

Questionnaire

To review case study basins
with regard to their water governance regime,
context and performance

Red river Basin

With focus on the national part

Case Study Review Workshop for the Red River Project

ChiangMai, Thailand 25/03 – 28/03/2010

About this questionnaire

This questionnaire was developed within the scope of the Twin2Go project. It serves to record case study data about a river basin’s water governance regime, its context and its performance. An explanation of the indicators, pre-defined scores and potential data sources is provided in the guidance on this questionnaire.

Please assign a score (e.g. “B”) to each of the indicators. In the case of numerical indicators like indices, you should add the numerical value in brackets after the score, e.g. “B (0.178)” or “C (12,534)”. For a better understanding of the recorded issue, additional information in the column “comments” is required. Please use this field to explain your reason for assigning a certain score, to specify if your choice was controversial, to document data sources or to add further information that you find relevant for a better understanding of the topic addressed.

If you think that the indicators below do not deal with certain important issues in your case study, please insert additional indicators at the bottom of the tables. Furthermore, please briefly explain the additional case-specific indicators at the end of this document.

The questionnaire was filled and discussed during a workshop held in Chiang Mai on the 25-27 March 2010 where 3 basin case studies from two international projects were studied for the Twin2Go project have been analysed: the Volga from the CABRI project; Red River and Bang Pakong basins from the ASEM WaterNet project.

Copies of a draft version of the questionnaire were circulated to participants prior to the workshop to help with initial preparations including selection of most suitable representatives to attend the Chiang Mai workshop. The final version of the questionnaire and guide became available shortly prior to the workshop and was also circulated to basin-level teams and the version used in the workshop. Not all members of basin-level teams were able to participate in the review workshop in Chiang Mai.

For this reason small working group meetings were held before and after the main workshop to allow other key stakeholders who could not attend the main event to contribute, in Hanoi (Red River), Bangkok (Bang Pakong) and Moscow (Volga). These supporting events focused mostly on those parts of the questionnaire requiring expert judgment.

The resulting data will be post-processed and added to the Twin2Go database. Should you feel these scores do not reflect the situation of the basin accurately, or want to contest any of the information included, you may contact the project organisers. Contact information as well as additional information regarding the project and the results can be found on www.twin2go.eu.

Names of participating experts have been removed for confidentiality purposes.

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A) Water governance regime

No.	Indicator	Score	Comments
I) Characteristics of environmental governance regimes			
a) Water policy, institutional & legal framework (formal and informal)			
1.	Domestic water legislation (laws, by-laws, etc.) in place?	A	Law on Water resources approved 1998, Decree on River Basin Management, 12/2008 and series of Decrees, Circulations, Regulations issued by Government and related Ministries in place
2.	Domestic Water Law: Public character of water and legal status of water use rights	C	No provision in related legal documents explicitly stipulated of water use right
3.	Domestic Water Law: Explicit recognition of traditional and indigenous water uses	C	No explicitly stipulated in related legal documents
4.	Domestic Water Law: On flow availability, third party rights and ecological requirements	B	Some statements on flow availability are in related legal documents Definition of third party???
5.	Integration of domestic water legislation	B	Some contents/statements stipulated in under law documents (such as Decree 2008 and some others) are conflicts with 1998 LWR and some overlapping areas in legal documents
6.	Multilevel structure of domestic water legislation and subsidiarity	B	Overlapping and unclear functions among levels of structure
7.	Existence of formal domestic administrative structure for water governance	A	MoNRE however, the Ministry lacks capacity to fulfil its mandates and functions ¹

¹ Phu Le Vo. 2007. Formulation of an Integrated Approach to Sustainable Water Management in Ho Chi Minh City Vietnam. (Ph. D Thesis). University of Adelaide, Australia.

