article 14 paragraph (2) mandates local governments to prepare RDTR (Detailed Spatial Plan). This is a detailed plan on district/city spatial planning, equipped with district/city zoning regulations. In Garut, Garut Regency Regional Regulation No. 29/2011 and Regional Regulation No. 6/2019 on the Amendment of Regional Regulation No. 29/2011 regulate the Spatial Plan of Garut Regency Year 2011-2031. Based on the Regulation, plantations and agriculture are designated in the sub-district where the CBO is located.</p>
E. Water and Soil Conservation	<p>21. Develop mechanisms for cooperation and coordination between villages in protecting common catchments to</p>	<p>District government, village government, CBOs</p>	<p>Protection of cross-village catchments should be addressed in the formulation of RTRW and RDTR. In this regard, CBOs need to have proper documentation of the location of water sources and catchments, as well as land rights holders in the catchments. Village governments will be in the best position to</p>

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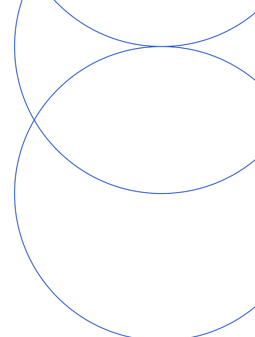
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	<p>maintain protection of water sources. Facilitate the development of joint management plans and benefit-sharing arrangements.</p>		<p>protect water resources and catchments in their areas from illegal resource extraction activities such as deforestation or illegal mining operations. Our previous research in Maukaro, Flores, showed that the Mosa Laki (customary leader) and his customary infrastructure are quite efficient in safeguarding water sources and catchments. However, the involvement of adat institutions would add another layer of complexity and thus beyond the scope of this section.</p> <p>Final workshop recommendation June 3, 2024:</p> <ol style="list-style-type: none"> a) If we look at the service or the water used in the context is PAMSIMAS but actually the water users in an area are not only in the PAMSIMAS program but even the largest is PDAM because PAMSIMAS as far as I know is below 10 liters, maybe there are 2-3 liters per second. While the ones that use more are probably PDAMs, especially those in rural areas that do use spring. So it does need to involve several sectors in this case in order to make a policy or maybe later planning and implementation. Then, whether it will be carried out nationally or whether the direct implementation can be handled at the village level or at the district level. b) Two ministerial regulations related to water sources, the first is Minister of Energy and Mineral Resources Regulation No. 291 concerning permits for the use of deep groundwater sources that enter the CAT area is a Central Authority. Then the Minister of PUPR Regulation No. 33 concerning the use of water sources in river areas that become central authority because it is in the Water Resources Law. Law number 17 of 2019 regulates this, but the basis for the issuance of the two Ministerial Regulations is because they are cross-provincial. Cross-provincial CATs, cross-provincial rivers are regulated by the Central Government because it is for the protection of the catchment area that the central government must regulate another thing is in the Water Resources Law number 17 of 2019 which states that river
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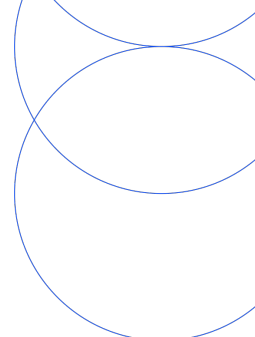
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			<p>areas, river basins, groundwater basins that are under the control of the regional government, either provincial or district, are regulated by PERDA until now. Only a few local governments have regulated this and it regulates up to the catchment area of course and licensing, maybe one example in Pamsimas is only the provincial government. If I'm not mistaken, Jogja is the one that has regulated it, other local governments do not. So that the average community group only takes (drills) water because there is no regulation yet, but for those that are under the authority of the Center, all of them, this year there is already a regulation.</p>
<p>E. Water and Soil Conservation</p>	<p>22. Transfer of catchment area management to the community (where possible)</p>	<p>Kpspam, Ministry of ATR/BPN, Perhutani</p>	<p>After Perhutani's HGU expires, Kpspam in Cikandang hopes that the land can be turned into customary forest, protected forest, or other types of forest that can protect the water system. The HGU could be taken over by the state and then distributed to the community. However, further research is needed and it needs to be identified what the transfer mechanism is? For example, can state land be transferred to communities through the Land Object of Agrarian Reform (TORA) program or the Forest Area with Special Management (KHDPK)?</p> <p>In mining areas where the land status is APL, when the mining is completed, what is the procedure for returning the lease rights on APL land to the government? What is the procedure if the APL then wants to be transferred to the community and change its function to a protected area.</p> <p>Recommendation June 3, 2024: For areas that are important for water catchment functions where this area is a source of water for PAMSIMAS, it is necessary to study the status of the area, if it is in the state forest, then a letter needs to be submitted so that the state forest can be managed for the community, for example through a social forestry permit or customary forest. But if it turns out that the area is outside the area then it falls under the authority of</p>

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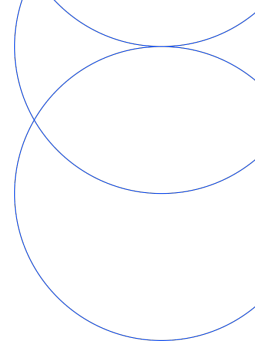
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			<p>ATR, the Ministry of Spatial Planning. Representatives from the Ministry of Spatial Planning are not in our group so later the recommendation is that we follow up on how the procedure is based on the mechanism at the Ministry of ATR.</p>
<p>F. Funding Mechanism</p>	<p>23. Simplify and speed up the approval process for CBOs to access emergency response funds. Establish fast-track mechanisms and delegate authority to local-level decision-makers.</p>	<p>District government, CBO</p>	<p>Law No. 24/2007 on Disaster Management regulates the funding and management of disaster relief. According to Article 60, disaster management funding is the joint responsibility of the Government and local governments. Furthermore, the Government and local governments encourage community participation in the provision of funds sourced from the community. Article 61 confirms that the Government and local governments allocate an adequate budget for disaster management. The use of an adequate disaster management budget is carried out by the Government, local governments, the National Disaster Management Agency, and the Regional Disaster Management Agency in accordance with their main duties and functions. This law allows for substantial quick fix financing in the context of disaster management. For example, in the context of disaster management, disaster management funds can be used for operations and maintenance, repairs, human resource development, and institutional development.</p> <p>Final workshop recommendation June 3, 2024:</p> <ul style="list-style-type: none"> a) All activities funded by village funds fall into two programs: empowerment and infrastructure for development. Hopefully, there will be a regulation allowing village funds to be used for the sustainability of PAMSIMAS. This might include tagging or other measures according to existing regulations. During planning, the APBDES (Village Budget) should be scrutinized and clarified in the RKPDES (Village Government Work Plan). If regulations allow, KPSPAM could be sustained using village funds, especially in urgent situations.

