MANAGE AND STRATEGY

ON

WATER IN THE KINGDOM OF CAMBODIA

By

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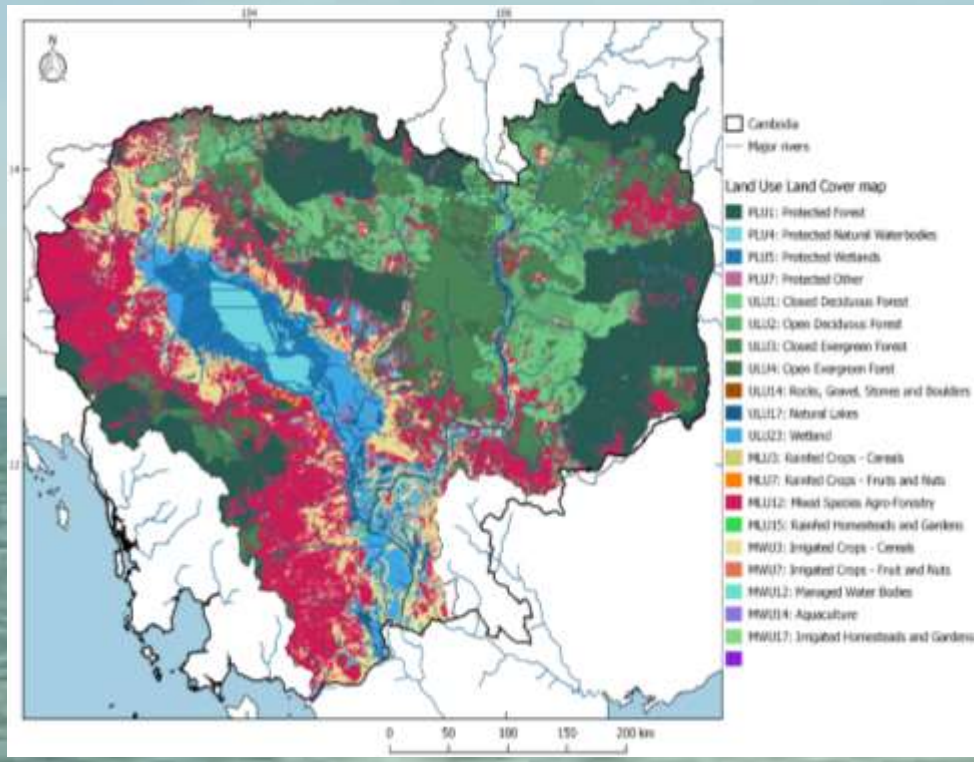
ROYAL GOVERNMENT OF CAMBODIA

