

**PRIVATIZATION OF GROUNDWATER
PROVISION MANAGEMENT AS A CLIMATE
ADAPTIVE STRATEGY TO ADDRESS WATER
SCARCITY IN SAUDI ARABIA AND A
COMPARATIVE ANALYSIS FOR
IMPLEMENTING WATER PRIVATIZATION IN
OTHER COUNTRIES**

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Abstract:

There are many countries that had successful experiences, and some of them had unsuccessful experiences in groundwater privatization. We review the experience of the Kingdom of Saudi Arabia, how it was successful, and what is the impact of legislation in the Kingdom of Saudi Arabia in preserving water supplies in the Kingdom of Saudi Arabia, and how other countries can benefit from this successful experience.

Key words: Water - privatization - environment - pollution.

المخلص باللغة العربية:

هناك العديد من الدول كانت له تجارب ناجحة وبعضها لديها تجارب غير ناجحة في خصخصة المياه الجوفية نستعرض تجربة المملكة العربية السعودية كيف كانت ناجحة وما هو تأثير التشريعات في المملكة العربية السعودية في المحافظة على امدادات المياه في المملكة العربية السعودية وكيف للدول الأخرى الاستفادة من هذه التجربة الناجحة..
الكلمات الافتتاحية: مياه- خصخصة- بيئة- تلوث.

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Introduction

Saudi Arabia, which makes up a majority of the Arabian Peninsula, faces serious¹ climate challenges due to its location in a desert region with limited precipitation.¹ It is the world's largest arid country without permanent rivers or lakes, which makes it more vulnerable to water scarcity and climate change.² These difficult climatic conditions, including continued rainfall reduction and increased temperatures, have worsened in recent years, and they have made agricultural activity of any kind extremely challenging in Saudi Arabia. In addition, high temperatures cause evapotranspiration, further reducing the existing water tables. As a result, drilled water wells are the only viable water solution in the country. The Saudi government has been developing borehole water supplies through the national Water.

The low water table presents the largest obstacle to providing enough water through borehole drilling for Saudi Arabia's needs. Reaching underground water takes considerable financial resources, and even successful borehole wells do not

¹ Akoum, Ibrahim. "Privatization in Saudi Arabia: Is Slow Beautiful?" Thunderbird International Business Review 51 (August 17, 2009): 427-440.

² I'd

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produce a consistent supply of water. The Saudi government has tried other options to increase water production, including desalinization and water reselling approaches, since the Kingdom of Saudi Arabia aims to serve the Saudi citizen, it strives to preserve these resources.

Water Scarcity in Saudi Arabia

As stated earlier, the effects of climate change on Saudi Arabia's hydrological cycle have resulted in less precipitation and a reduced seasonal distribution. This scarcity is further aggravated by high evapotranspiration rates that can reach over 50°C, which depletes potable water resources.³ Saudi Arabia is listed by the UN as a country facing water scarcity.

Saudi Arabia's average yearly precipitation from is approximately 114mm³, with the northern region receiving up to 200mm³ and the southern region at times receiving only 100mm³. Some areas in the south and west at higher elevations receive about 500mm³, but they form a small portion of the Saudi Kingdom.⁴ Saudi Arabia is among the richest nations in the world because of its rapid economic growth and vast oil resources, but it is ironically classified among the poorest countries in terms of natural water resources. Water consumption habits have also changed due to the increased because of the excessive use of water by some citizens residents and visitors.⁵

The annual population growth in Saudi Arabia is around

³ I'd

⁴ Alkolibi, Fahad M. Possible Effects of Global Warming on Agriculture and Water Resources in Saudi Arabia: Impacts and Responses. Climatic Change 54, no. 1/2 (2002): 225-245.