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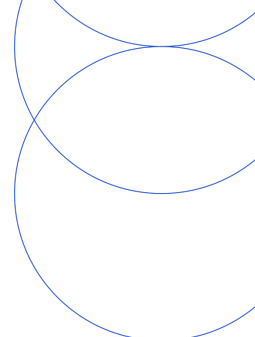
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			<p>b) Many villages involve their assets in BUMDES, including KPSPAM. During village-level planning (musrebang), involvement should go beyond ceremonial participation. Proposals should be submitted based on needs, and if village funds are allocated, KPSPAM should be accountable.</p> <p>c) The form of KPSPAM determines the account for funds from the village. If it is a BUMDES, it might be classified as capital investment. If it's a cooperative, it can't receive grants because cooperatives seek profit. Associations might receive grants. The financial regulations for villages are managed by the Ministry of Home Affairs. Further recommendations need discussion with the Ministry of Home Affairs.</p> <p>The maximum 10% of village funds should be used for rehabilitating or revitalizing buildings, not for maintaining pipes, pumps, or other equipment used by PAMSIMAS. Maintenance using village funds is allowed as long as the assets belong to the village.</p>
<p>F. Funding Mechanism</p>	<p>24. Prioritize the construction of additional embungs or reservoirs to increase storage capacity and water security for rural communities. Integrate the planning of embungs into the village development program.</p>	<p>District Government, Village Government, MoV, MoHA</p>	<p>There are examples where villages have invested in the development of additional reservoirs - albeit for the purpose of network expansion, rather than for disaster preparedness. Cigagade village built an additional reservoir on the CBO network to allow additional customers to connect to the network. In an FGD event at USAID's Real Water launch, central government stakeholders agreed that village governments can invest in capital expenditures such as building reservoirs like this even if the rest of the infrastructure is owned by the CBO. However, they could not agree on whether investing in capital expenditures such as buying pumps for CBOs is allowed. Thus, the funding pathway needs to be further agreed upon by the relevant ministries/agencies.</p>

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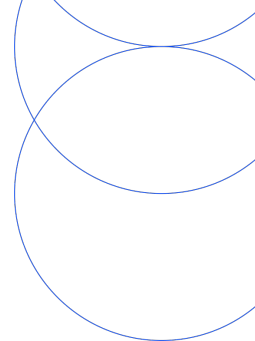
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			<p>Final workshop recommendation June 3, 2024:</p> <p>a) Recommendations should be grouped according to their appropriate level, such as those for villages, the central government, etc. Regarding assets, we discussed whether they can be considered village assets but operated by CBOs. For instance, if a village builds a reservoir as part of its KPSPAM network or buys a pump, it can be recorded as a village asset.</p>
<p>F. Funding Mechanism</p>	<p>25. Review and revise expenditure policies to allow for expedited approval and disbursement of funds for major improvements in RWS systems. Develop clear criteria and guidelines to trigger expedited processes.</p>	<p>Ministry of Home Affairs, Ministry of Villages</p>	<p>There are several mechanisms in the expenditure-related regulations that allow for expedited major repairs: Unexpected Expenditure, regulated by Articles 68 and 69 of PP No. 12/2019, allows local governments to allocate funds for urgent and emergency situations that were not anticipated in advance. These include natural disasters, non-natural disasters, social disasters, or extraordinary events that require a quick and effective response. 2. Emergency Funds, stipulated in the legislation, allow local governments to finance major repairs quickly after a disaster. These emergency funds are sourced from the state budget and are intended for situations where local financial resources (APBD) are insufficient to deal with the impact of a disaster. 3. There are some practices at the regional level. Tegal Regent Regulation No. 8 of 2020 on Guidelines for the Implementation of Financial Assistance to Village Governments for Drinking Water and Sanitation Programs regulates the guidelines for the implementation of financial assistance to Village Governments for community-based drinking water and sanitation programs in Tegal Regency. This financial assistance can be used to finance major rapid repairs as long as they are in line with the program objectives and do not cause social unrest or environmental damage; Gianyar Regent Regulation No. 7 of 2017 on the Guidelines for the Use of Financial Assistance to Village Governments for the Pamsimas Program Counterpart Fund regulates the guidelines for the use of financial assistance to Village Governments for the Pamsimas program counterpart fund in Gianyar Regency in</p>

