



STUDY OF THE PUBLIC PERSPECTIVES ON THE PROBLEMS OF KURANJI RIVER BASIN MANAGEMENT IN PADANG CITY, WEST SUMATERA, INDONESIA

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OBJECTIVE

Public perspective on
the problems of
Kuranji Watershed

Kuranji watershed
management

Integrated and
holistic approach

Understanding
“integrated thinking”
for river basin
management system

METHODOLOGY

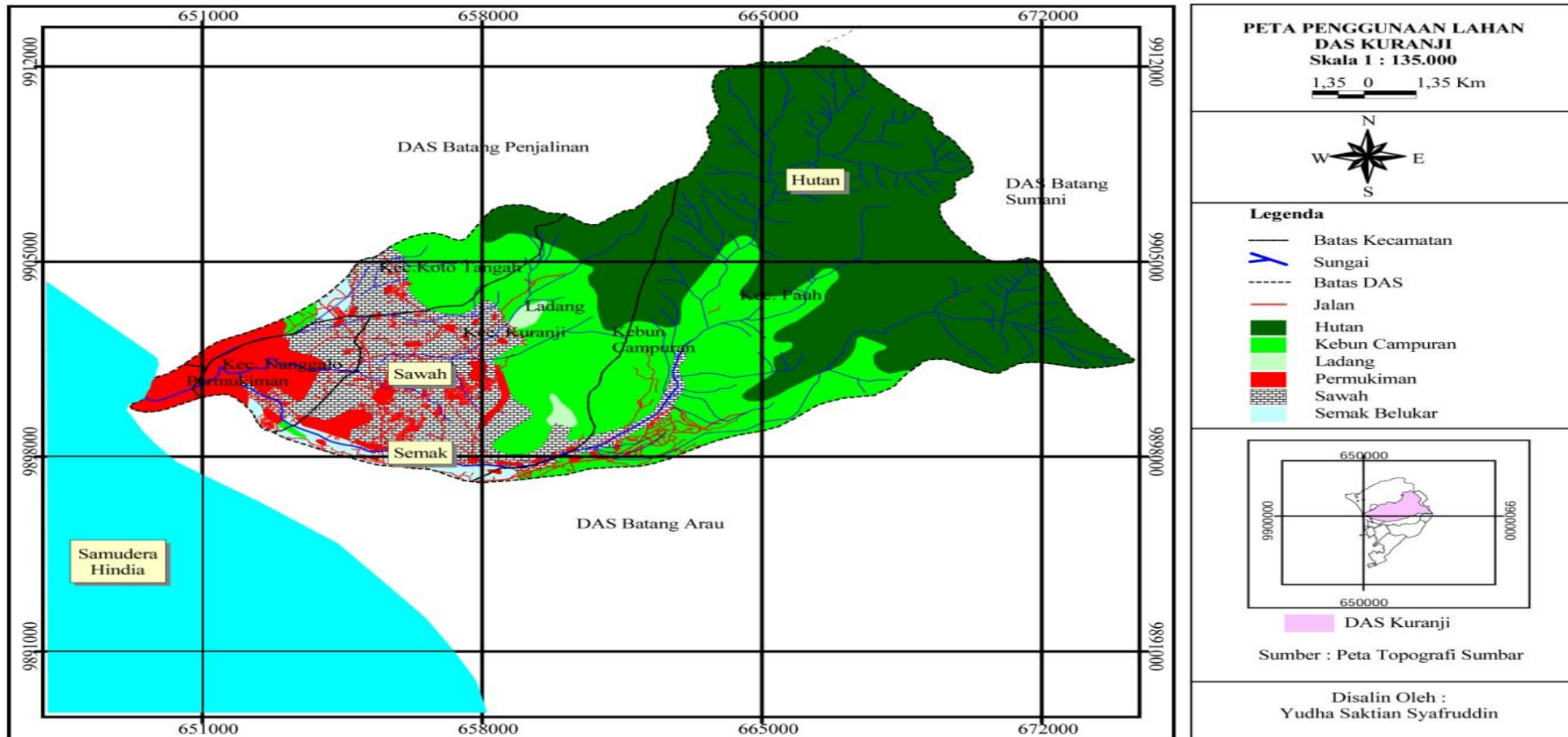
- Case study in Kuranji River Basin, Padang City, West Sumatera, Indonesia
- Combining qualitative and quantitative research methods
- Data collection: desk study, observation, in-depth interview and household survey
 - Desk study: collecting and analyze secondary data
 - Observation: direct and indirect observation using GIS
 - In-depth interview with key informants
 - Household survey at upstream area based on 30 respondents
 - Focus Group Discussion on Middlestream with represent Community group of Farmers water user (Perkumpulan Petani Pemakai Air/ P3A), Focus Group Discussion on Middle stream with represented by Community of Farmer's water user (Perkumpulan Petani Pemakai Air/ P3A), Unit of Services Techniques of water irrigation and academics as independence.
 - In-depth interview at downstream with heads of village in its area.



