

Executive Summary

Study Project for Improvement of Groundwater Resource Management and Conservation Law

1. Background and Rationale

As the major government agency to implement national policy and enforce the groundwater law for fair and sustainable uses of groundwater, the Department of Groundwater Resources has always been trying to strike the balance between exploitation and conservation. Nevertheless the Department has found and faced obstacles related to the administration of its authority and the enforcement of the groundwater law. Apparently some obstacles are practical matters that could be overcome without having to amend the law, while some obstacles are legal ones that must be solved by legal amendments. Causes of such obstacles include: limited scope of legal basis and authority; loose power in the permit and control system; lack of legal basis for preventive measure and to designate groundwater resource protection and conservation areas; ineffective management of the groundwater fund, and unproportionate severity of the penalties.

This study project is aimed at producing set of concrete and practical recommendations ready for the Department to adopt and make use of right away. In addition, based on the research team's overview of behavioral and structural factors related to groundwater resource management and law enforcement, the recommendations include long-term solution with a proposed legal overhaul by drafting a whole new act for a totally new legal framework on groundwater resources.

2. Findings

In formulating our findings and recommendations, the research team carried out various study methods including reviewing Thai and international literatures from various sources, interviewing practitioners and stakeholders, and brainstorming in group sessions. After each round of our findings, we tested our recommendations and obtained useful advices from experts, practitioners and stakeholders nationwide through series of focus group meetings, workshops and seminars.

In general, the formulation of our findings and recommendations is centered around the following principles:

- Precautionary principle, sustainability, balance and equity, as reflected in our recommendations for preventive, protective and conservation measures
- Polluter/user-Pays Principle, as reflected in our recommendations to truly adopt economic factors in setting up charging rate for groundwater use, as well as our recommendations to adopt the concept of civil and administrative liabilities.
- Groundwater good governance, as reflected in our recommendations for effective public administration, clear legal bases for authorities, broad-based participation and public participation both at policy and operational levels.
- Public participation as appeared in the legal recognition of water users association and groundwater engineer professional association, which could be represented in national groundwater board of committees and groundwater fund board of committees
- Efficiency, effectiveness, and flexibility taking into account limitations related to the capacity of law enforcement in Thailand.

Key findings and recommendations include:

2.1 Scope of the Groundwater Act

At present, the Groundwater Act generally does not apply to digging and uses of groundwater by government entities mandated to provide water supplies, except digging and uses of groundwater in crisis area. This should be changed by amending Article 4 to apply permit and control requirements to such and other kinds of mandated government agency as well, but the law should still provides flexibility by allowing the minister to except certain kinds of government agency from the permit and control requirements.

Another key point concerning the scope of law is about a possible overlap between the Groundwater Act and other laws related to water resources in general. It is therefore advised that there should be an article (Article 7) in the draft whole new act that any matters related to

exploitation, development, management, restoration, and conservation of water resources found underground shall be governed by the Groundwater Act.

2.2 Groundwater Resource Management

We advise restructuring of the policy-level board of committees by elevating the level of its chair from the Director General to be the Minister, and having the Permanent Secretary as the Vice Chair. Members of the board will also be adjusted to include Director Generals of departments directly concerned, such as the Irrigation Department, Water Resources Department, Pollution Control Department, and the Department of Industrial Works. The design of this policy-level board both in the draft amendment and in the draft whole new act reflects the research team's adherence to good governance, broad-based participation and the principle of conjunctive use.

For the Groundwater Department as the agency mandated to implement the groundwater law, it is suggested that the Department should also perform roles and functions in supplying groundwater to meet basic needs of the people when necessary. The Department's role on groundwater resource management should be rather comprehensive by involving in the formulation of national policy and planning, in addition to its law enforcement function. Furthermore, the Department should also have the authority to carry out tasks related to groundwater resources in order to deal with emergency situations and crisis related to shortage of water or inundation. In our long-term recommendation as appeared in the draft

whole new law, the Department should also play more proactive roles including those related to transnational groundwater management and the formulation of groundwater resource master plan.

In order to enhance the effectiveness of groundwater resource management, the draft whole new law highlights the importance of having a good master plan. The new law stipulates clearly not only the process in developing the master plan but also substantive scope of the master plan. As appeared in draft Article 28, the master plan will have to be based on actual status and potential of national groundwater resources based on accurate data resulted from nationwide survey taking into account as well cross-border groundwater system.