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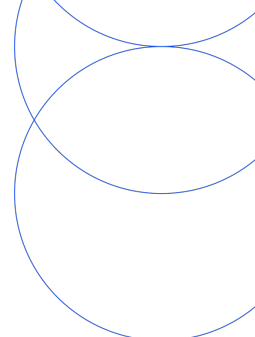
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			<p>2017. The program covers refurbishment, which is the restoration and development of SPAM performance (including the replacement or partial repair of major components) with the aim of improving SPAM performance and increasing the number of services from the original number.</p> <p>Final workshop recommendation June 3, 2024: Permandes number 7 of 2023 emphasizes that sources of financing in the village are not only from village funds but there are 7 sources of funding that are in law number 6 of 2004 related to villages, one of which is village funds. But funding for drinking water and sanitation can be budgeted using the village APBD which comes from 7 sources and for the amount we return to each village because it is discussed in the village deliberation. This may require participation from KPSPAM so that the budgeting can be included in the village APBD. It needs to be guided, accompanied from the beginning of planning to the Village RKP stage, it needs assistance from KPSPAM. Not only about drinking water, but there are also many programs that enter the village that are the choice of the community. In this case, KPSPAM needs assistance from the beginning to the end until the program is included in the Village RKP.</p>
<p>F. Funding Mechanism</p>	<p>26. Allocate Pamsimas development funds based on the topography, disaster risk of each region and climate conditions. Change the Pamsimas funding model so that it is not generalized and tailored to field needs.</p>	<p>Ministry of PUPR</p>	<p>There is currently a "cap" per district where the budget quota for one village - if exceeded - can reduce the quota of other villages. For example, in Kahiri, East Sumba, NTT, the pipeline is still 1 kilometer short so the community has to walk long distances to collect Pamsimas water. Funding should be based on the specific needs of each village, including topographic conditions and climate and disaster risks. This approach will ensure that each village receives adequate support based on their specific field conditions, helping to address existing service gaps and improve the effectiveness of the Pamsimas program.</p> <p>Recommendation June 3, 2024:</p> <ul style="list-style-type: none"> a) Many villages have included their BUMDES, including KPSPAM. Their

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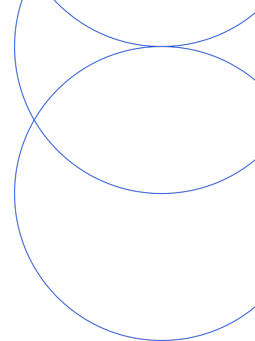
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			<p>participation in BUMDES, including KPSPAM, should not be limited to mere ceremonial involvement during the Musrenbang planning at the village level. Proposals should be submitted according to needs, and if allocated from village funds, accountability can be managed directly by KPSPAM.</p> <p>b) Institutional strengthening is necessary. The account for fund transfers from the village to KPSPAM will depend on KPSPAM's structure. If it is a BUMDES, it might be treated as investment capital. However, if it's a cooperative, could it be considered a grant? Cooperatives cannot receive grants as they seek profits. An association might be eligible for grants. Are there village financial regulations from the Ministry of Home Affairs? Can the Ministry of Home Affairs accommodate this? This might be our next recommendation, but it cannot be answered in this study. We need to meet with the Ministry of Home Affairs first.</p> <p>c) Pamsimas 2022-2023-2024 has followed the guidelines of Permen KPN No. 27, ensuring that assets are transferred to the Village Government as grants from 2022-2023, possibly extending to 2024. However, changes occur according to the development of laws and regulations, with Pamsimas operating from 2008 to 2023. Currently, there are two categories we refer to as self-managed and those integrated into the village's APB Desa.</p>
<p>G. Legal and Policy Framework</p>	<p>27. Develop a legal framework and funding mechanism to address water supply disruptions that do not meet the criteria for a formal disaster declaration. Ensure flexibility in resource allocation and response to rural water supply disruptions.</p>	<p>MoHA, MoV, MoF, District Government</p>	<p>Access to responsive funding is one of the weak points in Pamsimas climate resilience in the five provinces studied. Research from Component B shows that KPSPAM managing drinking water systems have limited access to responsive funding for preventive measures to build system resilience as well as for disaster response when damage occurs.</p> <p>Law No. 24/2007 on Disaster Management regulates the funding and management of disaster relief. According to Article 60,</p>

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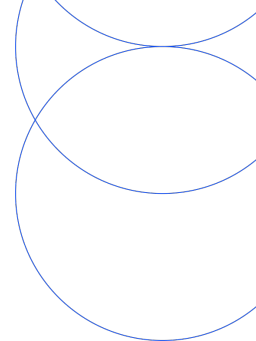
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			<p>disaster management funding is the joint responsibility of the Government and local governments. Furthermore, the Government and local governments encourage community participation in the provision of funds sourced from the community. Article 61 confirms that the Government and local governments allocate an adequate budget for disaster management. However, major damage to CBOs that are not categorized as disasters cannot facilitate this disaster funding. Therefore, the non-disaster funding mechanism will use regular funding channels. The Ministry of Home Affairs needs to evaluate regional financial management regulations such as grants and social assistance so that they can be used quickly by CBOs.</p> <p>Final workshop recommendation June 3, 2024:</p> <p>a) Regarding the 10% village fund usage, the maximum 10% is for rehabilitation or revitalization of buildings, not for the maintenance of pipes, pumps, or other equipment used by PAMSIMAS. Village funds can still be used for maintenance, even if managed by KPSPAM not under BUMDES, as long as the assets belong to the village.</p>
<p>G. Legal and Policy Framework</p>	<p>28. Categorize Pamsimas into social tariffs in PLN</p>	<p>PLN, ESDM</p>	<p>In Ciela Village, Garut, the problem of pump damage due to unstable electricity supply is also a major obstacle. Several other KPSPAMs in Garut also complained about the imposition of electricity tariffs by PLN. However, this is also the case in many other locations in Indonesia. In Brebes District, Central Java a district level association 'Tirta Buana' is trying to get KPSPAMS to receive a social tariff to reduce the burden of KPSPAMS operational costs. In Cisetu Village, Majalengka, 58 low-income families are threatened with losing access to clean water due to soaring electricity bills. Inconsistent electricity tariffs from PLN, where some KPSPAMS have to pay industrial tariffs while others enjoy social tariffs, add to the financial burden on</p>

