

The Study on Water Management Crisis in Eastern Region of Thailand (Chantaburi and Rayong Provinces) in Period of 2009 - 2010

Pichai Saranrom¹ and Duangta Saranrom²

¹ Faculty of agricultural Technology, Rambhai Barni Rajabhat University, 41 Moo. 5 Tambool Tha-Change, Amphoe Maung, Chantaburi Province, Thailand 22000

² Faculty of management sciences, Valaya Alongkorn Rajabhat University, Tambool Klong Nueng, Amphoe Klong Luang Pathumtanee, Thailand 13180

Abstract. The participatory action research on water management crisis in eastern region of Thailand (Chantaburi and Rayong provinces) in period of 2009 – 2010 by “diverting water from Chantaburi to Rayong provinces project” was the Interdisciplinary management among the 4 sectors as 1) Council of Ministers 2) Ministry of Natural Resource and Environment 3) Ministry of agriculture and cooperation 4) Concern peoples from Chantaburi and Rayong provinces. The project had set the objective as following 1). Comparative study on water recourses in Chantaburi and Rayong provinces 2). Participate in the development of “Diverting water from Chantaburi to Rayong provinces project” The methodology of the research done by synthesized the collected data and participate in the said project by the researcher from 2009 until the end of 2010. The result conveyed that 1). Most of the people in Chantaburi province earn their living by agricultural production with opposite to industrial production in Rayong province which the water resources in Rayong province was quite low in natural rainfall but rather high in preserving reservoir but not enough. They need to solved the problem of water shortage crisis by divert water from Chantaburi province with higher in rainfall from 3,435.1 in Chantaburi than 1,366.4 millimeter/year in Rayong province respectively. The water reservoir in Rayong province had high utilization of water for industry section and also sub divert it to Chonburi province. 2). The researcher participate in water management crisis in eastern region of Thailand by Interdisciplinary management with the Thai Government agreed and provide with 3,992.85 million bath for Diverting water from Chantaburi to Rayong Province for resolved the problem. But Chantaburi provincial Administrative Organization and some agriculturist have agreed to against the said project, because of the shortage of water crisis still happened in Chantaburi province also. The concerned persons try to move forward by compromised with making reservoir in Chantaburi at the same time of diverting the water to Rayong province. The beneficial of the project can be divert the water from Chantaburi to Rayong provinces with the satisfaction of the people in Chantaburi province because of they can get the new reservoir in Chantaburi province nearly to be 3-4 reservoir in Chantaburi province for the future .

Keywords: diverting water from Chantaburi to Rayong provinces and Water Resource Management

1. Introduction

Chantaburi and Rayong provinces are locating in eastern region of Thailand with outstanding for agriculture production and industry production. Both of agriculture and industry activities are demanding on high among of water consumptions. The planning and the policy of natural water management are under responsibility of Ministry of Natural Resource and Environment, as the same time of making dam or reservoir are under the Ministry of agriculture and cooperation. The department of natural water resources (under Ministry of Natural Resource and Environment) having 25 Committees to handle the policy and water management in Thailand which “Eastern Coastal River Basin Committee” taking care for the policy and water management in eastern region as Chantaburi Chonburi, Rayong and Trad provinces only. The Chantaburi province is a province condense for tourism and agricultural activities, because of topography

