



REVISITING ISSUES IN WATER MANAGEMENT:  
COMPARISON BETWEEN ISLAMIC WATER  
MANAGEMENT AND WATER PRIVATISATION

BY

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A dissertation submitted in partial fulfilment of the  
requirements for the degree of Master of Economics

Kulliyyah of Economics and Management Sciences  
International Islamic University  
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## ABSTRACT

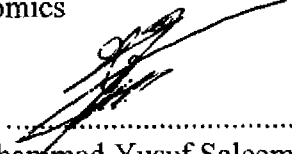
Water is a public good and Islam perceives it as such. However, after the emergence of the Dublin Principle in 1992, water is viewed as an economic good, thus it could be owned privately. This principle led private sectors to enter into the water management field and commercialise water resources. The main research question investigated is to find out whether there is any difference between the Islamic water management and current water privatization system. The objective of this paper is to find out and analyze if there is any difference between Islamic water management as it was implemented in the Prophet's era and the current water privatization system. The paper concludes that there are some differences between water management in Prophet's era and the current water privatization system. Unlike the Prophet's era, today water is perceived as economic good. Under water privatization system, water resource could be owned and treated privately and exclusively for profiteering purposes. The access of the poor to the water is restricted by their inability to pay. In pursuit of continuous and increasing profit, over extracting of water has endangered water sustainability. While the use of water in the Prophet's era was based on priority with domestic need fulfillment at the top level, under water privatisation the priority of water use is biased towards the sectors that are able to pay for it.

## ملخص البحث

الماء هو الصالح العام والإسلام يرى هذا الأمر على هذا النحو. ومع ذلك ، بعد ظهور مبدأ دبلن في عام ١٩٩٢ ، ينظر موارد المياه كسلعة اقتصادية ، وبالتالي تعود ملكيتها يمكن أن يكون خصوصيا. أدى هذا المبدأ إلى القطاع الخاص لدخول مجال إدارة المياه وتسويق موارد المياه. السؤال البحثي الرئيسي هو تحقيق معرفة الفرق بين إدارة المياه الإسلامي والنظام الحالي لخصخصة المياه. والهدف من هذا البحث هو معرفة وتحليل الفرق بين إدارة المياه الإسلامي كما كان تنفيذه في عهد النبي و النظام المياه الحالي. وتخلص الورقة إلى أن هناك بعض الخلافات بين إدارة المياه في عهد النبي و النظام الحالي لخصخصة المياه. وخلافا لعهد النبي ، يعتبر الماء سلعة اقتصادية هذا اليوم. وفقا لنظام خصخصة المياه ، يمكن أن تكون مملوكة لموارد المياه ومعالجتها خصوصيا. ويقتصر وصول الفقراء إلى الماء لعدم قدرتها على الدفع. من أجل الربح المستمر والمتزايد، استخراج المياه مفرطاً يضرر استدامة المياه. بينما استخدام المياه في عهد النبي يستند على أولوية الحاجة المحلية في المستوى الأعلى ، في إطار خصخصة المياه أولوية استخدام المياه منحازة الى القطاعات التي تقدرعلى دفع ثمنها.

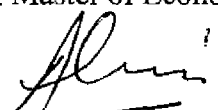
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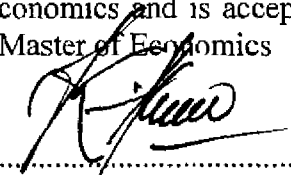
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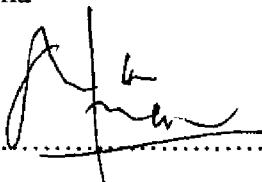


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## DECLARATION

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**REVISITING ISSUES IN WATER MANAGEMENT: COMPARISON  
BETWEEN ISLAMIC WATER MANAGEMENT AND WATER  
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*Dedicated to*

*My beloved parents,*

*Euis Supriatin & Koko Kartika*

*I never have enough to thank for your love and continuous du'a.*

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## TABLE OF CONTENTS

Abstract .....	ii
Abstract in Arabic .....	iii
Approval Page .....	iv
Declaration Page .....	v
Copyright Page .....	vi
Dedication .....	vii
Acknowledgements .....	viii
List of Tables .....	xi
List of Abbreviations .....	xii
Transliteration .....	xvi
<b>CHAPTER 1: INTRODUCTION.....</b>	<b>1</b>
1.1. Background.....	1
1.2. Objective of the Research.....	10
1.3. Contribution of the Study.....	11
1.4. Methodology .....	11
1.5. Limitation of the Study .....	12
1.6. Organization of the Study .....	13
<b>CHAPTER 2: WATER MANAGEMENT IN THE ERA OF PROPHET           MUHAMMAD (PBABUH) .....</b>	<b>14</b>
2.1. Importance of Water.....	14
A.The Beginning the Creation; Means to Sustain Life .....	14
B.Means to Purification.....	17
C.Medication .....	18
D.Reward and Punishment .....	19
2.2. Principles of Water Management in Islam .....	20
A.Water as Social Good .....	20
B.Animal and Grass also Has Right to Water .....	24
C.Water Conservation .....	26
D.Ownership of Water Resources .....	28
E.Water Irrigation.....	35
<b>CHAPTER 3: CURRENT PRACTICE IN WATER MANAGEMENT-           WATER PRIVATISATION WORLDWIDE .....</b>	<b>42</b>
3.1. Definition of Water Privatisation.....	42
3.2. Transnational Corporations and International Donor Institutions in Water Privatisation .....	46
A. French Water Companies .....	47
B. English Water Companies .....	49
C. Spanish Water Companies .....	50
D. Italian Companies .....	50
E. US Water Companies .....	51
3.3. Water Privatisation Worldwide.....	51
A. Water Privatisation in Asia Pacific .....	51