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			KPSPAMS.
G. Legal and Policy Framework	29. Update the climate resilience framework for water and sanitation to include the above dimensions and detail the role of each ministry and level of government in supporting climate resilience.	Bappenas	This research piloted research tools and protocols based on Bappenas' climate resilience framework for water and sanitation. This experience generated lessons learned that can improve and refine the Bappenas framework (details will be provided in a separate document). In addition, while the climate resilience framework for community-based water and sanitation services is a national level framework, it focuses on the 'service' (CBO) level. This leaves void other key policy guidance on climate resilience such as the role of individual ministries in supporting improved climate resilience of water and sanitation services. Many roles and responsibilities are mentioned among other recommendations in this document.
G. Legal and Policy Framework	30. Integrate specific recommendations from this research into the development and design of the PAMSSANIMAS program.	Bappenas	The PAMSSANIMAS policy has integrated 10 of the 12 features of Climate Resilient Rural Drinking Water Supply (CR-RWS) with climate resilience as the main feature explicitly mentioned. The two features that have not been integrated are "having access to responsive financing" and "having a backup water source". These two features can be integrated to have a fully climate-resilient system.
G. Legal and Policy Framework	31. Integrate questions related to disruptions due to climate events into the PAMSIMAS SIM.	PUPR	The research revealed a high incidence of service disruptions related to climate events and trends, but the current PAMSIMAS sustainability SIM does not include indicators on water resources and availability or the impact of climate hazards on rural water services. Such information is useful at the district and national level, and monitoring at the global level may soon include not only 'safely managed water services' but also 'climate resilient water services'.
G. Legal and Policy Framework	32. Monitor the functioning and climate resilience aspects of rural water systems	Bappeda, PUPR	District governments in all research sites indicated large gaps in their knowledge of the functioning and climate resilience of rural water services in their areas. The tool

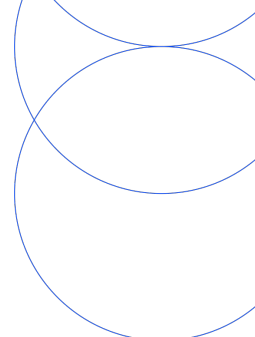
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	(including the capacity of CBOs to prepare for and respond to disasters and disruptions).		developed through this research (RWS_MAT) or other similar approaches can track progress in improving climate resilience and provide information to support decision-making on where to strengthen resources, training, inclusive approaches, or other interventions to improve climate resilience.
H. Village Level Climate Adaptation Policy	33. Develop a comprehensive policy framework for village-level climate adaptation in rural water supply systems. Provide guidance on vulnerability assessment, adaptation planning and implementation.	MoEF, MoV, MPWH, District Government	The Ministry of Environment and Forestry (MoEF) launched the Climate Village Program (Proklam) in 2011 to increase community capacity in climate change adaptation and mitigation. The main focus of the program is water resource management to prevent drought and flooding. The program's practical guidebook provides technical guidance on water-related adaptation measures. The program is supported by MoEF regulations. The main adaptation strategy promoted is rainwater harvesting. This involves the construction of rainwater tanks, infiltration wells, biopores, and small ponds. These capture and store rainwater, recharge groundwater, and supply water during dry periods. However, the scale and capacity of this infrastructure may need significant expansion to establish long-term water security, especially in drought-prone areas. The program also encourages water conservation and efficiency. Protection of water catchment areas such as forests and wetlands is another focus. Activities include tree planting, soil conservation techniques, and prevention of land degradation.
H. Village Level Climate Adaptation Policy	34. Incorporate RWS resilience into existing climate adaptation and disaster risk reduction programs at the village level. Develop an integrated planning and implementation framework.	Kemen PUPR, MoEF, District Government, Village Government, CBOs	Aligning Pamsimas, Proklam, and Destana (Disaster Resilient Village) Programs. Indonesia's policies on Climate Villages (Proklam) and disaster resilient villages (Destana) already address adaptation measures related to land use and alternative water supply - which can also be adopted by villages that do not formally adopt the program. However, the program could be better aligned with rural water supply initiatives. The difficulty is that villages receiving the Proklam program may not always be the same as those receiving the Pamsimas program - as they are separate programs from different ministries with

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			<p>different selection criteria. Nonetheless, the Pamsimas technical guidelines could adopt the practical guidance provided by Proklim, while the Proklim Guidelines should also address rural water supply (and sanitation).</p> <p>Final workshop recommendation June 3, 2024: In the village, there are several programs: Proklim and Destana, which need alignment. Pamsimas currently does not have a program aimed at climate resilience, so perhaps in the future, it can be aligned to include how village facilitators can receive materials on climate resilience in addition to the technical materials taught in Pamsimas. This way, facilitators can assist local governments, considering that not all local governments are exposed to climate resilience issues and programs. Furthermore, related to alignment, it is necessary to include climate resilience materials for facilitators in Pamsimas. Incorporating climate resilience issues into regional planning, especially in areas where these issues are not yet prevalent, should be encouraged through socialization, particularly in rural areas. Mainstreaming climate resilience issues is crucial.</p>
<p>I. Village Level Institutions</p>	<p>35. Map the CBO-village relationship and its implications for RWS management. Develop guidelines for establishing effective partnerships and governance arrangements.</p>	<p>District Government, MoV</p>	<p>The relationship between Community Based Organizations (CBOs) and village governments in Indonesia shows varied dynamics of cooperation and autonomy. In areas like KG02, harmonious collaboration is seen with mutual respect and open communication. CBOs consult with village governments to decide on policies, and village officials provide resources and guidance. These strong partnerships enable smooth operations and maintenance of water infrastructure and leadership transitions. Village involvement helps resolve conflicts and ensure uninterrupted water services. Village governments can also play an important role in providing resources and support to CBOs. In some villages such as KG01, CBOs received infrastructure assistance, such as additional reservoirs or pipeline extensions. Meanwhile in other villages the CBO-village relationship is less</p>