RESULT AND DISCUSSION



LAND USE MAP OF KURANJI RIVER BASIN



PHYSICAL PROFILE OF KURANJI RIVERBASIN

- Kuranji watershed is one of the watershed in Padang City: Areas 202.7 km² Main river length: 32.41 km, Total length of the main river and other rivers 274.75 km and density of Kuranji River basin: 1.36 km/km².
- Fur bird type with very high gradient.
- Divided into 5 sub river basin; sub-watershed Batang Belimbing 62.64 km² with main river length 17.08 km, Batang Sungkai Sub-basin 6 km² with main river length 3.63 km, Batang Jariah/Karuah -basin 82.26 km² with the length of 18,86 km, and Limau Manih sub-basin 31,93 km² with the main river length 16,42 km.
- Maximum water discharge up to 708.287 m³/sec

DOC. UPSTREAM



The upstream area is one of the areas that needs conservation, one of them with reforestation to increase the ability to withstand runoff.

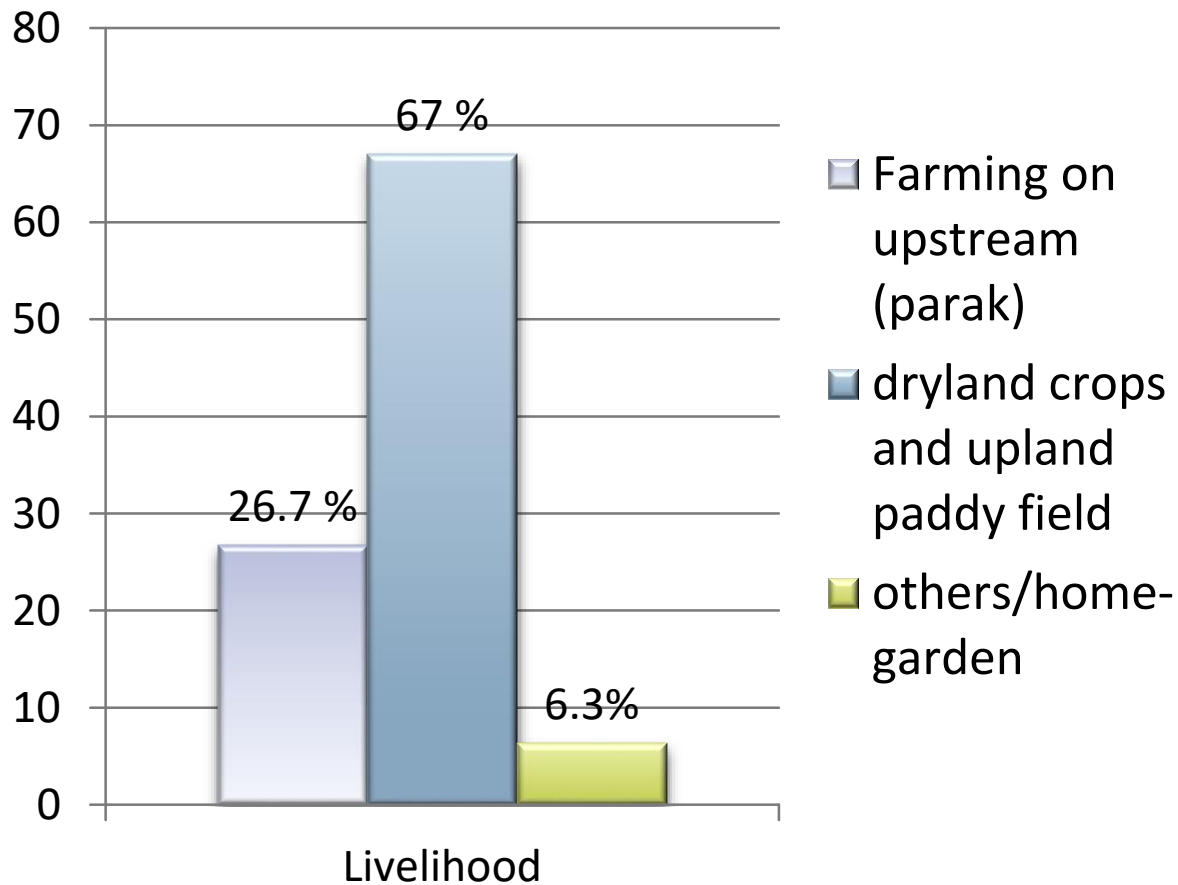


A conservation area is a recommendation to reduce the risk of flood disaster and erosion is Limau Manih, hillside, Gunung Sarik, Kuranji and Lubuk Minturun (Irsyad, et al., 2015)

PUBLICS PERSPECTIVE ON THE PROBLEMS IN UPSTREAM AREA

- Dominated by the protected forest and the community-owned mixed gardens (*parak*).