⁵ I'd

2.5 percent, higher than the world's average population growth rate. Annual demand for water, on the other hand, has increased by approximately 8.8 percent.

the country's water resources.⁶ The hardships related to climate change are unequally distributed throughout Saudi society. Even so, Saudi Arabia's overall government efforts and economic power enabled it to address the water climate and climate change more easily than other Middle Eastern countries.⁷ Financially costly projects such as desalinization are therefore more viable in Saudi Arabia than in regional neighbors like Syria and Yemen.⁸

Because of its immense wealth and Government efforts to provide comfort to citizens, residents and visitors, Saudi Arabia has been able to import its food crops, reducing the need for water in the agricultural sector. The Saudi government has also heavily invested in wastewater recycling to meet its domestic water demands.⁹ Even with these steps, the country will continue to face difficulty in adapting to climate change. Approaches such as desalinization and wastewater recycling might be unsustainable and might even contribute to climate change because of the carbon footprint of water treatment plants.¹⁰

Saudi Arabia is a global reference points for discussions about climate change and natural rivers, lakes, etc water scarcity as well as the effects of unsustainable human activities on

⁶ Al-Zahrani, Khodran H. and Mirza B. Baig. "Water in the Kingdom of Saudi Arabia: Sustainable Management Options." *The Journal of Animal & Plant Sciences* 21, no. 3 (2011): 601- 604.

⁷ I'd

⁸ I'd

⁹ Baer, Madeline. "Private Water, Public Good: Water Privatization and State Capacity in Chile."

¹⁰ I'd

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biodiversity and water supply. Because Saudi Arabia is both a wealthy and a water-scarce nation, the country serves as a demonstration that creating adaptability and mitigation mechanisms are extremely costly.¹¹ Saudi Arabia's wealth has allowed for significant progress in converting traditional energy use to renewable sources, thus reducing its carbon footprint.¹² Through its international collaborations, other countries can benefit from Saudi Arabia's efforts to overcome water scarcity.

The kingdom must also address issues related to climate change in order to reduce evapotranspiration and subsequent water waste , KSA really making an effort. Additionally, Saudi Arabia should continue create distribution channels that ensure a constant water supply as it is now and they spend a lot of money to achieve this.¹³

Water demands in Saudi Arabia are currently satisfied through surface water resources, renewable and non-renewable groundwater, desalinated seawater, and treated wastewater. Without permanent rivers and lakes or abundant rainfall, water tables are very low and both surface and renewable groundwater resources are very limited.¹⁴ Surface water from precipitation and flooding are collected into over 200 dams constructed by the government. However, this rainwater is not sufficient to raise the water table, and the 2 billion cubic meters of rainwater from the west and southwest regions is inadequate to meet Saudi Arabia's

¹¹ Brebbia, C.A., ed. Water Resources Management VI. United Kingdom: Wessex Institute of Technology (WIT) Press, 2011.

¹² I'd

¹³ I'd

¹⁴ Studies in Comparative International Development 49, no. 2 (2014): 141-167.

water demands.¹⁵ Therefore, the country right now spent more resources on harvesting groundwater along with other strategies to control scarcity.

Over the past three decades, demand for water in Saudi Arabia increased by approximately 75 percent.¹⁶ Coupled with worsening climate conditions. Currently, approximately 34 percent of Saudi Arabia's water comes from renewable resources, while the use of non-renewable water sources has increased from 38 percent to about 60 percent.¹⁷

At the same time, the rate at which the groundwater is being replenished does not measure up to the rate at which it is being depleted. It is estimated that if the current withdrawal rate of renewable groundwater continues, supplies might run out in less than 50 years. According to data obtained from FAO-Aquastat, the supplies of renewable water resources in Saudi Arabia will remain limited compared to the global average supply. It is also estimated that climate changes in Saudi Arabia will reduce the overall precipitation by 10 mm per annum.¹⁸ These findings suggest that although precipitation might significantly increase in the central and southern regions, climate change and global warming are also expected to increase, making water scarcity a continuing problem.

Desalinization

The Kingdom of Saudi Arabia has enough financial

¹⁵ Id

¹⁶ Fthenakis, Vasilis, Adam A. Atia, Olivier Morin, Raed Bkayrat, and Parikhit Sinha. "New Prospects for PV Powered Water Desalination Plants: Case Studies in Saudi Arabia." *Progress in Photovoltaics: Research and Applications* 24, no. 4 (2016): 543-550.