No.	Indicator	Score	Comments
8.	National basin organisation or comparable arrangement	B	In place, but operating insufficiently Working insufficient ² . National Water Resources Council (since 201), 8 River Basin planning Management Boards and 3 River Basin Environmental Protection Committees In place, but influence to WRM is very limited.
9.	Formalised transboundary coordination organisation	B	A for Mekong river basin. Mekong River Commission (MRC) for regional water resources of shared river of Mekong basin since 1995.
10.	Formal institution (legislation) that prescribes the basin management principle	B	Same with Mekong river basin. Question: Is basin management principle and hydrological principle similar? Decree on River Basin Management (12/2008) issued by Government and some related circulars issued by MONRE for prescribing the management principle.
11.	Water (basin) strategies, programmes and plans	A	National strategy on water resources DWRM.gov.vn See: www.dwrm.gov.vn The National Strategy on Water Resources toward 2020 issued by MONRE in 2006 and some national plans and programs for water resources have been formulated or being formulated. (such as National Target Programme for Water Resources)
12.	Financing mechanisms: Degree of investment from private sector/ public/ other sources (e.g. international)	C	90% from public sector. No Decree on investment from private sector/public/other sources but declared in some legal documents (Regulations or Decisions of Government and related Ministries)
13.	Economic instruments Is water for irrigation priced?	C	A price is not charged for water use for irrigation in agriculture, only electricity cost is charged at pumping stations. Water fees for irrigation (agriculture) was collected before 2007. After 2007 some Decrees issued to exempt the water fees for farmers

² Molle, F. and Chu Thai Hoanh, 2007, IWMI, MPOWER and IRD. (Working Paper)

No.	Indicator	Score	Comments
14.	Economic instruments Is water for households priced in urban areas?	B	Yes and too high for average income but lower than industries Water users in urban and rural areas have to pay for their water use. The price of water for domestics is gradually increasing
15.	Economic instruments Is water for industry priced?	B	Yes and high.. A real price that allows full cost recovery leads to more effective water use. Water uses for industries is high in comparison with other sectors.
16.	Tradable permits related to water abstraction/use	A	no permit is required for underground and surface water utilization. Limited tradable permits related to water abstract but intensive to water uses in all sectors.
17.	Polluter pays principle (related to water)	B	Polluter pays principle exist in the current regulation but enforcement is limited
18.	Environmental subsidies (related to water)	A	Environmental protection fund is being used. Environmental subsidies do not exist.
19.	Payment for ecosystem services (related to water)	C	Payment for ecosystem services related to water do not exist.
20.	Tradable permits (related to water quality, maximum, allowable loads etc.)	A/C	Licence for big water use are stipulated in some decrees and other legislation of country.?
21.	Environmental tax (related to water)	B	Polluters should pay for their pollutions discharged stipulated in some legal documents of Vietnam
22.	Presence of substituting informal institutions for management of water	A	Some informal regulations does exist in small scale such as : few village, commune There are water user groups in some places, but they don't play a significant role. Tasks include monitoring and collecting maintenance fees from water users
23.	Presence of complementary informal institutions for water management	C	See above
23.a	Capacity and basin organizations	C	Some River basin organizations are exists e.g., Red-Thai Binh, Dong Nai and Cuu Long. However budget and capacity building are still insufficient.

No.	Indicator	Score	Comments
23.b	Authority of basin organization	C	River basin organizations are legally approved by the Prime Minister and Regulations for National Water Resources Management. They have their authorities, budget, and objectives. However, the enforcements are limited and only function in a limited basins.
b) Formalisation of IWRM principles & Millennium Development Goals			
24.	Formalised IWRM principles	B	IWRM principles do exist in Law of Water Resources and planning such as in the existing RBOs, but limited in implementing these principles.
25.	State of implementation of IWRM principles	B	River basin management plans based on IWRM have been currently created, but only some has been implemented
26.	Capacity to implement IWRM	B	Limited due to the lack of demonstration of how the IWRM has actually implemented in the RBOs
27.	Is universal and non-discriminatory access to safe drinking water and sanitation a goal?	A	Formalized but not yet achieved.
28.	Integration of wetlands in IWRM and IRBM*	B	Some efforts to do inventories of wetlands and to integrate in IWRM but not formalised yes.
28.a	Case-specific indicator(s)...		
c) Decision making regarding uncertainties			
29.	General practices for dealing with uncertainties	B	Climate change scenarios, risk assessments are formulated and Hydrological data are collected to predict uncertainties such as drought, flood. However, social uncertainties such as migration to urban areas have not been given enough attention
30.	Dealing with uncertainties: Reversible and flexible options	A/B	E.g. minimum flows.
31.	Dealing with uncertainties: Safety margins	B	E.g. in dam design Question: Why low cost in answer A? Doesn't necessarily have to be low