- These *parak* are generally planted by the upland farmers with perennials as the second source of their income after rice farming and home-garden near their settlements, such as *durian*, *petai*, *rambutan*. Even in the last ten years, a number of community members have tried to cultivate cocoa crops on the land.
- The average age of household head living in upstream are native and outsiders. In general, almost 50% of them have lived in this upstream area for more than 40 years.
- Key informants from this study suspect that since forest cover degradation in upstream catchment areas has reduced, this has threatened the sustainability of their agricultural activities downstream.
- For the past 10 years, local residents have assumed that high rainfall in the upstream during the rainy season will cause erosion and flooding in their fields. They only feel safe to cultivate their fields in the dry season rather than the rainy season. The high flow of water rainfall that suddenly causes floods from the hills often resulting in landslides in several locations.

COMMUNITY ACTIVITIES ON UPSTREAM

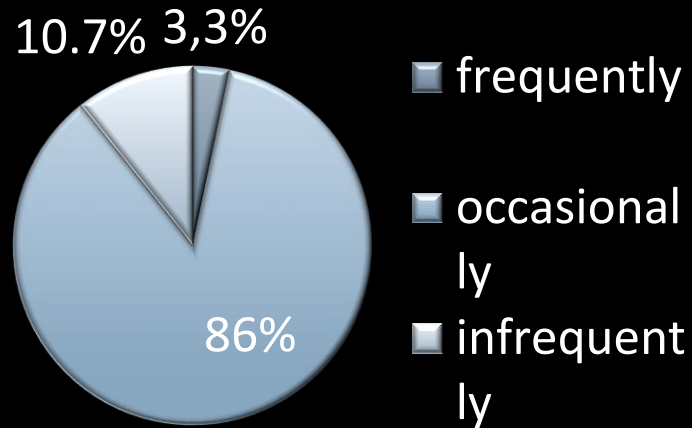


Almost all households mentioned that they have *durian* trees and others like *petai* and *rambutan* in their home-garden.