2.3 Groundwater Use Control

Based on the current situation that the permit requirement has not been strictly enforced thoroughly and the fact that majority of groundwater users without proper permits are small scale users to meet their subsistent needs, it is therefore strongly recommended that these users should not need to apply for the permit to dig and to use groundwater. Therefore we advise that these subsistent users should be required to only inform the Department of their intention to dig a small well and to use the water for their daily subsistence. Small scale agriculturists should also be exempted from the permit requirement and only required to inform only. This recommendation is truly practical if we have to accept the fact that enforcing the permit requirement thoroughly nationwide is nearly impossible. We would better adhere to the principle of good governance by bringing everyone on board rather than knowingly let certain groups of users outside the law. Another advantage of having everyone on board is that this will allow the Department to have better information and database of all users through the Department's registrar.

However, addition of the inform or registration system into the current permit system does not appear in the draft amendment of the present Groundwater Act since the Department is concerned that this might somehow create another kind of problem. We nevertheless still recommend that in the long-term this approach should be adopted, as appeared in our draft whole new Groundwater Act.

Another mechanism to control and regulate groundwater uses is user charge, which we advise that the charge rate should in general follow the principles of economics. Particularly, the charge rate should be set by strictly taking into account costs of groundwater resource in the given area rather than applying a flat rate across various groundwater areas each of which has different environment. If this rationale is totally followed, there would be even no need to set an additional type of user charge in critical areas because critical stage of environment in each of such critical areas will be a crucial factor in setting up rate of the user charge. As a result, the term "groundwater conservation charge" will not any longer be used in the draft whole new Groundwater Act.

2.4 Preventing and Protecting Groundwater Resources from Damages

2.4.1 Controlling and regulating groundwater exploitation

For the purpose of raising quality of groundwater engineers, we advise for amending Article 7 bis and ter that only engineers who registered with the Groundwater Resources Department could be allowed to practice in groundwater digging and drilling. Violation of this requirement would have criminal liability. In our long-term recommendation as appeared in the draft whole new Act, the Department should be required to regularly provide training to digging/drilling engineers both in private and public sectors at least on a yearly basis. The Department should also be required to disseminate knowledge, advices and information through various information-technology channels as proper.

We also recommend that the long-term preventive measure should include as a requirement for those seeking a permit for digging/drilling of a well with diameter longer than 200 millimeters (8 inches), discharge or recharge into a groundwater well of any size to submit a initial groundwater impact assessment along with the application.

2.4.2 Controlling and regulating activities harmful to groundwater resources

As a matter of fact, activities that could be harmful to groundwater resources are not limited to the digging/drilling, discharge or recharge mentioned in 2.4.1. For any other kind of activity that may be seriously harmful to groundwater resources, we advise in both the draft amendment and the draft whole new law that before a relevant government agency grant permit for such activity, the government agency should refer the application to the National Groundwater Board of Committees for approval. For the question of kinds or types of activity considered to be seriously harmful to groundwater resources, it should be the Minister's authority to designate upon recommendation from the National Groundwater Board of Committees.

2.5 Protection and conservation of groundwater sources

We found the existing groundwater law is still lacking measures to protect and conserve groundwater sources. Its existing legal basis to designate critical groundwater areas has not been applied to actually explore and identify groundwater sources which are in critical stage,

hence providing necessary protective measures, beyond collecting the so-called conservation charge, through the designation as critical groundwater areas. Furthermore, the legal provision to designate no-digging zone has never been implemented.

We therefore propose in the draft whole new law that there should be proper legal bases to designate five types of protection and conservation area.

(1) Groundwater source catchment protection zone

This protection zone can be defined as the whole aquifer recharge area. Once designated by the Minister, activities with high risk of contamination to groundwater system such as dumping site of wastes, hazardous waste landfill, and wastewater treatment plant should not be allowed to operate in the zone unless reviewed through the environmental impact assessment process.

(2) Groundwater drinking water source protection zone

This is totally a new kind of protection zone that we recommend to be included in the overhauled new groundwater law. It will encompass very strict protective and control requirements within the wellhead area. In each Groundwater drinking water source protection zone, there will be two more layers of area, intermediate and outer zones within scope of the catchment area, to be designated with protective and control requirements. Setting conditions of protective and control measures in the outer zone must take into account inputs from the local community concerned.