No.	Indicator	Score	Comments
32.	Are scenarios used for decision making?	B	Yes, scenarios are used to develop adaptation measures dealing with CC by the MONRE but not widely recognized by concerned agencies
33.	Climate risks: Climate variability and change	A	National target program on climate change adaption (January 2009, 60/2007/NQ-CP)
33.a	<i>Case-specific indicator(s)...</i>		What is the current status of implementation
II) Actor networks with emphasis on the role and interactions of state and non-state actors and power relationships			
a) Cooperation and coordination structures			
34.	Vertical coordination (governmental)	B	Fairly well defined within MARD and MoNRE for example from National Water Resource Council to MONRE to DONRE
35.	Horizontal coordination (governmental)	B	Some recent efforts to improve the coordination between MARD and MoNRE. Within MONRE, the Department of Water Resource Management strengthens its links to other concerned departments such as Department of Environmental Protection, Department of Hydrometeorology. At the local (provincial level) coordination between water and other natural resources such as land, environment, mineral resource needs sometime to establish within provincial DONRE. ³
36.	Role of local governments	B	Some say B/C. More administrative tasks and responsibilities have been allocated and decentralized to lower level.
36.a	<i>Case-specific indicator(s)...</i>		
b) Information sharing via formal rules, dependency relationships etc.			
37.	Kinds of knowledge included => Role of experts/ science, local/traditional knowledge	B	Some scientific and local/traditional knowledge are used in Red River Basin.

³ Government of Vietnam and other donors, 2003, Transition of water resource management from MARD to MONRE (Final Report) by Joint Task Force.

No.	Indicator	Score	Comments
38.	Access to information => about expert knowledge and management plans	C	Some information and dates are available at the website but limited quality. Lack of effective exchange and management of data and information on water resources, e.g. difficulty in accessing these public data. ⁴
38.a	<i>Case-specific indicator(s)...</i>		
III) Multi-level interactions across administrative boundaries and vertical integration across levels and horizontal integration across sectors			
a) Centralisation			
39.	One level one actor?	B	Some unclear assignment between DARD and DoNRE regarding water utilization; poor coordination and cooperation across local governmental agencies. ⁵
40.	Degree of centralisation	B	policy and strategy are formulated at the central level (MONRE and MARD) but implementation has been decentralized to provincial with monitoring at the ministry
41.	Technical capacity and economies of scale	B	Limited capacity at all levels including the low awareness on Law of Water Resources by some local agencies in charge of water management. More training and capacity building at the local level (provincial, district and commune).
42.	Legal obligations and responsibility	A	Many regulations have been issued but level of enforcement limited ⁶
42.a	<i>Case-specific indicator(s)...</i>		Level of enforcement with regard to legal obligation and responsibility

⁴ Hansen and Do Hong Phan 2005. Integrated Water Resource Management in Vietnam: Present Status and Future Challenges. in Biswas A.K. et al. 2005. Integrated Water Resource Management in South and Southeast Asia. Oxford University Press. New Delhi.

⁵ Hansen and Do Hong Phan 2005.

⁶ O'Rourke, D. 2004. Community Driven Regulation: Balancing Development and Environment in Vietnam. MIT Press .