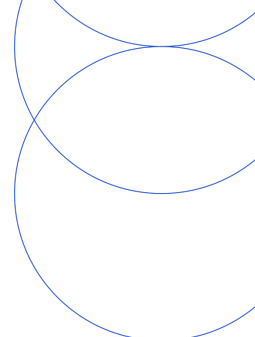
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			harmonious. This requires mapping at the village level.
J. Climate Resilient CBO Pilot Project	36. Implement pilot projects to demonstrate climate-resilient RWS technologies and approaches. Document best practices and lessons learned for replication and scale-up.	Kemen PUPR, District Government, CBOs	Pilot projects are a good way to test and demonstrate new technologies and approaches in the local context before implementing them on a larger scale. The project allows for learning, adaptation and improvement of procedures based on field experience and feedback. Pilot projects should be designed with clear objectives and indicators of success, as well as a robust monitoring and evaluation plan to document lessons learned and best practices. Engagement with key stakeholders, including local communities, government, and external partners, is essential to build ownership and ensure relevance and sustainability. Results from pilot projects should be widely disseminated to inform replication and scale-up of successful initiatives.
K. Adaptive Regulation - already submitted to DPR (still need follow-up), not to be discussed in this FGD forum.	37. Incorporate adaptive regulation principles into the RWS legal framework to allow for flexibility, learning and adjustment in response to changing conditions and new knowledge.	Central Government, House of Representatives	Adaptive regulation is a conceptual framework that responds to the dynamic nature of the environmental, social and technological landscape. It is designed to accommodate change and uncertainty, allowing policies and regulations to evolve as new information becomes available or as situations develop. Adaptive regulation challenges traditional regulatory frameworks that often assume static conditions and fixed outcomes. It introduces a paradigm where regulatory approaches are continuously evaluated and modified in response to changing circumstances. Bennear and Wiener (2019) outline that adaptive regulation moves away from a one-off, go/no-go decision-making process, to a system characterized by continuous learning and flexibility. This approach helps in managing the uncertainty inherent in emerging technologies and environmental management, where conditions evolve faster than typical regulatory responses.
K. Adaptive Regulation - already	38. Use the omnibus method to amend and	DPR, Central Government	The above issues are spread across different legal sectors, therefore an Omnibus method, where legislative amendments are made

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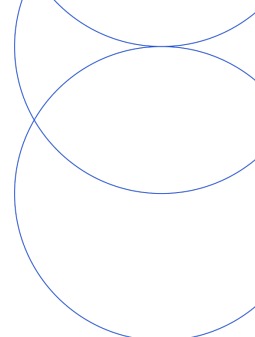
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<p>submitted to DPR (still need follow-up), not to be discussed in this FGD forum.</p>	<p>harmonize laws in different sectors including those related to RWS to facilitate an integrated and coordinated approach, as part of broader climate change adaptation legislation.</p>		<p>across different sectors at once, will be required. The Omnibus method can facilitate the integration of land use, forestry, agriculture, water management, village administration and local government rules for climate adaptation purposes. It enables a more holistic approach to planning and development, which is important in the context of increasing climate variability and interrelated environmental challenges.</p>
<p>K. Adaptive Regulation - already submitted to DPR (still need follow-up), not to be discussed in this FGD forum.</p>	<p>39. Develop institutional arrangements and decision-making frameworks to navigate trade-offs between climate mitigation and adaptation objectives (including in RWS planning and implementation). Ensure transparency and stakeholder participation in trade-off deliberations. This is part of broader climate-related legislation.</p>	<p>Central Government, Parliament</p>	<p>There are trade-offs between adaptation, mitigation and other climate policy objectives. These trade-offs need to be institutionalized and regulated. In our field research, there are trade-offs, particularly between agriculture and water management. Reliance on agriculture for local economic development often competes with the need to adapt agricultural practices to reduce vulnerability to climate-induced disasters such as floods and landslides. A legal framework is needed where these conflicting goals and values can be resolved. Such legal frameworks should: Provide Clear Guidelines, Encourage Stakeholder Engagement, Ensure Dynamic Adjustment and prioritize conservation as well as adaptation.</p>
<p>L. Spatial Planning and Critical Land Rehabilitation</p>	<p>40. Provide clear guidance on the roles and responsibilities of local governments (national, provincial, district and village) in identifying, prioritizing and implementing critical land rehabilitation actions to support RWS sustainability. Strengthen coordination and capacity building for</p>	<p>MoEF, ATRBPN, MoHA</p>	<p>In field research, the division of authority between district, provincial and central governments in terms of spatial and land management is often unclear. There are several definitions related to critical land as follows: PP No. 76/2008 and PP No. 23/2021: Critical Land is land inside and outside the forest area that has declined in function as an element of production and a medium for regulating watersheds; in West Java, in Perda 7/2005, critical land is land that functions poorly as a production medium for growing cultivated or uncultivated plants. The West Java Critical Land Control and Rehabilitation Master Plan (RIPRL) is prepared and stipulated for a period of 10</p>

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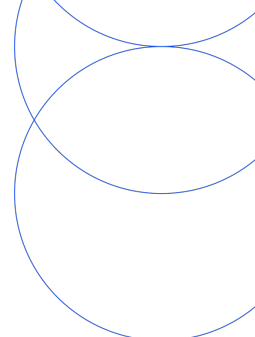
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	effective implementation.		<p>years by the Governor. The SKPD is assigned by the Governor to be responsible for the planning and maintenance of the plan. The District or City Critical Land Control and Rehabilitation Implementation Plan (RPPRL) is prepared and stipulated for a period of 5 years by the Regent or Mayor. However, this Perda needs to be harmonized with regulatory changes, especially the UUCK. Final workshop recommendation June 3, 2024</p> <p>Specifically for rehabilitation is usually carried out in because the locus and handling (KLHK) is in the forest area so KLHK's concentration is in the area. But it does not rule out the possibility that KLHK also has a program outside the function of the area, namely the reforestation program. Now there is prepared because earlier mentioned the issue of mitigation. Every year we prepare seedling production. Through permanent nurseries or modern nurseries that we build. Incidentally, there are two watershed control centers in West Java. One is in Cimanuk, and the other is in Bogor. Both have nurseries, which in fact have a productivity of around 1 million stems annually.</p>
L. Spatial Planning and Critical Land Rehabilitation	41. Check the status of land in the catchment area whether it is privately or state-owned and what the land rights are.	Kpspam, Public Works Agency, Provincial BPN Office	<p>In Cikandang, the water catchment area needs to be protected. The area around the water source and catchment area belongs to the state but is managed under Perhutani under a utilization permit.</p> <p>HGU (right to cultivate) is one of the land rights, which grants the right holder to cultivate land directly controlled by the state for a maximum period of 35 years and can be extended for a maximum of 25 years (and can be renewed for a maximum of 35 years). It is usually for agricultural, livestock and fish farming purposes.</p>
M. District/ Municipality Level Institutions	42. Establish a specialized team or area within the relevant agency or regional technical	MoHA, MoV, District Government	<p>The Law on Regional Government (UU Pemda) specifically outlines the responsibilities of district governments in providing domestic drinking water. Specifically, Article 12 paragraph (1) letter c</p>