Map of Cambodia

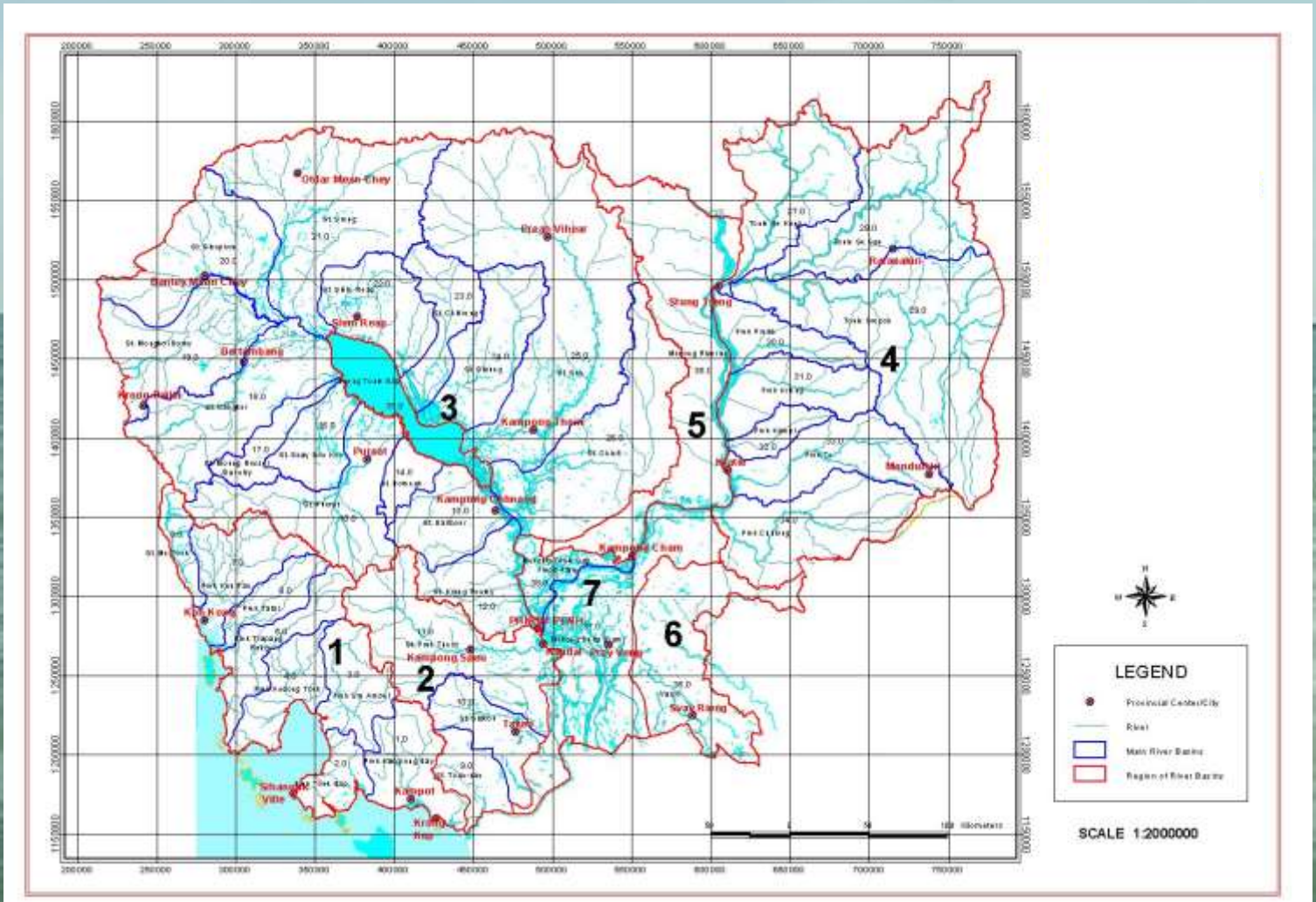
Landuse map in Cambodia



- Land Areas of Cambodia
  181,035Km^2
- Population in Cambodia
  17 Million People

- Agriculture Land Areas:
  + 3.5 Million ha
  + Rice cultivated Areas: 2.5 ha

Water Available In Cambodia



Surface Water: 500,000 MCM

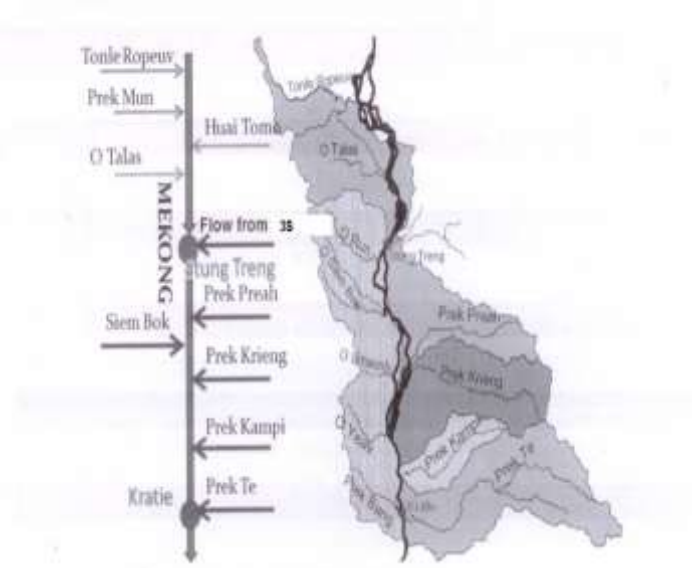
Ground Water: Aquifers under research and study

1- Mekong River: 500,000 MCM

- At Stung Treng :
  - Max = 513 188 MCM
  - Ave = 381 191 MCM
  - Min = 257 956 MCM
- At Kratie :
  - Max = 528 858 MCM
  - Ave = 383 899 MCM
  - Min = 248 276 MCM