¹⁷ Id

¹⁸ Id

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resources to fund desalination and the government's first concern is to serve the Saudi citizen.

In an attempt to address the water shortage, the Saudi government has increased its daily production of desalinated water from 3.8 million cubic meters to approximately 4.2 million cubic meters of water. This improvement has been achieved by the Saline Water Conversion Corporation (SWCC), a state-owned entity.¹⁹

Currently, Saudi Arabia is the largest producer of clean water from desalination processes in the world, and SWCC currently owns the biggest desalination plant in the world, which is located on the Arabian Gulf. The Ras Al-Khair plant is a \$7.2-billion project that produces slightly more than 1 million cubic meters of clean water daily.^{19, 20}

The Saudi government also faces challenges in finding an appropriate energy source for the desalination processes. Most of the energy that drives engines in the production plants are non-renewable energy resources. Although Saudi Arabia has vast oil resources, using them comes with a high environmental cost. Using oil as fuel increases desalination's carbon footprint, facilitating global warming and further depletion of water tables. Since desalinated water only satisfies 25 percent of Saudi Arabia's total water demand, desalination that contributes to climate change might be ultimately detrimental to the water

¹⁹ meters of water. This improvement has been achieved by the Saline Water Conversion Corporation (SWCC).

²⁰ Guizani, Mokhtar. "Storm Water Harvesting in Saudi Arabia: A Multipurpose Water Management Alternative." *Water Resources Management* 30, no. 5 (2016): 1819-1833.

supply climate change would make it more difficult to get groundwater, which is the most significant source of water in the country.²¹ This problem with desalination can be solved relatively easily by using renewable sources of energy.²²

The Kingdom of Saudi Arabia is working with all its international partners in addressing climate change and has distinguished efforts in this field.

Water Reselling

Since 2000, the government of Saudi Arabia has relied on private companies to operate water and sanitation infrastructure in the Kingdom. These companies undertake desalination, groundwater projects, and wastewater treatment, among other sanitation activities. In 2008, the government established the National Water Company (NWC) and tasked it with managing and distributing water to the public. Since then, however, the operation of water distribution in the cities and other parts of the Kingdom has been largely allocated to the private operators. The main objective of the government's decision is to streamline water distribution to curb acute water shortages, especially in densely-populated major cities.²³

Even though private companies have been taking charge, water rates have remained low. While privatization typically encourages the business-oriented supply of water, this is not the case in Saudi Arabia. The government provides heavy subsidies to private companies in order to keep water prices down. Saudi Arabia buys underground and desalinated water from private

²¹ Id

²² Studies in Comparative International Development 49, no. 2 (2014): 141-167.

²³ Hiscock, K.M, R.M. Davison, and M. O. Rivett., eds. Sustainable Groundwater Development.

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companies at high prices and resells the water in bulk cheaply to the public so that low-income households can afford the access to water.²⁴ The government also provides direct funding to the private companies that operate the distribution of water and sewer systems. The funding is provided under the management contract to ensure the sustainable supply and distribution of water.²⁵

The Saudi Arabian government further subsidizes various water and sewer distribution projects. The water produced from these projects is also resold to the public at affordable prices.

Benefits of Privatizing of Water

The Saudi Arabia stands to benefit greatly from privatizing its groundwater management. The collaboration between NWC and the private sector can provide significant advantages. Choosing privatization gives the government an opportunity for economic gains, including flexible access to the money market. It also provides an opportunity to attract a skilled and talented workforce into the water management sector. Determining high-quality services and efficient operations is more possible in a profit-oriented environment than in public entities.²⁶ French Water and Veolia, two private corporations, were able to improve services in these Riyadh and Jeddah .²⁷

It is also worth noting that privatizing the water supply services could improve services from all aspects by private

²⁴ I'd

²⁵ Cambridge, MA: Harvard University Press, 2011.