The expansion of *parak* activities are becoming significant during the last 10 years. It is mainly because most of inhabitant in this village still consider that the upland forest are still belong to the ***ulayat*** or **community-owned** forest, although legally those forest are identified as protected forest under the government law.

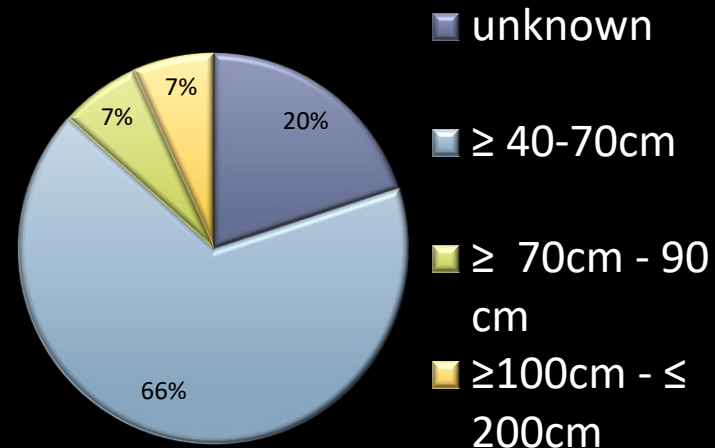
PROBLEM IDENTIFICATION IN UPSTREAM AREA

Landslide



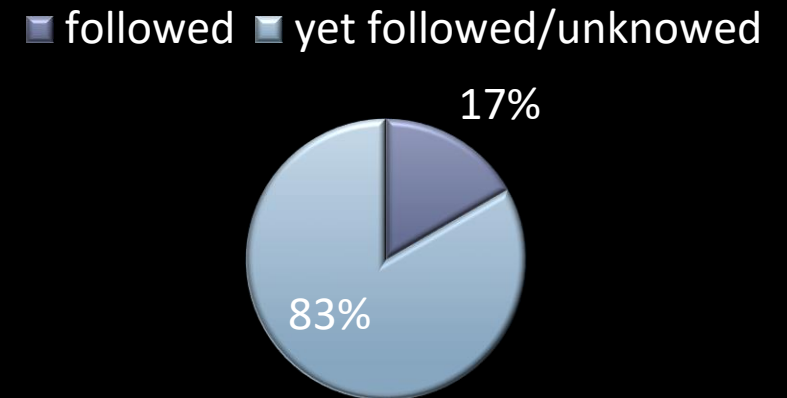
Case in high precipitation on the upstream during the rainy season, is resulted erosion and flood in paddy field.

Timber trees diameter



50% stated that commercial logs available in protected forest areas.

Community Participation in Community Forestry Training



Community participation is low

PUBLIC PERSPECTIVE IN MIDDLESTREAM AREA

- The central area of the Kuranji watershed is located along Kuranji subdistrict where the river flow includes five villages namely Kuranji, Korong Gadang, Kalumbuk, Laweh and Surau Gadang, Gurun Laweh. Local community livelihoods surveyed average are farmers

DOC. MIDDLE STREAM



← Reconstruction Building around Middleatstrem Area

COMMUNITY ACTIVITIES IN MIDDLESTREAM

- Agriculture; paddy field and horticulture commodities less within water distribution through regulations established by Farmers Water User Group (Perkumpulan Petani Pemakai Air/P3A).
- The land in both urban villages is difficult to be planted horticulture commodities → when rains are heavy it is difficult to dispose of excess water in their farms
- Illegal logging,
- Factory industry → Construction of factories that began with the reasons to build a pond has now continued and changed with the drinking water industry. The development of the factory industry will obviously add to the problems that occur in the middle of the watershed.
- Land clearing for housing → after the housing construction can no longer be used directly for bathing or washing the face. This is because the colour and smell of water has changed, it was not as clear as before.
- Sand mining