and climate so suitable to the said matter. The Rayong province is a province condense for industry and agriculture, especially Mabtaphood industrial zone condense to not only exporting products, the manufacturing for cars making in Rayong province become “Detroit of Thailand” upgrade them to highest gross production income in Thailand. (Pichai Saranrom. 2008) All of the activities in the two provinces consumed a lot of water with all step, corresponding to the king Bhumiphol said that “Water is Life”. The utilization of water in eastern region classified in to 4 types as following, industry, agriculture, traveling and human being utilization. From the past up to 1999 the eastern region faced the crisis of water shortage. The governments try to soft the problems with high efficiency of water management project. The project on “Diverting water from Chantaburi to Rayong provinces” was set for 4000 million bath in 1999 fiscal year (Royal irrigation department.2005).The said project had been agreed with Ministry of natural resources and environment (for policy and planning on water management) and Ministry of agriculture and cooperation (for running the project by royal irrigation department).The concerned sectors in Chantaburi province for example Chantaburi provincial administrator and some group of agronomist try to protest against the said project. So that the researcher on behalf of membership of “Eastern Coastal River Basin Committee” try to participate in the said matter for solve the problem to be acceptable or agreed with the two provinces. The solution can help the Thailand development on water management to be high efficiency with sustainable for good governance. The procedure to move forward from 2009 – 2010 need to use the Interdisciplinary management among the 4 sectors which participate by the researcher in the position membership of Eastern Coastal River Basin Committee.

2. Objective and Methodology

2.1. Objective

The researcher tries to soft the problem by aiming to

- 1) Comparative study on situation and water demanding of natural water resources reservoir in Chantaburi and Rayong provinces
- 2) Study on water management on “Diverting water from Chantaburi to Rayong provinces project” in the period of 2009-2010

2.2. Methodology

- 1) Location: Eastern regions of Thailand
- 2) Period: Between 2009-2010
- 3) Collected data and procedure: the researcher run the project by Participatory Action Research by incorporate to the event from 2009-2010 on behave of membership of “Eastern Coastal River Basin Committee”

3. Result

Comparative study on natural water resources situation and demanding of water utilization in Chantaburi and Rayong provinces

3.1. Comparative study on natural water resources reservoir situation in Chantaburi and Rayong provinces.

TABLE I. The situation of natural water resources reservoir in Chantaburi and Rayong provinces. (million.m³)

No.	Reservoir	Location		Capacity	Water level	Water quantity	% Water capacity	Usable water	Rain accu. (mm.)	More Higher capacity
		Amphoe	Province							
1	doggrai	pluakdang	Rayong	71.400	50.570	51.199	71.71	48.199	37.50	20.201
2	Nhong plalai	pluakdang	Rayong	163.750	43.970	141.243	86.26	127.743	68.70	22.507
3	Klong raong	khlhang	Rayong	19.650	32.720	16.520	84.07	16.034	-	3.130
4	Klong	wangchan	Rayong	248.000	34.280	222.080	89.55	202.080	19.00	25.920

	prasa									
5	Klong yhai	pluakdang	Rayong	40.100	44.650	27.138	67.68	24.138	66.80	12.962
6	Klong sarnsai	khaokitcha khoot	Chantaburi	10.000	41.740	7.411	74.11	6.411	12.60	2.589

Source: Secretariat office of irrigation number 9,2009. (Report at 24 January 2011)

Rayong province having lower average rainfall than Chantaburi province that why they are making a lot of reservoir but still not enough for the water management in Rayong provinces.

3.2. Demanding of water utilization in 10 Amphoe of Chantaburi and 8 Amphoe of Rayong provinces.

TABLE II. Summary demanding of water utilization in 10 Amphoe of Chantaburi and 8 Amphoe of Rayong provinces between 2002-2007 and 2008-2013.