²⁶ London: Geological Society Special Publications, 2002.

²⁷ I'd

operators better than public organizations. Consequently, privatization should be viewed as an opportunity that can lead to improved water and sewer systems. Although private companies might charge higher rates to cover the costs of infrastructure development, privatization could eventually lead to lower and more sustainable bills in the end.

Although there is a conflict between proponents and opponents of privatization regarding the high rates and monopolistic nature of private entities, the main objective of privatization is to enhance effective monitoring systems. That way Privatization of water services also saves the government time and money, which can be used in other social and economic sectors. The move also reduces the public sector's exposure to risks based on the immense responsibility of distributing water.

Review of Groundwater Privatization Success in Other Countries

Groundwater Privatization in Chile

Chile's privatization of its groundwater management has been largely successful. This success is due to the government's relentless financial and legal support. The Chilean government recognized the reality of water scarcity in its major cities and throughout the country. The government then recognized private firms as the right entities with resources and skills to manage scarce water resources. The public sector's lack of expertise led to inefficiency and corruption among government officials. Privatization is the only way the government could choose to limit aspects of inefficiencies.²⁸

Chile had been facing problems with its water and sewer

²⁸ Hiscock, K.M, R.M. Davison, and M. O. Rivett., eds. Sustainable Groundwater Development.

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distribution systems when the services were purely offered by the government, and its water privatization program has been a success story. The country has privatized most of its drinking water and sanitation systems. The effectiveness of the privatization program has helped Chile has helped to meet water-quality standards. Underground water privatization in Chile has significantly reduced the role of the government in providing water services. Nevertheless, it is important to note that the success is not attributed to the merits of privatization alone, but rather to the strong capacity of Chile's government to ensure that private management of the water sector addresses the public interests.

One of the approaches the government has used to control operations of private water companies is legislation. Private companies have the main objective of making money, while the government has the responsibility of making sure that all citizens have access to clean water and sanitation. Left to its own devices, the private sector might not be as seriously concerned with the welfare of the citizens as it is with their profits. The government of Chile has used legislation to ensure public access to water. The success of Chile's groundwater privatizations program was achieved by striking a regulatory balance between uninterrupted private operations and meeting the fundamental public need for clean water and sanitation.²⁹

Under the administration of Eduardo Frei, the government of Chile established legislation in 1998 that led to private engagement in water management. The motive behind these laws

²⁹ Id

was to improve the efficiency and quality of public services. It was also part of the government's effort to mobilize capital to increase clean water production through groundwater harvesting and wastewater treatment. This resulted in private water and sanitation companies in major cities such as Santiago and Valparaiso. Subsequently, staffing and structures of these companies were changed in order to increase the share of collected water from underground and treated waste water. New water distribution procedures enhanced supply in both urban and rural areas.³⁰

Other Latin American countries suggested privatization of water and sewer management, but the majority of them failed. Chile's case is unique in the region. By the time the state left the management of water entirely to the private sector, the private providers were financially self-sufficient. When they took over from the state, the private companies became more stable as they demonstrated their ability to enhance sustainable water production and distribution. The privatization of the underground water and wastewater treatment was done in stages. This approach allowed the government to evaluate the performance of the initial companies chosen to manage the water supply. This accountability motivated private companies to invest heavily in order to meet the evaluation criteria. Given the overall better outcome of the privatized water system, a consensus has been reached between the government, private companies, and the public that the rate increases under privatization have been worth the improved services.

Groundwater Privatization in Peru

The government's management of water resources in

³⁰ Id

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Peru, especially the capital city of Lima, have not been effective. Lima has a population of about 8 million people, but only 6 million are connected to the water system. Within the plumbing system itself, forty percent of the water supply is lost through leakage. By the end of 2000, water systems in Lima were nearly in crisis. Although some reforms to government water management were enacted, about twenty- five percent of Lima's citizens still did not have access to clean water and sewer services.