1.1-Water Flow at 3s

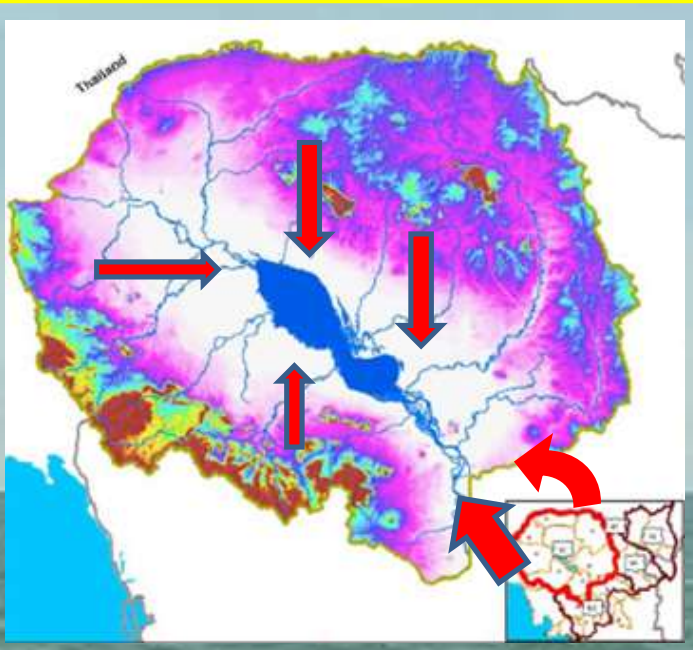
Basin/River Name	Flow, MCM	Ratio, %
1- Flow into Cambodia		
- Se Kong	49 249	56,84
- Se San	20 433	23,58
- Sre Pok	16 967	19,58
Total flow into Cambodia	**86 649**	**100**
2- Flow at Hydro-Station		
- Se Kong at Siem Pang	49 777	48,21
- Se San at Veun Sai	29 560	28,63
- Sre Pok at Lumphat	23 916	23,16
Total flow at Hydro-Sta	**103 253**	**100**
3- Flow at the outlet		
- Sekong	61 035	49,00
- Se San	34 979	28,09
- Sre Pok	28 532	22,91
Total flow at the outlet	**124 546**	**100**



1.2- Mekong Flows from Lao PDR

Basin/River Name	Annual Flow, MCM	Ratio, %
1-Total flow entry from LAO	**251 336**	**65,93**
2-Flow from outlet at 3S	124 546	32,67
3-Flow from outlets other tributaries (up stream of R5)	5 309	1,40
4- At Stung Treng	**381 191**	**100**
5- At Kratie	383 899	