Amphoe	Demanding of water 2002-2007 (million.m ³)				Demanding of water 2008-2013 (million.m ³)			
	Agriculture	Human usage	Industry	Total	Agriculture	Human usage	Industry	total
1. Na-yaiarm	78.03	1.11	0.40	79.54	81.23	2.25	1.40	84.88
2. Kanghangmeaw	218.92	1.02	0.56	220.50	284.07	2.07	1.93	288.07
3. Thamai	194.84	2.68	1.03	198.55	203.93	5.43	3.52	212.88
4. Pongnamrong	55.80	1.19	0.44	57.43	82.39	2.40	1.54	86.33
5. Soidao	63.38	1.98	0.61	65.97	71.26	4.01	2.09	77.36
6. Khaokitchakhoot	182.15	0.75	0.16	183.06	230.70	1.51	0.56	232.77
7. Khloong	162.32	2.53	0.50	165.35	166.96	5.27	1.74	173.97
8. Makham	197.60	1.05	0.50	199.15	202.06	2.16	1.72	205.94
9. Muang	82.44	10.90	1.77	95.11	83.09	23.33	6.08	112.50
10. Lamsingh	65.76	2.09	0.92	68.77	66.25	4.46	3.17	73.88
Total Chantaburi	1,301.24	25.30	6.89	1,333.43	1,471.94	52.89	23.75	1,548.58
1. Nikhompatana	50.62	1.01	8.14	59.77	50.63	2.16	31.76	84.55
2. Baankhai	158.75	2.06	6.60	167.41	158.82	4.76	25.73	189.31
3. Baanchang	31.33	3.62	1.04	35.99	31.33	8.71	4.08	44.12
4. Pluakdang	104.85	1.17	4.99	111.01	125.13	2.74	19.45	147.32
5. Muang	144.73	15.82	23.65	184.21	144.73	38.10	92.23	275.06
6. Khaochamao	145.76	3.08	6.21	155.04	158.01	5.07	24.20	187.28
7. Khlang	41.06	0.62	0.33	42.01	42.05	0.83	1.29	44.17
8. Wangchan	69.84	0.65	1.28	71.77	223.03	0.91	4.99	229.20
Total Rayong	746.94	28.02	52.24	827.20	934.00	63.28	203.73	1,201.01

Source: Department of natural water resources 2004.

The demanding of water between 2002 – 2007 in Chantaburi is higher than Rayong provinces which only 1,333.43 and 827.20 million.m³ respectively. For the Demanding of water 2008-2013 in Chantaburi is higher than Rayong provinces as 1,548.58 and 1,201.01 million.m³ respectively. The main activity is agriculture from the past up to presently, while the Rayong province change from agriculture to industry. The total production income of Rayong province become highest for number 1 among 77 provinces of Thailand.

3.3. Study on water management of “Diverting water from Chantaburi to Rayong provinces project” in the period of 2009-2010

The researchers keep looking the project from 2008 and participate in the matter from 2009 up to 2010. Most of the concerned event showed about compromising meeting try to soft the problem and forward it to be satisfied to both of Chantaburi and Rayong provinces.

Table III. Step by step of the event concerned about the development of “Diverting water from Chantaburi to Rayong provinces project” in the period of 2009-2010”

