



Info

Agroklimat  
dan  
Hidrologi

ISSN 1907 - 8773



Terbit 2 bulan sekali

Volume 8 Nomor 2. April 2013

## IMPROVING IRRIGATED AGRICULTURE THROUGH INTEGRATED WATER RESOURCES MANAGEMENT IN KLATEN REGENCY: AN ORGANIZATIONAL APPROACH

### **Background**

In developing countries as Indonesia, competition in water use for agriculture, industry and domestic purposes is increasingly tight often result in conflict. The unplanned population dynamic, population growth and settlement shift exacerbates the problems with increasing demand for industrial and domestic uses. Unfortunately, without the availability of appropriate data on supply and demand water allocation are increasing in the other sectors at the expense of agriculture. This condition will lead to conflict among water users. Farmers that produce food for all people in the country are very often become the losers in many negotiation among the stakeholders. The water supply is decreasing and more unpredictable due to decreasing the water retention capacity because of watershed degradation, and becoming less predictable because of climate change. While the demand are increasing because of population growth and developing economy and aggravated by urbanization to the urban areas downstreams. Klaten Regency is one of rice center production in Indonesia as a typical case of water sharing problem not only among the stake holder but also among farmer water users as well. The curiosity among the stake holder was triggered by the several water regional situation factors i.e. no rainfall and weak river flows during the dry season, disorganization of former collective management system, degradation of irrigation network, illegal water intake, lack of canal maintenance etc. The multi user of water resources and its spatial distribution of Klaten Regency presented in the figure 1.

The decreasing water availability problems for rice field particularly in downstream area have caused the third growing season can not be implemented if there is no provision of supplementary irrigation from groundwater. Given that the issue of disputes between water users in the Klaten Regency become more frequent and more complex, CIRAD and IAHR propose and take the initiative to develop a participatory approach intended for all stakeholders on the agreement a step towards the Integrated Water Resources Management.

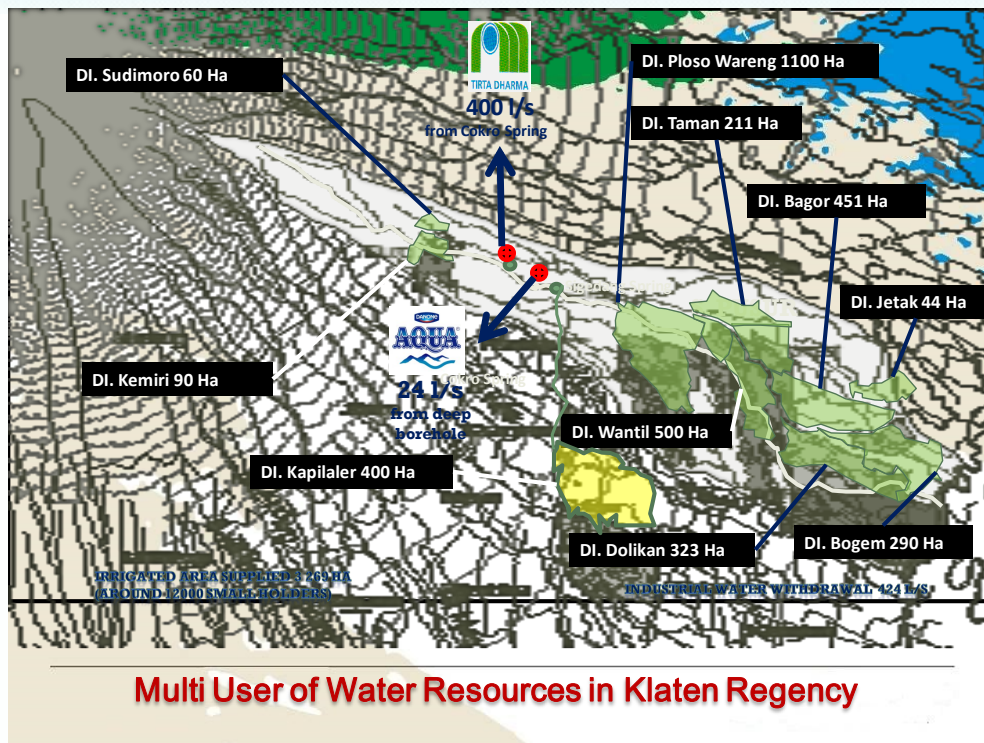


Figure 1. Multi user of water resources and its spatial distribution in Klaten Regency

### Approach and Procedure

Through a series of discussions with the local government on the importance of the Integrated Water Resources Management, in 2006 the program got the green light from the local government to be implemented through socialization approach with stakeholder activities as shown in the recapitulative step of implementation activities plans for participatory and integrated water resources management in Klaten Regency as well as shown in figure 2.