Even those with access to the water system faced extended interruptions in water and sewer services, and more than a third of the water entering the system was still being wasted. It was clear that the government was unable to establish sufficient water supply to the city's residents. In an effort to solve these decades-old problem, the government decided to privatize water resources.³¹

Despite the government's desire to privatize the water and sanitation systems, the effort failed. The scarcity of water, particularly around Lima, made its marginal cost very high, and water needed to be pumped from deep wells and stored during the dry season. High extraction costs and unfavorable terrain coupled with years of neglect increased the cost of any water supply project. In addition, the old water and sewer systems needed to be replaced.

Private investors had enough financial resources to handle these problems, but as business-oriented investors, they would need to set high rates in order to get reasonable returns on their

³¹ London: Geological Society Special Publications, 2002.

capital. Peru's government had been subsidizing the cost of water, so privatization would result in a sharp price increase even as service improved. Furthermore, any focused investor would prefer a slow-paced engagement in order to curb water demands with incentives for conservation. Privatization would mean that the government would have to reduce cross-subsidies had incentivized water conservation.³²

Although the ultimate failure of privatization stemmed from geographical problems, the proximate cause was political. Privatization of a public utility as sensitive as water management attracts political controversies, especially when it involves price increases. Peruvians had enshrined access to water as a human right in their constitution, and it was widely believed privatization of a fundamental human right was immoral. Many believed that it could result in a monopoly. There was also a lack of international experience and technical ability to design an effective privatization of the water sector. Even if a good proposal was set forth, many challenges created confusion, divisions, and ultimately the inability to privatize water resources in Peru.³³

Because price increases would have significant economic consequences for the poor urban population who were also potential voters; the idea of privatization was quickly dismissed by the political class. Although privatization began favorably, there was a change in the political equations against

³² Larrain, Sara, and Colombina Schaeffer, eds. *Conflicts over Water in Chile: Between Human Rights and Market Rules*. Chile Sustentable, 2010. 1-57. Accessed [Oct/2017].

<http://www.chilesustentable.net/wp-content/uploads/2015/06/Conflicts-over-Water-in-Chile.pdf>.

³³ Santos Pereira, Luis, Ian Cordery, and Iacovides La Iacovos. *Coping with Water Scarcity: Addressing the Challenges*. [LOCATION: PUBLISHER], 2010.

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implementing these reforms.

This privatization failure was very costly, especially in Lima and its suburbs, which have suffered contamination of its water supply. It is thus vital to note that the success of privatizing the water supply depends on government support for its effectiveness. If well-supported by the government, the moves can aid in solving the challenges of water access as it did in Chile.³⁴

Groundwater Privatization in India

India has made a significant effort to create enhance groundwater privatization, although many of its projects have ultimately failed. One example of these failed privatization projects is

the one at Shivrath River, which was managed and distributed by Chhattisgarh.³¹ It was expected to provide up to 4 million liters of water daily. However, the company was unable to collect enough in fees to offset its management and distribution costs. Chhattisgarh incurred major losses even after trying to limit water supplies, and the company was forced to withdraw from the project.³⁵

In India, the management of water resources has both traditional and climatic and geographical aspects. Water, as well as air, space, and energy, have been traditionally considered to be

³⁴ International Journal of Water Resources Development 30, no. 2 (2014): 335-344. Salman, M. A. Groundwater: Legal and Policy Perspectives: Proceedings of a World Bank

³⁵ Shiva, Vandana. "Water Privatization in India." Public Citizen, 2000. Accessed October 01, 2017. <https://www.citizen.org/water-privatization-india>.

sacred and not subject to property laws, meant instead to be used in a sustainable manner and shared equitably. Therefore, Indian law grants humans and animals the ultimate right of access to water.³⁶

Both traditional beliefs and India's legal establishment have promoted the collective ownership, sustainability, and equitable distribution of water, especially for the poor, since before Independence.³⁷

Because of this, water management in India is viewed mainly as a community responsibility. In Karnataka, for instance, the tank systems were under community management, including decisions about water usage and supply patterns. The community would appoint a leader to ensure that everyone in the community received enough water. After Independence, the Indian government developed a parallel effort to control, manage and supply water and sewer services. Consequently, the government played a dominant role in the allocation of water resources, which never ensured adequate and equitable supplies. Distribution and access to water became a state affair.³⁸ With differing water needs based on both economic and topological aspects of the Indian subcontinent, the government found controlling water resources to be unwieldy, so it turned to privatization.