B) Context

No.	Indicator	Score	Comments
I) Societal dimension			
43.	Proportion of the population living in rural areas		70,4% population of Vietnam living in rural area. The annual growing rate of population in rural area is 0.4% (2009) (VnEconomic).
44.	State of societal development	C	From Human Development Report 2009, Vietnam's HDI value is 0.725 (Score Level C = Medium HDI : 0.500-0.799). Source: http://hdrstats.undp.org/en/countries/country_fact_sheets/cty_fs_VNM.html
45.	Social sustainability (Gini Index)	C	Vietnam's Gini Index for 1992-2007 is 43.2 (Score Level C =0.4-0.49 _Numbers may be multiplied by 100) Reference: The Gini coefficient is using as a measure of income equality
46.	Economic sustainability (e.g. GDP)	E	Vietnam's Gross domestic product based on purchasing-power-parity (PPP) per capita GDP for 2007 is \$ 2.600. Source: http://hdrstats.undp.org/en/countries/country_fact_sheets/cty_fs_VNM.html
47.	Effectiveness of formal institutions	C	From Corruption Perceptions Index (CPI) 2009, Vietnam's CPI value is 2.7 (Score Level C = 2.7-4.4) Remark: The CPI table shows a country's ranking and score, the number of surveys used to determine the score, and the confidence range of the scoring. Source: http://www.transparency.org/policy_research/surveys_indices/cpi/2009/cpi_2009_table
48.	Trustworthiness of economic institutional setting - degree of risk for foreign direct investment	C	Difficult to find online.
49.	Presence of avenues of dissent – press freedom, freedom of speech	E	Vietnam's Press Freedom Index by Reporters without Borders is 81,67 (Score Level E = very Low press freedom: 50.01-90.00). Source: http://en.rsf.org/press-freedom-index-2009,1001.html
49.a	<i>Case-specific indicator(s)...</i>		
II) Good Governance Principles at the national level – legal basis at the national level			

No.	Indicator	Score	Comments
50.	Participatory regarding decision making in the water sector	B	LWR 1998 and Decree 120 (2008) Decree 120 in 2008 defined the participatory principle in water management. However, the enforcement is rather weak and local stakeholders including local communities, farmers and urban dwellers are not really part of the decision making process of water resource management. ⁷
51.	Transparency regarding water allocation	B	Not explicitly addressed in legislation
52.	Effectiveness and efficiency regarding decision making in the water sector	B	Top- down policy and fragmenting management in water sector (overlapping functions on water management among sectors (E.g. 7 Ministries are assigned with the water management for their sector uses)
53.	Equitable and inclusive	B	e.g. rural population in remote areas have no or limited access to drinking water
54.	Predictability – with regard to IWRM and climate change	B	IWRM has been discussed in planning and legal documents but not climate change.
54.a	<i>Case-specific indicator(s)...</i>		
III) Environmental dimension			
55.	Köppen-Geiger climate classification (river basin)	CWa	Warm Temperate, winter dry, hot summer Northern part of Vietnam: monsoonal (Red River Basin)
56.	Climate Moisture Index	H	HUMID (Upper parts of basin fall in Sub-Humid category)
57.	Climate Moisture Index Coefficient of Variation	B	Moderate
58.	Per Capita Equivalent of TARWA	C	Not available
59.	Average water availability at the river basin level (1995)	A	830 billion m ³ (530 billion m ³ flows into countries from neighbours countries)

⁷ Hansen and Do Hong Phan 2005. World Bank et al. 2003. Vietnam Environmental Monitoring: Water. Hanoi

No.	Indicator	Score	Comments
60.	Annual renewable water supply per person by river basin (1995)	A	10,000 m ³ per capital in (1995)
61.	Projected annual renewable water supply per person by river basin (2025)	A	8,000 m ³ (in 2025)
62.	Relative Water Stress Index	C	Water availability of country is strongly depended by outside country water sources (more than 60%) Water availability per capita is decreased rapidly by population growth and polluted river water by industry and others no-treated waste water sources
63.	Climate Vulnerability Index	D	Sea level raised 0.7-1 m in 2050 and 2100 respectively. Vietnam is one of 5 most vulnerable countries in the world influenced by climate change.
64.	Degree to which water quality status restricts usability of users' types	B	Following national standard for water quality (different from water users)
65.	Extent of flow and channel modification	C	10/13 river basins on country the flows have been changed negatively by hydropower development in upstream areas and hydropower development also impacts in river channel modification.
66.	Impact of land-use changes on hydrological processes	C	land-use changes not impacted by hydrological process but by human activities (e.g. hydropower development of by deforestation etc.)
67.	Uncertainty associated to climate change predictions regarding precipitation for the basin	A/B	Flood flow increased 5-10% in flood season and reduced 5% in dry season. ii) river deltas will be submerged by sea level raised.
67.a	Case-specific indicator(s)...		