Date	Activities about the event concerned
10 june. 2008	Cabinet minister agreed with national water management committee to let Ministry of agriculture and cooperation for running the matter by Royal irrigation department.
20 jan. 2009	Eastern Coastal River Basin Committee, meeting number 1/2552 at Chantaburi hall 4
24 feb.2009	Eastern Coastal River Basin Committee, meeting number 2/2552 at Chantaburi hall 4
23 mar. 2009	Eastern Coastal River Basin Committee, meeting number 3/2552 at Chantaburi hall 4
10 jun. 2009	Eastern Coast River Basin Strategy Revision Working Group ,meeting number 1/2552 at Chantaburi hall 4
23 jun. 2009	Eastern Coast River Basin Sub-Committee on Technical,meeting number 1/2552 at Chantaburi hall 2
Mar. –Sep. 2009	Natural water resources department investigated data from local administrators and Chantaburi people on diverting water from Chantaburi to Rayong provinces project including maintenance and so on .
7 apr. 2009	cabinet minister sanction budget 3,992.85 million bath for Ministry of agriculture and cooperation to diverting water from Chantaburi to Rayong provinces project
apr. – july 2009	Some government sectors, agronomist (farmer) and concerned peoples start to talk and discussion on the matter.
27 july. 2009	Chantaburi provincial administrator meet the people and representative from each amphoe about the disadvantages of the matter.
13 sep. 2009	Chantaburi provincial administrator make a final conclusion to against to the cabinet ministers
17-18 aug.2009	1 st Workshorp for water management strategy by Eastern Coastal River Basin Committee at KP Grand hotel
1 sep. 2009	1 st meeting among natural water resources department and royal irrigation department on diverting water
11 sep.2009	Eastern Coast River Basin Sub-Committee on Technical,meeting number 2/2552 at KP Grand hotel
11 sep.2009	2 nd Workshorp for water management strategy by Eastern Coastal River Basin Committee at KP Grand hotel
21 sep. 2009	Eastern Coastal River Basin Committee,meeting number 4/2552 at Chantaburi hall 4
8 oct. 2009	2 nd meeting among natural water resources department and royal irrigation department on diverting water
16 Oct. 2009	Asso, prof dr. pichai saranrom ,wangthanode water utilization and concerned farmer present the topic at Thai Television on “Thailand Agenda”.
31 Oct. 2009	Royal irrigation department still didn’t get the money.
20 – 21 dec. 2009	Asso, Prof. Dr. Pichai Saranrom present the research topic on “The development of “Diverting water from Chantaburi to Rayong provinces project” in the period of 2009” at . Rambhai Barni Rajabhat University on sustainable development.
16 feb.2010	Eastern Coastal River Basin Committee proposed to set the wangthanode water management working group with 19 persons by Chantaburi governor is the chairman of the working group
22 feb.2010	Eastern Coastal River Basin Committee ,meeting number 1/2010 at Chantaburi hall 4 invited the vice General Secretary of royal irrigation Department (Mr. seeporn maneechote) to clarified about possibility of fastening the reservoir in Chantaburi for 2011 fiscal year, compensate with water diversion..
12 mar. 2010	The wangthanode water management working group meeting number 1/2010 to soft the local water management confliction in Chantaburi .
22 mar. 2010	The wangthanode water management working group meeting number 2/2010 to soft the local water management confliction in Chantaburi .
8 apr. 2010	Eastern Coast River Basin Sub-Committee on Technical,meeting number 1/2010 at Chantaburi hall 5 set the 2 projects on workshop and study tour.
22 apr. 2010	The main project division of royal irrigation department hold the open meeting with the stakeholders in Chantaburi, investigate,pressrelease among them.
23-24 jun. 2010	The wangthanode water management working group meeting number 3/2010 at Maneechant Resort for condense the participatory and increase efficiency about water management on water diversion.
16 jul. 2010	The wangthanode water management working group meeting number 4/2010 at songpheenong local administrator office,thamai, Chantaburi to meet the Chantaburi cabinet and final conclusion for Chantaburi representative by Mr Tawatchai Arnamong to enhance the natural resources and environment minister (Mr Suwit Khoongitti) on making reservoir at the same time of water diversion.
3 sep. 2010	Thai television make the record on 2020 Thailand Changing : Natural water resources by the water management expert and stakeholder for 20 person including the vice president of royal irrigation department and Asso. Prof.Dr. Pichai Saranrom at Bangkok. The said event was present on 15 th and 22 nd sep 2010.
9 sep. 2010	The wangthanode water management working group associate with 3 Chantaburi representative went to the parliament to meet the Prime minister (Mr. Aphisith Vatechacheeva) for use the land for making Chanthaburi reservoir
7oct. 2010	The wangthanode water management working group associate with 3 Chantaburi representative went to meet the natural resources and environment minister (Mr. Suwit Khoongitti) for get the final permission for use the land for making Chanthaburi reservoir .
27 oct. 2010	The wangthanode water management working group press release to the public on the achievement of the

Date	Activities about the event concerned
	matter by television.
11 nov. 2010	The wangthanode water management working group went to join the meeting with parliament cabinet for followed up the progressive for making Chanthaburi reservoir .