Because of this, water management in India is viewed mainly as a community responsibility. In Karnataka, for instance, the tank systems were under community management, including decisions about water usage and supply patterns. The community would appoint a leader to ensure that everyone in the community

³⁶ I'd

³⁷ I'd

³⁸ Ouda, Omar KM. "Towards an Assessment of Saudi Arabia Public Awareness of Water Shortage Problem." *Journal of Resources & Environment* 2, no. 1 (2013): 10-13.

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received enough water. After Independence, the Indian government developed a parallel effort to control, manage and supply water and sewer services. Consequently, the government played a dominant role in the allocation of water resources, which never ensured adequate and equitable supplies. Distribution and access to water became a state affair. With differing water needs based on both economic and topological aspects of the Indian subcontinent, the government found controlling water resources to be unwieldy, so it turned to privatization.³⁹

In 2002, the Indian government announced new water policy framework based on privatization, triggered by the World Bank's involvement in water development and conservation in India. A private 635-million-liter water treatment plant was installed at Sonia Vihar near Delhi City, operated by Degremont, a partner of Suez. Suez is an international private water company with activities in more than 130 countries across the world.³⁴ The idea of privatization picked in various parts of India and the move has been justified because the full cost of availing water must be paid by the beneficiaries. The private-public partnership has been enhanced in India because it has allowed for the increased and efficient water supply and sewer services.⁴⁰

Conclusion

Lack of access to water and sewage services has had severe adverse effects on middle- and low-income economies like India,

³⁹ Id

⁴⁰ Shiva, Vandana. "Water Privatization in India." Public Citizen, 2000. Accessed October 01, 2017. <https://www.citizen.org/water-privatization-india>.

Peru, and Chile. None of the proposed solutions—desalination, water reselling, and privatization—wholly solves the problem. The energy demand of desalination may worsen climate change if fossil fuels are exploited, but renewable desalination may help to mitigate this. However, desalination of any sort does not address problems with inefficient water distribution networks. Water recycling has a similar problem with an inefficient and poorly managed government system. Recycling programs also burdens taxpayers since they must be sustained by the exchequer.⁴¹ Privatization comes with its own challenges, but it would avoid the the public sector’s inefficiencies. Privatization schemes must be coupled with strong political support to the kind of collapse seen in Peru, and they should be carried out by competitive firms with firm agreements on the amount of water to

supplied within a give time period.³⁵

Government involvement is also required to also ensure that prices and water quality are controlled so that the public is not exploited.

Recommendations

These recommendations do not mean that there is an imbalance in the groundwater supply in the Kingdom of Saudi Arabia ,because the Saudi government is making strong efforts to maintain the groundwater level, but they are future recommendations in the event of implementing the privatization of the groundwater sector.

The concerns and associated recommendations lied out here are meant to direct trying to develop the quality and quantity

⁴¹ Id

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of water assets in Saud Arabian. The recommendations assume no priority or order but are equally important and must be pursued equally with enthusiasm. Successful execution of these recommendations concerning Groundwater Privatization have a potential of enhancing the sustainability of Saudi's water supply for many years to come, and that is where urgencies should be positioned.

a) Long-term research programs for establishing the status quo of the existing Saudi's water basin should be put underway:

A synchronized, long-term research programs should be initiated to back sustainable management within Groundwater Privatization system. The programs should accentuate continuity with continuous research and must be headed by an advisory panel comprising of technical reps from all parties of interest including potential private contractors and public representatives. This initiative must consider all the bodies that regulate water in Saudi.