C) Performance

No.	Indicator	Score	Comments
I) Progress towards stated Goals			
68.	Progress towards sustainable access to safe drinking water (MDG drinking water target)	B	in 2010, around 66% of rural people have clean water available in their homes and less than this have access to sanitation (MARD).
69.	Proportion of population with access to improved drinking water	E	85% households in the whole country accesses to clean water in 2010; 95% of urban population and 85% and rural population use sanitary domestic water
70.	Proportion of rural population with access to improved drinking water	E	85% households in rural areas have access to clean water in 2010, among which 50% get access to clean water with standard issued by the Ministry of Public Health in 2005. (MPI 2010) ⁸
71.	Progress towards sustainable access to basic sanitation (MDG sanitation target)	B	Country 61%; Urban area 92% and Rural area: 50%
72.	Proportion of population with access to improved sanitation facilities	E	70% of households in rural area has access to sanitary toilets and stable (MPI 2010)
73.	Proportion of rural population with access to improved sanitation facilities	E	64% of population in rural areas access to improved sanitation facilities in 2010 (MPI 2010). The poorest 20% only have 2% access compared to an access level for the rich of 20%.(MOH)
73.a	<i>Case-specific indicator(s)...</i>		
II) Good governance principles as indicators for the process dimension			
74.	Participatory regarding decision making in the water sector	C+D	Mostly only informed, sometimes consulted. Top-down making decision system – lack of participation from stakeholder in water sector.
75.	Transparency regarding water allocation	C	Not exist

⁸ MPI. 2010. Vietnam continues to achieve Millenium Development Goals.....

No.	Indicator	Score	Comments
76.	Effectiveness and efficiency regarding decision making in the water sector	B	Poor management
77.	Equitable and inclusive	B	Access to water resources is better in urban areas
78.	Predictability – with regard to IWRM and climate change	B	<p>Climate change is expected to alter the current runoff and rainfall regimes. Climate model simulations used by MoNRE show that average annual rainfall would increase by about 5%, with the increase being higher in the north than in the south. Most models also show that, on average, an increase in rainfall will more than counterbalance the higher evaporation caused by temperature increases, with the result that an average increase in runoff is predicted, of the order of 50 mm/annum (approximately a 5% increase). Most of the increase in average annual rainfall predicted is expected to occur in the already wet months of the year, with only a minor increase over the dry season.</p> <p>In a scenario of a 1 m rise in sea level, assessments show that Viet Nam would lose 5% of its land, 11% of the population will be seriously affected, agricultural production would decrease by 7%, and the GDP would decrease by 10%. Sea level rises in some areas would have very major consequences. A 1m rise would flood more than 11,000 km² of the Cuu Long Basin, representing some 38% of the land in the basin. Some provinces would lose nearly half of their land area.</p> <p>The water sector in Viet Nam is increasingly realising that IWRM is essential for the future. However, On many IWRM fronts there is no clear policy position - for example, what is the appropriate standard for clean water supply for rural people, what is a water right, how is water to be shared, what are environmental flows, how are they to be applied, what is the GoV policy on “intact rivers”, etc. There is a very poor understanding of water issues throughout all levels of GoV and within the community. There is a culture within GoV organisations of a strong focus on their Ministries and their needs, with less attention to the regulations and other requirements set by GoV.</p>
78.a	<i>Case-specific indicator(s)...</i>		
III) Stakeholder participation			