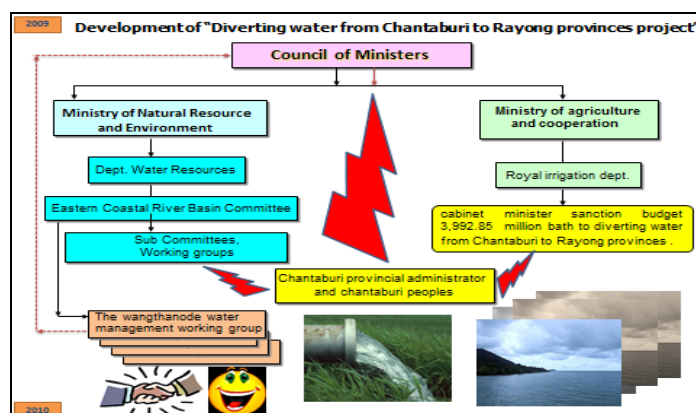


Fig.1. Showing the development of “Diverting water from Chantaburi to Rayong provinces in period 2009-2010

4. Conclusion

The water management on “Diverting water from Chantaburi to Rayong provinces project” in the period of 2009-2010 try to soft the problems of water shortage crisis in Rayong province. Thailand government sanction with the budget about 4,000 million baths on fiscal year 2009. But the farmer in Chantaburi province agreed with Chantaburi provincial administrator office were protest against the said project. Ministry of natural resources and environment (Dept. of natural water resources) who planned the water management policy and Ministry of agriculture and cooperation (Royal irrigation dept.) who going to run the project try to soft the problem, especially Eastern coastal river basin committee try to participate it. Later on they set the Wangthanode water management working group under the authority of Eastern coastal river basin committee cooperated with Royal irrigation department try to contact to Ministry of natural resources and environment and the Prime minister. Finally the Prime minister, Ministry of natural resources and environment and Ministry of agriculture and cooperation agreed to enhance the Chantaburi reservoir 3-4 of them to start at the same time of diverting water from Chantaburi to Rayong provinces project. At presently the concerned sectors can run the project with the satisfaction of the two provinces. The Interdisciplinary management or participatory action research on water management crisis in eastern region of Thailand get the result impact as Rajabu (2005) was participatory problem analysis in Makanya village, Tanzania.

5. Acknowledgements

The concern sectors

- 1) Committee for Eastern regions, office of higher education commission
- 2) Rambhai Barni Rajabhat University (Prof. Dr. Siriwat Wongsiri, Asso.Prof. Banyat Sooksringam, Assist.Prof. Dr. Khomphol Suwankool and Mr.Pramote Ruamsook)
- 3) Eastern Coastal River Basin Committee
- 4) Secretariat office of Eastern Coastal River Basin Committee (Director Seri Sophondirekrath, Late director Yootana Aimklai, Director Pathai Panturothai and their staffes)
- 5) The Interdisciplinary Network of the Royal Institute of Thailand under the Royal Patronage of HRH Priness Maha Chakri Sirindhorn (Prof. Dr.Yongyoot Vacharadool and General.Dr. Vasu Chanarath)

6. References

- [1] Department of natural water resources 2004.Report on .”Natural water management in Eastern Coastal River Basin” by PAL Consultance co ltd and Sigma hydro Consultance co ltd . Min. of natural resources & environment

- [2] Pichai Saranrom 2008. The management of natural agricultural resource. Faculty of Agricultural Technology. Rambhai Barni Rajabhat University.
- [3] Royal irrigation department.2005. *Report on "Diverting water from Chantaburi to Rayong provinces project"*. Ministry of agriculture and cooperation.
- [4] Secretariat office of irrigation number 9. 2009. *situation of natural water resources in Eastern Coastal River Basin*. Royal irrigation department, Ministry of agriculture and cooperation
- [5] K.R.M. Rajabu. The role of participatory problem analysis in performance improvement and sustainable management of rainwater harvesting (RWH) systems: A case study of Makanya village,Tanzania. *Physics and Chemistry of the Earth* 30 (2005) 832–839.