2-TONLE SAP Water Balance



2-1- Water Balance Tonle Sap Region

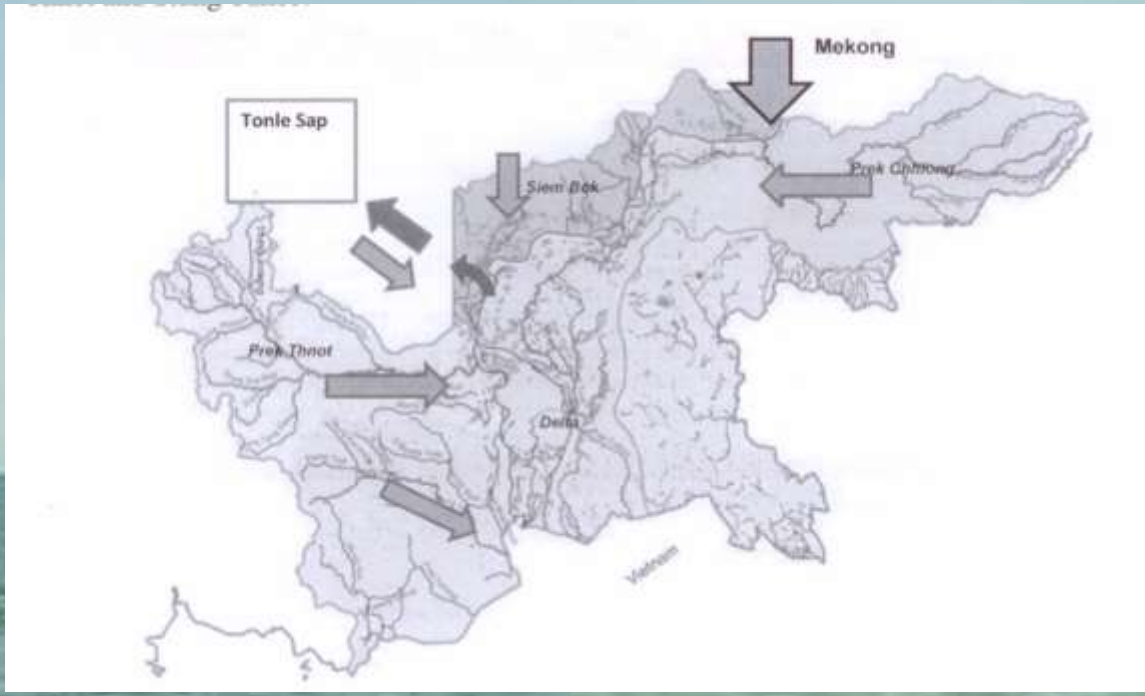
Basin/River Name	Flow, MCM	Ratio
At PREK KDAM	39 381	51,9 %
OVER FLOW	1 969	2,60 %
TRIBUTERIES	34 501	45,5 %
Total Inflow	**75 851**	**100 %**
Total Outflow	71 997	

2-2- Annual Water Flow in Tributeries (Tonle Sap Catchment

Riv_Basin	Flow, MCM	Ratio, %	Riv_Basin	Flow, MCM	Ratio, %
Baribour +KPL+BN	6 748	19,56	Sreng	1 720	4,99
Pursat	3 457	10,02	Siem Reap	1 295	3,75
Svay DKeo	616	1,79	Chikreng	495	1,43
M Russei (Dauntry)	280	0,81	Staung	805	2,33
Sangker	3 681	10,67	Sen	9 149	26,52
Monkol Borey	980	2,84	Chinit	4 081	11,83
Serei-saophorn	1 194	3,46			