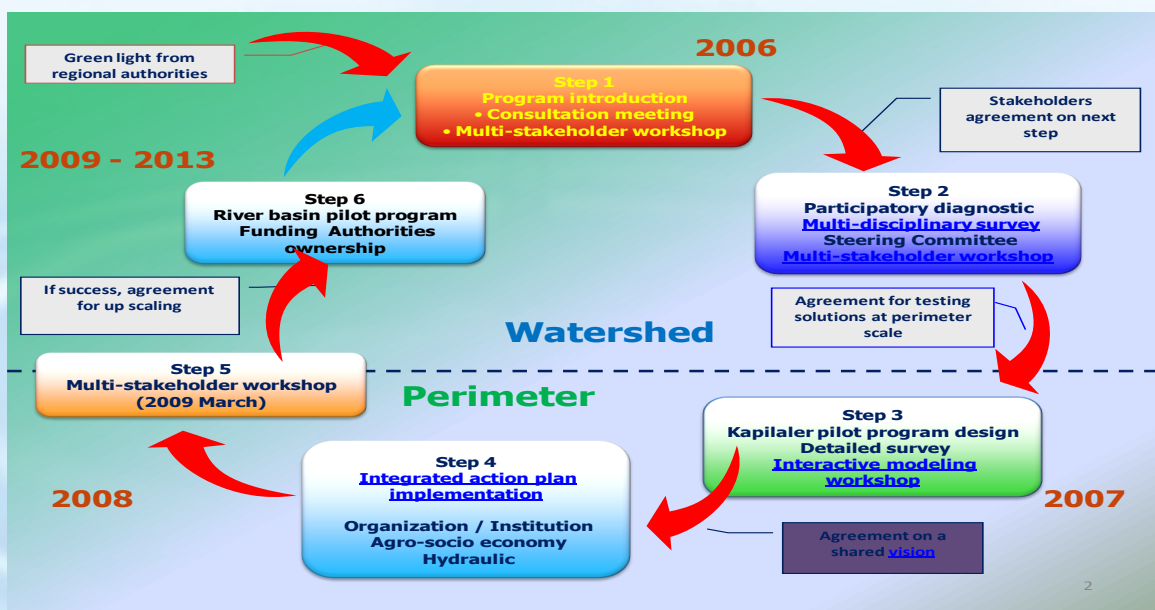


Figure 2. The step of implementation activities plans for participatory and integrated water resources management in Klaten Regency

The objective of these activities are : 1). To build-up a shared vision on water management issues in Klaten irrigated areas and 2). Through a pilot program, to identify, propose and implement technical and organizational solutions for agricultural water management with the participation and the support of the largest majority of Klaten stakeholders.

### **Periodic Activities Results**

According the multi stake holder workshp was held on May 16-17, 2006 the first implementation step of activity were multidisciplinary survey related to the technical, social, organizational and cultural issues involving several agencies which are supported by the full participation of the community and organization non government (ONG). The responsibility of the involving agencies as cited as follow:

<b>Agency</b>	<b>Task</b>
Centre de Coopération Internationale de Recherche Agronomique pour le Développement (France) (CIRAD)	Development of method and tools
Indonesian Agro-climate and Hydrology Research Institute (IAHRI)	Assessment every few years on water available versus crop requirements
Center for Environmental Study, Gadjah Mada University	Canal debit measuring in 2006 dry season
Center for Rural Economic Study Gadjah Mada Univeristy	Social and historical study on water resource management evolution
Assessment Institute for Agricultural Technology of Yogyakarta	Survey on stakeholders' perception about the current water resource management

The among of the results activities was the 3rd cropping season during the dry season, mainly June – October periode affected by water shortage. According to the stakeholders' perception, the main cause which suspected them was the degradation of hydraulic infrastructures (dam, canal, gates), weak organization of water user association (P3A), weak organization of farmer groups, weak coordination between P3A and farmer groups, rice crop during the dry season, multiplication of wells and surface drills, weak support from local government technical services.

The second workshop was held on December 14, 2006 directing the participants to agree on a common vision about the situation that occurred today. The main output of the 2nd workshp was validation of the diagnostic results at watershed level, shared understanding of water access problems and agreement for developing a detailed study at pilot perimeter scale and for identifying then testing solutions.