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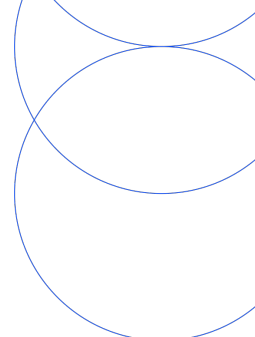
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	<p>unit (UPTD) responsible for rural drinking water to provide assistance to CBOs in the face of major disruptions or emergencies, including maintenance of stocks of essential materials, equipment, and spare parts, and technical and financial support for major repairs, upgrades, or expansions.</p>		<p>of the Law identifies public works and spatial planning as one of the mandatory government affairs related to basic services. This means that district governments have a legal obligation to provide these services to their communities. This is further explained in Appendix C of the LG Law. The establishment of CBOs responsible for rural water supply does not absolve local governments of their responsibilities. Our research shows that there are breakdowns and repairs that go beyond the capacity of the CBO. It is under these circumstances that local governments must step in. We recommend the establishment of a field within an existing department or a specialized regional technical unit (UPTD) responsible for rural drinking water. One of the main roles of such a unit would be to provide assistance to CBOs in the event of major disruptions or emergencies that exceed their own capacity. This can include maintaining stocks of essential materials, equipment and spare parts, as well as providing technical and financial support for major repairs, upgrades or expansions. Due to fragmentation of responsibilities at the local level: Dinas PUPR, Dinas Kesehatan, and Dinas Pemberdayaan Masyarakat dan Desa (DPMD), the establishment of a technical unit (UPTD) may be more desirable than the establishment of a field within an existing agency.</p> <p>Final workshop recommendation June 3, 2024:</p> <p>In Garut, there is already an UPTD (Technical Implementation Unit) at the sub-district level. There was a discussion on whether the Garut model can be replicated elsewhere. The capacity of UPTDs depends on the area, including available human and physical resources. It's still unclear who will provide external support for this system. There is no consensus yet on whether UPTD should come from the PU Department or an association. could be replicated in other places. Then if the UPTD still exists, its capacity depends on the region. Are there people (human resources) who have the capacity, then physical capacity and so on. So maybe some can be UPTD and some</p>
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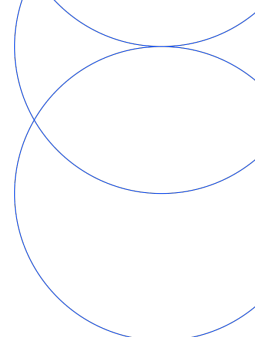
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			<p>can't, but there is no agreement yet on who will provide the external support system. There is no agreement yet on whether UPTD from the Public Works Office directly, or whether it is an association. But if the association is also sulut. There is no final agreement yet.</p> <p>Regarding the division of responsibilities, if we look at Pamsimas in the future, the LG is at the forefront. But for KPSPAM, it is felt that it should be positioned that the LG is at the front. It could be that the target is 2 for those who take immediate action for KPSPAM is mainly the LG. But if for guidance or regulation of the provision of NSPK, it really must be at the center. So that it is in accordance with the current concept of Pamsanim that indeed drinking water sanitation waste is the business of the LG.</p>
<p>N. The Role of Women</p>	<p>43. Increase the role of women in CBO management with policies and guidelines that encourage and support women's participation, including leadership roles, accounting skills, technical training, and decision-making processes. Provide capacity building and mentoring programs for women in CBOs.</p>	<p>District government, village government, CBOs</p>	<p>In the majority of Component B surveys, the role of women in KPSPAM is not very obvious. However, in some locations in Garut, women have a significant role and in some locations even de facto lead the KPSPAM. Women's role in collecting fees: In most of the KPSPAMS interviewed in Garut, the fee collectors are women (housewives). The involvement of women as fee collectors in some villages is supported by male co-managers and CBO heads, arguing that women can talk heart-to-heart and solve problems among themselves, making fee collection easier. Adaptive CBO structure: In the case of KG 02 and KG 07, women's involvement (Ibu RT and Ibu Neneng) had an important role in the CBO even though they did not have a formal structure in the CBO (Ibu RT helped with fee collection, Ibu Neneng helped with her leadership succession and is still involved in some tasks). The CBO structure may need to be flexible to adopt these roles. Technical Training: Women's involvement in technical training will be beneficial as they will understand the basic mechanics of the CBO infrastructure (e.g. pumps, electrical systems). They can thus work with the CBO's male technicians to order spare parts, negotiate the price of spare parts with</p>