TOTAL Annual Flow = 34 501 MCM

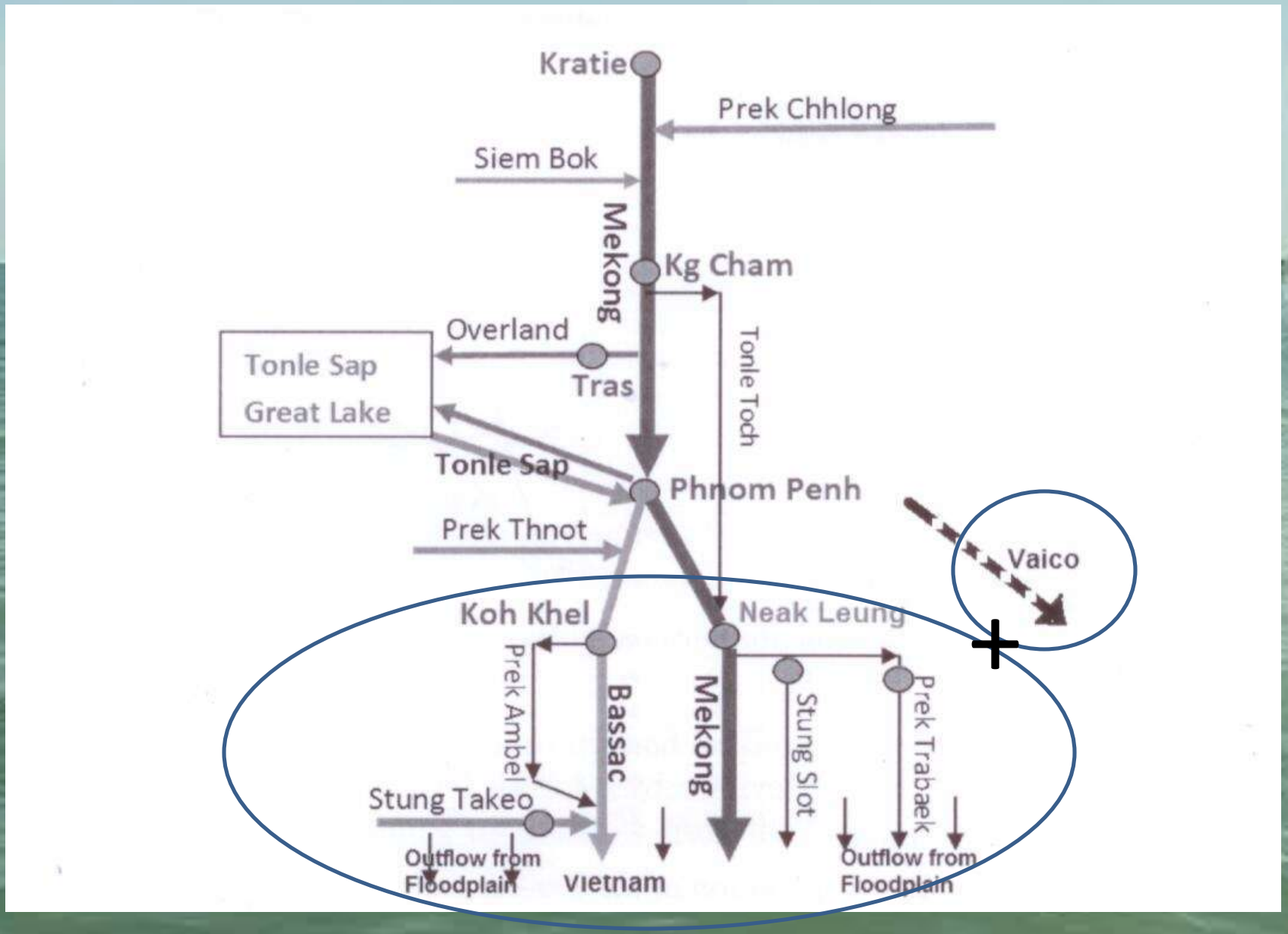
3- Mekong Delta, St. Prek Thnot and St. Slakou (Takeo)



3.1- Water Flow to Mekong Delta

Basin/River Name	Flow, MCM	Ratio, %
1- Flow to Kratie from Upstream	383 899	78,25
2- Flow entry from Prek Chhlong	4 401	0,90
3- Flow entry from downstream part of Mekong riverine	508	0,09
4- Flow entry from Stung Prek Thnot	5 138	1,05
5- Flow entry from Stung Slakou (Takeo)	5 181	1,06
6- Flow from Tonle Sap	91 483	18,65
Total 1-6	490 610	100
7- Flow to Tonle Sap	- 49 599	96,27
8- Overland flow to Tonle Sap	- 1 920	3,73
Total 7-8	- 51 519	- 100
TOTAL INFLOW to MEKONG DELTA	**439 092**	