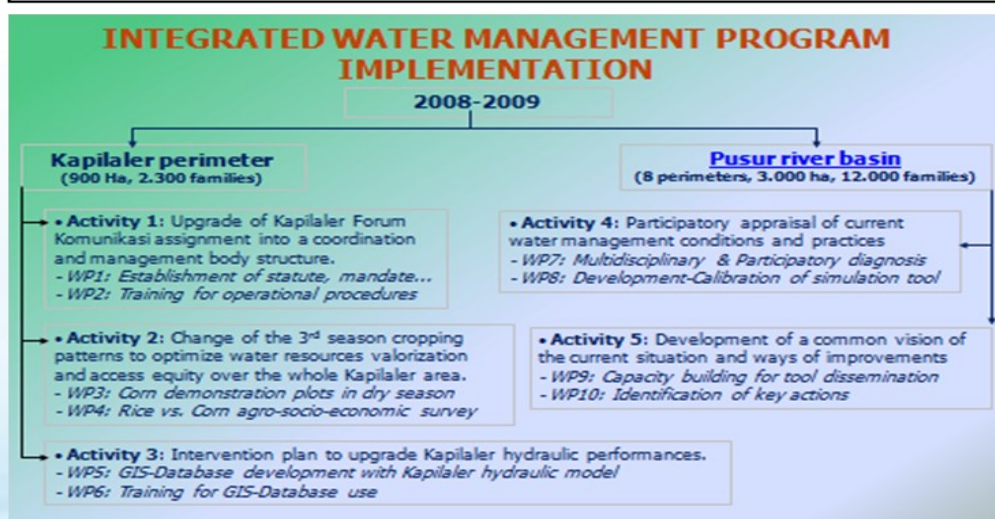
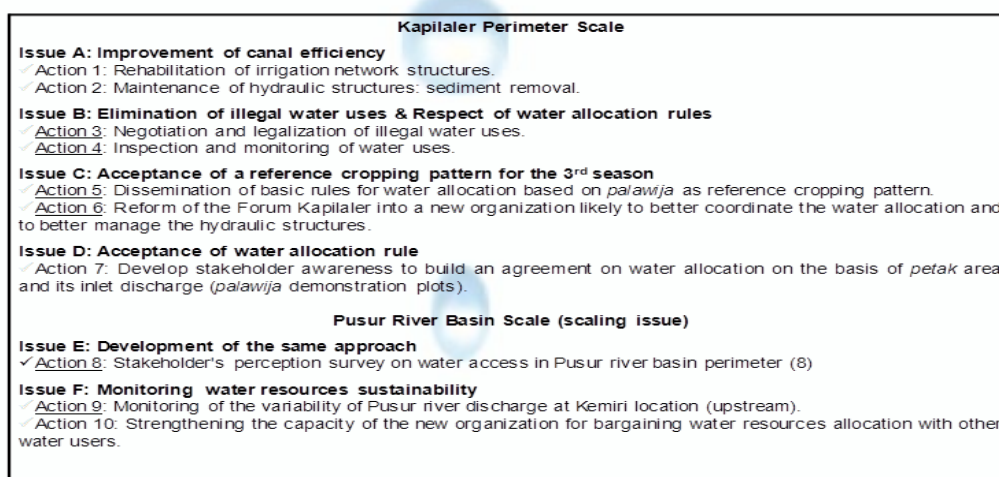
The third workshp was held on May 3 - 4, 2007 related to main issue of the interactive modeling at perimeter level. During the 3rd the stake holder declared two main importants understanding and deal i.e: build a shared vision among stakeholders through interactive numeric tools and shared vision on water access, crops development conditions, constraints and set of actions for improvement. The shared vision as expressed by the representative members of klaten stakeholder shown in the following statement:

- "Improved water availability requires limiting water losses in the Kapilaler network around 10% through **rehabilitation of hydraulic structures**. In addition, such intervention will make possible to overcome illegal water uses through a legalisation process.
- Thus, all stakeholders agree on a water allocation rule to secure agriculture during the 3<sup>rd</sup> dry season, considering **secondary crops** as the reference cropping pattern. Supplying **0.6 l/s/ha at plot inlet** squares with secondary crop water requirement. This will permit an equitable water allocation to all Kapilaler farmers. In addition the **water delivery duration will be proportional to the plot irrigated area and to its inlet discharge**.
- As water availability will improve, individualistic behaviours will consequently and significantly decrease. To achieve this, a **coordination body** should be constituted to organize water management and insure adequate relationship between stakeholders".

- As water availability will improve, individualistic behaviours will consequently and significantly decrease. To achieve this, a **coordination body** should be constituted to organize water management and insure adequate relationship between stakeholders”.

### **From shared vision to integrated actions**

In order for the vision produce real work then drafted an action plan which will be implemented in the following year as it is woven in the following action plan document:



### Aknowledgement:

I would like to thanks very much to Jean Marie LOPEZ and Bruno Lidon for sharing data and information

Hendri Sosiawan

Info Agroklimat dan Hidrologi memuat informasi aktual dan inovasi teknologi hasil-hasil penelitian bidang agroklimat, hidrologi, dan pengelolaan air  
Balai Penelitian Agroklimat dan Hidrologi  
Badan Penelitian dan Pengembangan Pertanian  
Kementerian Pertanian

Alamat Penyunting:  
Jl. Tentara Pelajar No 1A, Bogor 16111  
Telp : (0251) 8312760  
E-mail : balitklimat@yahoo.com  
http://www.balitklimat.litbang.deptan.go.id

Penanggung jawab : Kepala Balai Penelitian Agroklimat dan Hidrologi  
Penyunting : Popi Rejekiningrum, Yayan Apriyana, Hendri Sosiawan dan Haryono  
Penyunting Pelaksana : Eko Prasetyo