No.	Indicator	Score	Comments
79.	Deliberative engagement opportunities	B	Some forums and seminars to engage concerned stakeholders have been formed but the extent of engagement has been constrained by lack of mechanism to engage stakeholders in decision-making and planning.
80.	Inclusiveness of stakeholder participation	B	Viet Nam, aided by the international community, is just now tentatively testing participatory approaches. A significant cultural shift will be required, both within government and outside, if these approaches are to succeed and the benefits to the sectors and communities are to be realised.
80.a	<i>Case-specific indicator(s)...</i>		
IV) Response to climate change			
81.	Strategy for adaptation to climate change in the water sector	B	National Target Program on CC response approved by the Prime-minister December 2008 and MARD Action Plan Framework for Adaptation of CC in Agriculture and Rural development sector passed in September 2008.
82.	Availability of specific knowledge enabling adaptation	D	There has been a vulnerability assessment for the Ramsar site Thai Binh, but in general not. <ul style="list-style-type: none"> - Climate change and sea level rise scenarios for Vietnam was published (2009) to provide public and communities with specific knowledge on climate change in Vietnam - Series of publications on climate change have been published for providing public with knowledge on climate change
83.	Awareness of water managers regarding adaptation to climate change	C	Adaptation to CC is new topic and area of competence by agencies responsible for water management. However, disaster risk reduction has been built for many years at MARD and DARD. Awareness of water managers on climate change Increasing through request of inclusive policy with factors of climate change

No.	Indicator	Score	Comments
84.	Coordinated implementation process regarding adaptation to climate change: Program / Plan of activities and measures	A	<p>The NTP specifically addresses the need to coordinate CC adaptation and mainstreaming it into development planning including river basin planning.</p> <p>Action plan to respond to climate change in water sector has been established (2009)</p> <p>More than 100 programmes and projects of water sector to response to climate change with total budget up to USD 13 billion has been announced in 2010.</p>
85.	Operational activities (measures)	C	
86.	Ways to deal with climate variability (floods and droughts)	A	<p>A number of measures on response and mitigation of climate change variability have been recommended in the NTP and MARD Action Plan Framework for Adaptation of CC.</p> <ul style="list-style-type: none"> - Improvement of capacity of national forecasting system at regional and national levels - Strengthening the legal and institutional arrangements for response to climate variability - Appropriate structural measures for mitigation and management of disasters (flood and droughts).
86.a	<i>Case-specific indicator(s)...</i>		<ul style="list-style-type: none"> - Action plan for responding in water sector has established - Development of portfolio of prioritized programmes and projects responding to climate change has prepared - Series of international and national/sector workshops or meeting have been organized national wide for improvement of public on climate change and preparation of responding to climate change.

No.	Indicator	Score	Comments
	<p><i>Legal frameworks for disaster mitigation</i></p>		<ul style="list-style-type: none"> - Ordinance on Storm and Flood Control, No. 27/2000/PL-UBTVQH10 - Law on Dyke, No. 79/2006/QH11 <p>Ordinance on Storm and flood Prevention and Control dated 24/8/2000 There is a strong natural disaster network closely structured from the Central to the local and community level. However, most personnel undertake flood and storm control responsibilities as an addition to their normal role - no specific facility exists to support the activities, which are mostly reactive. At the provincial level, the same issues exist. In 2007, the <i>National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020</i> was approved and is now being implemented. (Sector review MONRE-2008)</p>

Addendum - Context

No.	Indicator	Score	Comments
I) Basin Characteristics			
67a	Sub-Basin Size	92,500 km ²	Area of basin in Vietnam according to: Yungang et al. 2008. J. Geogr. Sci 18:308-318
67b	Transboundary	Yes	Upper reaches are in China; small part of catchment (1500 km ²) is also in Lao PDR.