4- Outflows to Vietnam Mekong Delta

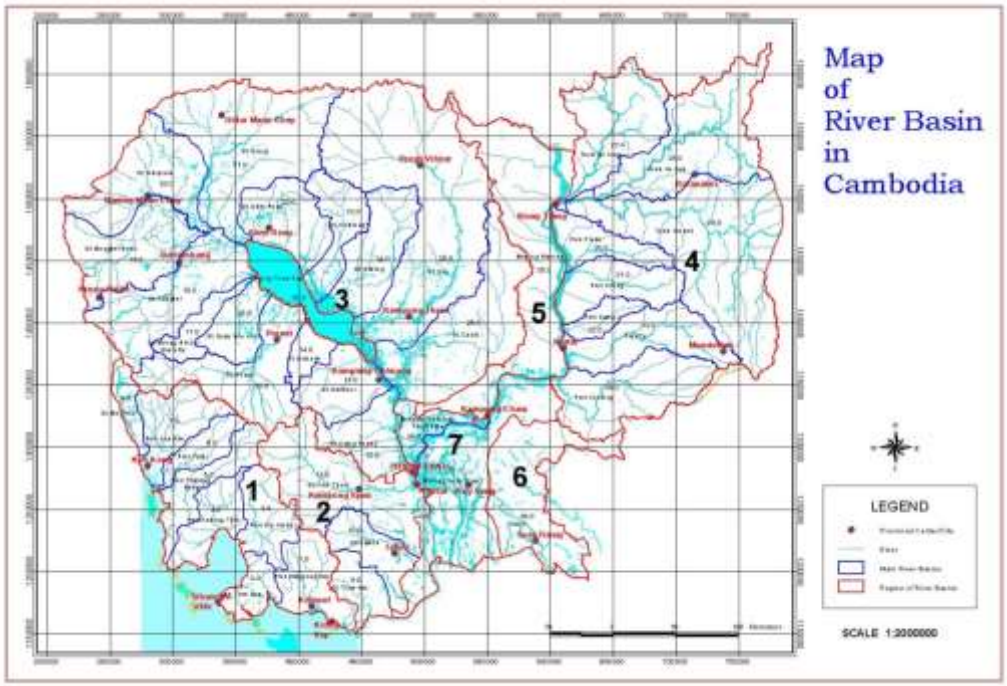


4.1- Table of Outflows to Vietnam Mekong Delta

Basin/River Name	Flow, MCM	Ratio, %
1- Flow from Mekong at Neak Loeung	378 423	86,60
2- Flow from Stung Slot (NR-No1)	434	0,10
3- Flow from Kampong Trabek (at Kg. Trabek)	3 388	0,78
4- Flow from Bassac at Koh Khel	42 256	9,67
5- Flow from Stung Slakou (Takeo) at Kg. Ampil	5 181	1,19
6- TOTAL Outflow from Mekong Basin (sum 1to5)	**429 682**	**(98,32)**
7- Flow from Vaico Catchment	7 320	1,68
8- TOTAL OUTFLOW to VIETNAM (Sum 6+7)	**437 002**	**100**

5. Flows Coastal Zones

Basin/River Name	Flow, MCM	Ratio, %
1- Prek Kampong Bay	3 317	10,54
2- Prek Toek Sap	2 807	8,92
3- Prek Sre Ambel	4 870	15,48
4- Prek Andong Toek	4 643	14,76
5- Prek Trapang Rung	4 936	15,69
6- Prek Tatay	3 056	9,71
7- Prek Koh Pao	5 868	18,65
8- Stung Me Toek	1 969	6,25
TOTAL OUTFLOW	**31 466**	**100**




Exploitations on the Available Water Resources
Are 2% for such as:
1- Agricultures
2- Industries
3- And others

Agricultures

- Mostly Uses on Rice Cultivations
  2.5 Million ha
- Cereal Crops
- Fruit Trees
- Animal and Poultries
- Aquacultures

Tools to Produce the Water for Agricultures

- There Are Existed More Than 2,500 Irrigation Systems
- There Are Possible to Irrigate Rice Cultivated Areas of 1.2 Million ha
- There Are Investments of 1,500 Million US$ to Rehabilitate, to Construct and Re-Construct 1,000 Irrigation System

Funding

+ Royal Government of Cambodia
+ ADB
+ Bilateral:
    - China
    - Japan
    - France
    - Korea
    - India
    - Kuwait

+ WB
+ IMF
+ IFAD

Irrigation Systems in Cambodia

Irrigation Systems in Cambodia

First Plan for Actions

1- Now and Future Needs for Further Investments Are Another 1,500 Million USD for Rehabilitating and Reconstructing 1,500 Irrigation Systems.

2- Continue to Form and Enhance the FWUCs for Further Sustainable O&M on the Irrigation Systems

3- Committed for 2017-2019 from the Donors Are Such as:

+ Government: 300 USD
+ China: 300 Million USD
+ ADB: 100 Million USD
+ Korea: 65 Million USD
+ Japan: 50 Million USD

Second Plan: Government and ADB Continues to Work With Such as:

- UNESCO
- IWMI
- FAO

1. To implement Water Accounting
2. To Define the Sustainable Water Management Strategies
3. To Determine More Exactly Water Available and Exploitation of Water Resources. These Are Included Such as:
   - Report
   - Furthers Development (Computer Writing and Computer Modeling)
   - Collecting and Analyzing from Every River Basin by Remote Sensing Technology and Preparing the Actual Water Accounting Sheet (Continue to Support the Works of Hydrometers and AWSs)
   - Capacity Building


Thanks !