PROBLEM IDENTIFICATION IN MIDDLESTREAM

- Heterogeneity of activities and interest
- Changes in the quality and quantity of water resources, making accusations between upstream and central areas, rivers and irrigation networks as dump trucks, mutual cooperation in the maintenance of irrigation networks began to fade, unfair water distribution, irrigation network conditions, which is not yet environmentally friendly, there was no integration of water resource utilization and disaster mitigation system and the land use change into residential areas
- No integration of water resource utilization and disaster mitigation system and then the transfer of land and hill land into residential areas
- Water quality and quantity progressively decreases
- Other problems arising due to rivers and irrigation networks as garbage dumps

PUBLIC PERSPECTIVE IN DOWNSTREAM AREA

- Downstream area Kuranji watershed area located in the district of Padang Utara. this area is generally crowded by residential and commercial areas. The total area is 1.12 Km². for its own downstream area on its right is the West Air Tawar village.
- The downstream part of the Kuranji watershed towards the estuary of the sea. Throughout this region, a "canal flood" has been built to anticipate flooding which has resulted in the erosion of the river bank. In addition, there are two connecting bridges and one train bridge. On the edge of the canal river there are residential areas and also various kinds of human activities.
- Complicated problems in the downstream area of this Kuranji watershed. ranging from floods, garbage, and sedimentation and also more worrying to some people in this area is the degradation of land that they occupy today. This is felt by the people who live near the canals. The respondents said that almost every year the surface of this land dropped approximately 2 - 4 cm. They felt a deeper gap was forming downstream at the end near the sea area. This is a concern for some people. However, there has been no special attention from the local government.

COMMUNITY ACTIVITIES IN DOWNTSREAM

- More diverse community activities downstream area of this Kuranji watershed is added environmental problems and social communities an increased
- The conditions in this section are strongly influenced by human activities both from upstream to middle stream its self
- As the livelihood of the average citizen is fishermen to trader.



Complicated problems in the from upstream to downstream as Moster (1999) said that the problems along the river basin are holistic. multi-functionality of river basin, a different interest that encourages conflict, all parties needed to manage conflict, uncertainty alternative and result because of disregard the decision process, the meaning is law not beyond criticism.

PROBLEM IDENTIFICATION IN DOWNSTREAM

- Seasonal floods (unstoppable rainy season, rising sea level that coincides with the arrival of water from upstream and central areas further exacerbates the situation, flowing sand or soil particles from upstream to downstream, sedimentation)
- Waste piles,
- Fish catch decreased,
- Loss of mangrove forest area,
- Sedimentation of Kuranji watershed,
- An annihilation of Kuranji watershed area every year,
- The absence of river basin management mechanism

SUMMARY

- The current problem that is felt by some people in the downstream area of Kuranji watershed is the absence of comprehensive watershed management
- Watershed management is needed for the realization of clean and safe river basins
- the upstream and central areas and some downstream areas still occur waste disposal in randomly to the city either household waste or industry.
- Problems that occur in downstream areas Kuranji watershed needs to be a concern for the community and government and the private sector
- Until now the city government of Padang itself has not done much for this area. It is required that the rules are comprehensive and capable of coordinating all parties involved in handling the Kuranji river basin as common pool resource
- Alternative conflict resolution

CONCLUSION

- First, The current impact is still a lack of understanding of the public that water is to be an integral part of nature which is not separate within a single system. This is evident in the case of river basin water users against the problems faced today.
- Second, There are parties involved and pollute and destroy the environment has not been dealt with firmly
- Third, the management of water resources Kuranji is not in accordance with the principles of water use which has been agreed. The emphasis in participatory approaches has not been met as seen from the inadequacy of forums to bridge the problems faced by the community to be acted upon immediately by decision makers

SOLUTION

- We need to strengthen legal enforcement at basic level to general level.
- Integrated management with experts to apply the rules and find conflict resolution form some insight by scientist, policy makers, users and the public is to be a requirement.
- Restore water quality and quantity.



THANK YOU