Addendum - Performance

No.	Indicator	Score	Comments
I) Environmental sustainability			
a) State of the water resources and the environment			
87	Aquatic biodiversity	C	High, but are impacted significantly by the hydropower development in the river systems in Red river basin. In lower reaches are likely to be significant impacts of pollution from land-based sources especially around Hanoi. In other areas also over-exploitation in some inland fisheries areas. The current state of aquatic biodiversity is estimated to fall overall in minority category: 20%-50%
88	Invasive exotic species	C	A wide range of indigenous and exotic plant and tree species are used and planted in rural Vietnam, and exotic plant species have become an integral part of farming and other land use systems. (Invasive exotic species in Vietnam are not available).

No.	Indicator	Score	Comments
89	Surface and groundwater quality	C	<ul style="list-style-type: none"> Surface water in Vietnam is generally of good quality. Almost every indicator meets the standard for Class A water for domestic supply. All meet the standard for Class B, water for other purposes. BOD (biological oxygen demand), COD (chemical oxygen demand). In industrial, craft villages and urban areas waste water discharged, many indicators exceed the acceptable level. <p>(Surface water quality is classified into two categories, Class A and Class B. (TCVN 5942, 1995). Class A: quality is good enough for domestic use, after proper treatment. Class B: water can be used for purposes other than domestic use.)</p> <p>For pollution of ground water in Red river basin estimated by MONRE is potentially. Code here is between B and C. If emphasize lower reaches C as recorded here.</p>
90	Groundwater use	C	<p>Groundwater provides the domestic water supply for almost 55% of people in Viet Nam (over 23% from pumped deep drilled wells, and a further 23% from hand dug or constructed wells.). Thirty-four percent of the urban population is dependent on groundwater, and almost 65% of the rural population, with a far greater dependence on hand constructed wells in rural areas.</p> <p>Ground water has been heavily exploited In Red river basin mainly for domestic and industrial uses. Due to the poor management and unsustainable uses, ground water is degrading. According to the results of 20 years monitoring system of MONRE that has recorded the continuous degradation of the ground water in the Red river basin with rate of 0.4-0.6 cm in the areas of Hanoi, Vinh Yen, Nam Dinh of Red River delta.</p>
91	Water Exploitation Index (WEI)	A (8%)	<p>The international standard for this “water exploitation stress” is that moderate stress begins at a value of 20%, and high water stress occurs for values above 40%. At current levels of water use, the Red river basin are in the moderate stress range (between 20% and 40%).</p>
b) Management practices			
92	Water allocated for aquatic ecosystem	C	No specific quantity or indicators on water allocated for aquatic ecosystem in Vietnam

No.	Indicator	Score	Comments
93	Water pollution incidents	C	Red River: In Viet Tri cluster downstream, heavily polluted by intensive industrial activities - the COD is 2.37 times and BOD 3.83 times higher than acceptable levels. Water polluted mainly by industrial zones, craft villages, and urban areas. Almost waste water discharged directly to open channel into river major urban areas: Hanoi, Ho Chi Minh City, Hai Phong, Da Nang, and Hue exceed the allowed levels. Responses to water pollution incidents are becoming more visible but overall are still slow and not always effective, hence scored as C.
94	Water quality monitoring	B	Poor water quality monitoring network in the river basins. Now MONRE is trying to set up a monitoring water resources networks on the Red River (Quantity and quality monitoring).
95	Hydrometeorological monitoring – levels	B	<p>The hydro-meteorological forecasting system includes 3 levels as follows:</p> <ul style="list-style-type: none"> • Central level is performed by the National Centre for Hydro-meteorological Forecasting; • Regional level is implemented by 9 Regional Hydro-meteorological Centers; • Provincial level is executed by 54 Provincial Hydro-meteorological Centers.
96	Level of understanding of groundwater resources	C	<p>Water quality management efforts are not effective, with serious pollution increasing in most areas near intense urban/industrial centres, posing a growing threat to human health. Environmental protection provisions are seriously lacking, water is generally not recognised as part of the ecosystem, and the EIA processes are not being effectively applied.</p> <p>There is a very poor understanding of water issues throughout all levels of GoV and within the community. There is a culture within GoV organisations of a strong focus on their Ministries and their needs, with less attention to the regulations and other requirements set by GoV</p>