Arabia. This will bring different viewpoints including ecological, cultural, health, developmental, and scientific interests to the table.

The research must examine the depth and width of water resources in the region. It should also establish more reliable estimates of permeability, porosity, hydraulic conductivity, and transferability of the existing infrastructures. Other significant modules of consideration take account of firstly, water quantity, quality of wells and their geographic site. Secondly, the level of connection of different zones within the water table and replenishment regions. Thirdly, the location and extent of

classifying factors within the water table critical to the optimization of well location. Lastly, chemical, physical, and biotic categorization of water resources within the region.³⁶

Moreover, such a research program should be conducted with the finest accessible scientific methodologies and must incorporate a system of monitoring water systems and sources. It should also use aerial photography, remote sensing drawing and to completely comprehend regions of revitalization and the significances of subsidence, and augmentation of a topographical system of information before executing the recommended Groundwater Privatization system.⁴²

b) The formation of an interdisciplinary panel to determine the optimal yield of the available water resources.

After the characteristics of the Saudi Arabia's water resources are comprehended with some degree of sureness, an interdisciplinary and interagency board ought to be formed to establish an optimal yield for the available water resources. What is optimal for the Saudi Arabia's water resources will be determined by, at the slightest, by several of interconnected dynamics as listed below:

- A contemplation of the region's economic dependence on the groundwater resources.
- A reflection on the deteriorating water quantity and quality with growing well depths.
- The present bearings of nonpoint and point source sources of pollution,

⁴² <https://www.telesurtv.net/english/news/Peruvians-Take-to-the-Streets-Against-Water-Privatization-20160218-0015.html>.

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ARABIA AND A COMPARATIVE ANALYSIS FOR IMPLEMENTING WATER
PRIVATIZATION IN OTHER COUNTRIES**

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- The obtainability and real marginal cost of procuring and dispensing water through a privatized system.
- The effect and the capacity for water metering and pricing, water reuse and conservation, and groundwater replenishment in a privatized system.
- The effect of Groundwater Privatization on other conservational and public interests.

After the above are established, a methodical, all-inclusive groundwater protection and monitoring system must be formulated and rolled out.

c) A systematic rollout process of the Groundwater Privatization system.

The quest for proper groundwater management is the main reason behind the recommendation of Groundwater Privatization. This is tied to the general inclination that privatized institutions are better managed, more accountable and deliver high-quality services than their public counterparts.

Of course, to uphold public interests, it is advised that all water systems to be premised on the concept that the public is the ultimate “owner” of water resources which means that Groundwater Privatization rights will only entail the supply rights and not the possession of water. When it comes to rewarding Groundwater Privatization rights/contracts to available candidates a transparent and orderly system of vetting candidate ought to be followed. Poetical candidates should meet the set minimum

requirements which pertain finances and ability and should project that they have what it entirely takes to handle a critical asset of public need. As well, throughout the rollout process, all the records pertinent to the process should be kept.⁴³

Part of the records relevant to the process includes the records of the minutes of the meetings of all the critical phases of the Groundwater Privatization rights/contracts awarding process. This will increase transparency and accountability and will allow for the identification of possible weakness and pinpoint potential activities that might have generated irregularities in the process. Contrarily, the documentation based on identifying the contract clause, approval of the tender contract, the process of selecting or awarding and ways of evaluating technical specification can be audited to see if they project any error. Additionally, the utilization of procurement charts that projects the structure of opening bids, the procedure incorporated in the selection of the committee team, offer evaluation, the credentials or names of the board members, models and forms so as to establish any recurring conflict of interest.

Lastly, companies that will qualify for Groundwater Privatization rights must publish their annual financial reports on a public domain for transparency and accountability purposes. To keep threats of possible skyrocketing of prices of water.⁴⁴

⁴³ <https://www.telesurtv.net/english/news/Peruvians-Take-to-the-Streets-Against-Water-Privatization-20160218-0015.html>.

⁴⁴ Seminar. World Bank Technical Paper No. 456, November 1999.

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