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		<p>suppliers, and have the basic skills to repair the CBO's infrastructure. Fee collection training: Fee collection training involves automating payment by transfer and monitoring the online fee collection already developed by the CBO in Sukalilah (see figure in the "Explanations and Examples" section). Bookkeeping training: It is important to have detailed records of how the CBO's money is spent. This will help identify the types of spare parts that need to be repaired and the periods when pipes and pumps need to be repaired (e.g. every rainy season pipes need to be repaired because of frequent landslides. Every dry season, the pump needs to be repaired as water usage increases).</p> <p>Final workshop recommendation June 3, 2024:</p> <p>How can women more easily use the technology? Women are the primary beneficiaries in daily activities, using water for reproductive health, child health, and more. Ensuring women have easier access to water resources is crucial. If training is conducted but only men attend due to women's limited time flexibility, how can we facilitate women's availability and involvement in discussions on clean water provision and sanitation?</p> <p>The main point is to facilitate access to clean water for all members of society, especially women. This group includes not only ordinary women but also pregnant and breastfeeding mothers. Involving women should not be limited to a 30% quota or just visible participation; it means placing women as key participants from the planning stage, identifying water sources, to ensuring the services are easily accessible to them. This is important because issues related to drinking water or clean water are linked to situations like natural disasters. Sometimes women have to travel long distances without electricity to access clean water. So, it's crucial to bring access closer during disasters. For reproductive health, women are actually the largest users of clean water. However, more men are involved in these processes. Meetings are often held at night,</p>
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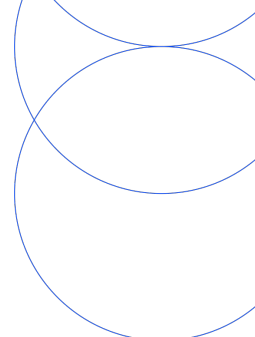
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			<p>excluding mothers. Therefore, it's important to facilitate Pamsimas activities to be participative and inclusive of women. Furthermore, there is a need to promote higher-level policies related to clean water supply. In some areas, there are special forums for women in Musrembang discussions, which might be considered for discussion here.</p>
O. CBO Financial Management	<p>44. Establish clear financial management and reporting standards for CBOs, including regular audits, financial disclosure, and community oversight mechanisms. Provide training and support to CBOs to improve their financial management capacity. Cash flow projections should be seasonally adjusted.</p>	District government, CBO	<p>Currently, few CBOs record their financial accounts. Those that do bookkeeping do so with simple ledger books and handwriting - although there are some that use android apps. However, seasonality and climatic events impact CBO finances, so they need to improve their accounting capacity to incorporate these variables into their finances. CBO financial conditions will depend on location and other contexts. For the mountainous areas of West Java, high rainfall means more damage to infrastructure and more frequent repairs. On the other hand, the dry season can mean fewer repairs and higher demand.</p>
P. CBO Governance Design based on its entity status	<p>45. Develop clear policies for the establishment, registration and ownership of CBO assets. Provide guidance on the transfer of land rights and other assets to the CBO or village government to ensure long-term security and sustainability of water infrastructure. Design the Governance of each of the CBO entity form options.</p>	Kemen PUPR, Kemendes	<p>Independence. Under the Pamsimas policy, CBOs must be established through a village head decree. This is intended to establish formality and signal that Pamsimas is part of the village. However, according to Daniel et.al (2024) in many areas such as Gadog and Ciputri (Cianjur) the CBOs operate independently from the village. We also observe that in Garut, only 3 out of 7 CBOs have a strong relationship with the village while the rest operate independently. On the other hand, CBOs operating as BUMDes business units are likely to be subject to stronger intervention from the village, except perhaps when appropriate governance mechanisms - through village regulations - are established.</p> <p>Form of entity. Pamsimas Technical Guideline 8/2023 allows the legal form of the PAMSIMAS entity to be determined through</p>