(3) Groundwater environmental protection zone

This is actually the environmental protection zone according to the National Enhancement and Conservation of Environmental Quality Act B.E. 2535 (NEQA). As a matter of fact, there are various ecological factors necessitate the designation of environmental protection zone under such law. Since the Groundwater Resource Department is specialized in matters related to groundwater, we advise that the Department should be required under the whole new groundwater law to explore and study in order to be fully aware of the necessity to provide proper protection to certain groundwater sources. With such duty, the Department should cross check to see if there might be areas that need to be protected for ecological

purpose related to groundwater but have not been properly designated as an environmental protection zone according to the said environmental law. Then the Department should accordingly advise the Permanent Secretary to designate such an area as environmental protection zone according to NEQA.

(4) Groundwater critical area

We strongly advise that the concept and practice in designating groundwater critical area should be reviewed to truly serve the purpose of protecting groundwater sources with critical condition by whatsoever causes not limited to overexploitation. The rationale is that all critical areas should be accordingly designated, and all designated areas must be truly in critical condition. With this way of thinking, the groundwater law therefore should provide legal basis for all necessary measures including emergency ones to be timely executed to prevent the critical areas from further deteriorating. No more digging or use should be allowed in the designated area, unless the groundwater impact assessment ensures that it could still be sustained.

(5) No pumping zone

The proposed new concept of designating the “no pumping zone” is straightforward and simple: an area should be so designated only if pumping is a key cause endangering a certain groundwater source or its environment, hence cease all the pumping and uses of groundwater in that area. We also advise that in case there is urgency during the process of designating the zone, the Director General of the Groundwater Department should be empowered to take necessary actions in the meantime.

Legal bases for all the five aforementioned types of protection and conservation zone are included in the proposed whole new groundwater law as our long-term recommendation. Concerning designation of groundwater critical area, we particularly advised that the new approach should be adopted right away in the upcoming amendment of the Groundwater Act for timely protection of groundwater sources with critical condition. Nevertheless, the revision has been removed from the latest draft amendment as suggested by the Department.

As appeared in the draft whole new groundwater law, public participation is promoted through providing legal status to groundwater users association and to groundwater engineer association. Groundwater users association and groundwater engineer associations recognized by the Department's registrar could then involve at the policy level through their representatives sitting in the National Groundwater Board of Committees. In addition, a registered user association could directly play roles in the public management, development and conservation of groundwater resources in its respective area as long as such roles are in line with applicable national groundwater policy and master plan. Likewise, a registered groundwater engineer association could partner with the local groundwater officials in the exploration and provision of groundwater to enhance public access to groundwater. A registered groundwater engineer association could also apply for supports from the government in carrying out activities to enhance groundwater engineer research and development.

2.7 Law enforcement measures and sanction

In order to help increase criminal law enforcement effectiveness, we advise in both the amendment and the whole new law that groundwater officials should also be empowered to carry out basic criminal investigation tasks, including arrest. While later parts of the criminal investigation and prosecution processes will still be completed as usual, this empowerment to the groundwater officials will enable officials with familiarity with criminal liability on matters related to groundwater to be more proactive in detecting as well as investigating criminal violations. For violations that are not criminal, we introduce administrative fine and civil liability.

Sanction in form of fine for violations by permit holders will not any longer be limited to the flat-rate fine system, but violators will have to face administrative fine charged daily until the violation stops.

Concerning civil liability, we advise that the groundwater law should adopt similar concept as currently used in the National Enhancement and Conservation of Environmental Quality Act B.E. 2535, meaning that the compensation for damages to natural resources shall also cover costs and expenditures of the government spent to restore the environment.

As a result of the introduction of new legal measures and tools as summarized above, new terms and wordings need to be added in the draft amendment and the draft whole new law. Therefore right at the beginning section of these proposed bills, we also provide legal definition to each new term which needs to be defined specifically in the particular context of the law.

For example, key new terms include “below ground surface water”, “soil water”, “groundwater source”, “groundwater basin”, “groundwater recharge/catchment area”, “artificial recharge of groundwater”, “pollutant” and “source of pollutant”. In the draft whole new law, we also recommend adding and defining the term “hydraulic fracturing” since it is an emerging practice with high risk of damage to groundwater resources, as well as the term “groundwater recharge area” for the purpose of designating a protection zone accordingly.

A very important existing term which we propose definition adjustment is the wording “groundwater” itself. The adjustment is made to define groundwater not by dept of the level where the water is found but by the geologic formations of soil, sand and rocks.