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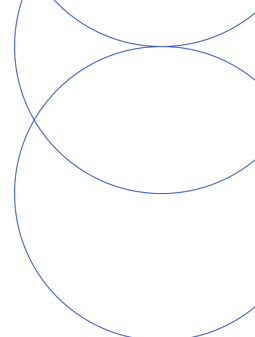
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			<p>community deliberation, ensuring the choice is aligned with local needs and preferences. According to Table 2.6 in the document, KPSPAM can choose to integrate with the village government either as a Village-Owned Enterprise (BUM Desa) or as a Community Institution (LKD)/LPM Activity Unit. The two options have different orientations and underlying values, with BUM Desa focusing on a profit orientation to improve the village economy and generate local revenue, while LKD/BUM Desa Business Units operate on a non-profit basis, partnering with the village government in planning and implementing community development. Each of these entity forms has different governance consequences that must be considered. If it is a BUMDes, then arrangements need to be considered so that it remains independent from village politics and its budget is "ring-fenced" so that income from drinking water is not given to other BUMDes business units, for example. For Cooperatives, LKDs and Associations, the governance will be different.</p> <p>Asset Status. In order to provide ongoing support for rural water systems, it is important to clarify the legal status and ownership of CBO assets. Ownership of land used for water infrastructure by CBOs often lacks clear ownership status. Many CBOs rely on donated land, but without a formal transfer of title, there is a risk of future disputes.</p> <p>National and district governments should develop a clear legal framework for the establishment, registration and ownership of CBO assets. This should include guidance on the transfer of land rights and other assets to CBOs or village governments. The process of transferring assets should be completed with proper legal documentation. There needs to be clarity on the roles and responsibilities of the CBO and village government in the management and maintenance of assets. Where the CBO is a separate entity from the village, there should be a service</p>
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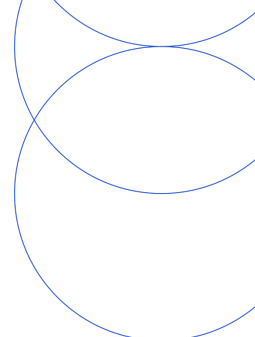
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			<p>agreement or memorandum of understanding (MoU) that should outline this division of responsibilities, including financing of operations and maintenance.</p> <p>Final workshop recommendation June 3, 2024:</p> <p>a) According to Permendes No. 14 of 2015 (replaced by Permendes PDTT No. 9 of 2023) on the establishment of BUMDES, this can be done in two ways: entirely funded by the APB Desa or through capital participation. When KPSPAM's balance becomes visible, they prefer all assets to become village assets rather than capital participation, although capital participation is an option. Such matters need to be communicated to the Village Government. For instance, the village funds might be used for capital participation in a well-performing rental car business, but when KPSPAM performs well, they want all assets.</p> <p>b) Is BUMDES the same as the Ministry of SOEs or a separate entities? Because it has always been combined. What does the regulation say? For example, in Panji Village, Buleleng Regency, Bali Province, with a gross income of around 67 million per month and a balance of about 700 million to date. They have three business units: drinking water, herbal shops, and savings and loans, with 27 employees paid according to Bali's minimum wage. Hence, the 67 million is spent. It should not be like that; the businesses should be separated. Another example is Mandi Kampung Baru Village, Banjar Regency, South Kalimantan Province, with three business units: drinking water, packaged water, and refill water. The refill water and packaged water businesses do not pay for meter water, which is like taking advantage, similar to SOEs, where Garuda doesn't pay for aircraft parking and Damri doesn't pay toll fees. Is that how BUMDES regulations work? Clarity is needed regarding BUMDES establishment procedures.</p> <p>c) There is a need for clarity on BUMDES</p>
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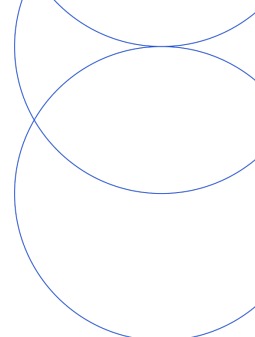
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			<p>establishment regulations. Examples from Bali and South Kalimantan show varying practices in managing multiple business units under BUMDES, highlighting the need for separation of activities and clear rules.</p> <p>d) LKD (Local Community Institutions) and BUMDES can access village APBD. The relationship between KPSPAM and village funds has been ongoing since 2011, with KPSPAM having its own articles of association and bylaws. In Garut, some villages have integrated KPSPAM into BUMDES due to village head policies. The Ministry of Villages does not mandate that KPSPAM must integrate into BUMDES, recognizing that some BUMDES have limited capacity.</p> <p>e) In Garut, there is already an UPTD (Technical Implementation Unit) at the sub-district level. There was a discussion on whether the Garut model can be replicated elsewhere. The capacity of UPTDs depends on the area, including available human and physical resources. It's still unclear who will provide external support for this system. There is no consensus yet on whether UPTD should come from the PU Department or an association.</p> <p>f) LKD and BUMDES have the potential to access the APB Desa. Additionally, when KPSPAM is seen to be performing well, it might be absorbed. By 2011, KPSPAM had progressed concerning village funds, showing significant advancements. KPSPAM has its own Articles of Association and Bylaws. In Garut, some decisions were made by the Village Head to integrate KPSPAM into BUMDES. However, the Village Head is regulated by law, especially with an 8-year term. After their term ends, it is crucial to ensure that well-functioning SPAM systems do not deteriorate. The Village Head position is political, and we cannot force these integrations.</p> <p>g) The Ministry of Villages does not force KPSPAM to be a BUMDES. Because there are indeed those whose BUMDES</p>
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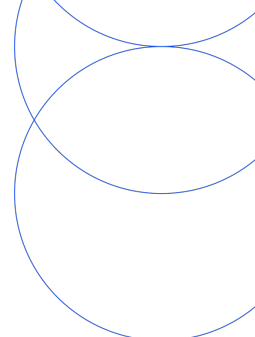
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			<p>capacity is not good.</p> <p>h) Regarding LKD included in the APB Desa, this is discussed in the Pamsimas Handbook. The Ministry of Villages once created a Pamsimas sustainability handbook, providing a metric for institutional choices for KPSPAM integrating into the village. Within the village, there are BUMDES and LKD. What are the orientation aspects if LKD? LKD is non-profit and follows village regulations and head village decrees, with ownership still belonging to the village. The highest decision-making power in the village is through musyawarah desa (village deliberation). Why musyawarah desa? Because village matters involve the community, including the Village Head. Therefore, musyawarah desa (village deliberation) ensures decisions are not solely dictated by the Village Head but involve the community. For LKD, the basic principles are partnering with the Village Government in planning and implementing village development. Initial capital is provided by the Village Government, including LKD, BUMDES, and village capital participation. For member rights or community involvement, LKD serves as a participatory platform in musyawarah desa, with representation rights.</p> <p>i) maybe access to bank financing or CSR or the opportunity to access the Village Budget, that is an opportunity. i) For the next, maybe access to bank financing or CSR or the opportunity to access the Village Budget, that is an opportunity.</p> <p>j) LKD is still allowed to have the APB Desa integrated into the Village Government. The choices are not limited to BUMDES or becoming village assets. If aided by the APB Desa, all assets become village assets by principle.</p> <p>k) Institutionalization needs to be strengthened. For the account of funds coming out of the village to KPSPAM, it will depend on the form of KPSPAM. Because if it is BUMDES, it might be able</p>
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			to go to capital investment. But if it is a cooperative, is it a grant? Cooperatives cannot receive grants because they seek profit. If it's an association, it might be able to receive a grant. Is the village finance regulation at the Ministry of Home Affairs? Can the Ministry of Home Affairs accommodate it? Maybe this is the next recommendation for us, it cannot be answered in this research. Because we have to meet with the Ministry of Home Affairs first.
Q. Water usage in mine voids	46. Conduct drinking water quality monitoring on pamsimas that draw water from mine pits	MoEF, Health Office, ESDM	In post-mining, voids will be handed over from the company to the local government. What is the status of the void land? And what is the mechanism for transferring the void to the community, does the void transfer include land rights or only the water in the void is used by the community but the void land is still owned by the state? If it turns out in the future that the void water is contaminated with heavy metals, who is responsible?
Q. Water usage in mine voids	47. Publish the results of drinking water quality tests on pamsimas systems that use water from mine pits	MoEF, Health Office, ESDM	There is a need for transparency regarding the parameters tested and the results of drinking water quality testing from ex- mining pits.

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