B. Water Privatisation in Africa .....	55
C. Water Privatisation in Latin America .....	57
D. Water Privatisation in Central and Eastern Europe .....	58
E. Water Privatisation in Middle East and North Africa (MENA) .....	60
3.4. Issues in Private Sector Participation in Water Management .....	63
A. Price and Access .....	64
B. Public Finance in Water Privatisation .....	65
C. Efficiency .....	67
D. Environmental Sustainability .....	69
3.5. Public Response to Water Privatisation .....	70
<b>CHAPTER 4: DISCUSSION .....</b>	<b>76</b>
4.1. Discussion .....	76
4.2. Conclusion .....	82
<b>BIBLIOGRAPHY .....</b>	<b>85</b>

## LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
1.1	Global Water Distribution	4
3.1	Types and Criteria of Private Sector Involvement	43
3.2	<i>Suez</i> Contracts in Asia-Pacific in 2005	52
3.3	<i>Veolia (Vivendi)</i> 's Contracts in Asia-Pacific in 2005	53
3.4	<i>Thames</i> ' Contracts in Asia-Pacific in 2005	54
3.5	Major Water Privatization in Africa	56
3.6	Multinationals Remaining in Water Sector in Latin America in 2007	57
3.7	Privatised Water and Sewerage Concessions in Central and Eastern Europe	59
3.8	MNC's Operation in MENA Region	60
3.9	Opposition to and Rejection of Water Privatization Worldwide, 1994–2004	70
3.10	Failures in Water Privatization in Asia	73
3.11	Water Multinationals No Longer Present in Latin America	74

## LIST OF ABBREVIATION

ACS	Actividades De Construcción Y Servicios S.A., (Spain Construction Activities And Services Sa)
ADB	Asian Development Bank
AES	American Electricity Services
AgBar	Aguas de Barcleona
AMGA	Azienda Mediterranea Gas e Acqua
B	(local) Business
BOT	Build-Operate-Transfer
C	Consumers or Citizen Group
CC	Concession Contract
CKI	Cheung Kong Infrastructure
E	Environmentalists
EAB	Electricidade e Águas de Guinea-Bissau
EBRD	European Bank for Reconstruction and Development
EDF	Electricité de France
EDM	Energie du Mali
EIB	European Investment Bank
ENEL	Ente Nazionale per l'Energia eLettrica (National Agency for Electricity)
ENI	Ente Nazionale Idrocarburi
ESB	Electricity Supply Board
ESBI	Electricity Supply Board International
EU	European Union

FCC	Fomento de Contratas y Construcciones (Building and Construction Contracts)
FDI	Foreign Direct Investment
HQI	Hydro-Québec International
Ibid	(Ibidem): in the same place
IADB	Inter-American Development Bank
IASA	Industrias del Agua
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IMF	International Monetary Fund
IASA	Industrias Auxiliares de Abastecimientos (Auxiliary Supply Industries)
IWL	International Water Limited
IWPP	Independent Water and Power Plant
MENA	Middle East and North Africa
MNC	Multi National Corporation
NGOs	Non Governmental Organizations
No.	Number
NW	North West
OECD	Organisation for Economic Co-operation and Development
ONA	Omnium Nord Africain
OTPP	Ontario Teachers Pension Plan
P	Political Parties
P.	Page
PBA	Perbadanan Bekalan Air
PbAbuh	Praise and Blessing of Allah Be Upon Him

PPB	Perlis Plantations Berhad
PPP	Public Private Partnership
PSIRU	Public Services International Research Unit
RWE	Rheinisch-Westfälisches Elektrizitätswerk Rheinisch Westfälisches power plant
SAUR	Société d'Aménagement Urbain et Rural
SCVK	Severoceske Vodovody a Kanalizace North Water and Sewage
SD	Seawater Desalination
SDE	Senegalaise des Eaux (Senegalese Waters)
SEEG	Société d'Énergie et d'Eau du Gabon (Society of Energy and Water of Gabon)
SLE	Suez- Lyonnaise des Eaux
SNEC	Société Nationale des Eaux du Cameroun
SODECA	Société de Découpage du Caoutchouc (Society of Rubber Stamping)
SODECI	Société de Distribution d'Eau de la Côte d'Ivoire (Water Distribution Company of Côte d'Ivoire)
STEE	Société Tchadienne D'eau et D'électricité (Chadian Water and electricity Company)
SWT	Subhānahu Wa Ta'ālā (Praise be to Allah the Most High)
TFP	Total Factor Productivity
TNC	Trans-National Corporation
TPJ	Thames PAM Jaya
TWCK	Thames Water International (Thailand) Ltd. and CH. Karnchang Public Co., Ltd.
UAE	United Arab Emirates
UNECE	United Nations Economic Commission for Europe
UK	United Kingdom

USA	United States of America
UWR	United Water Resources
Vol.	Volume
VOSS	Vodohospodářská společnost Sokolov
WATSAL	Water Resources Sector Adjustment Loan
WD	Water Distribution
WS	(bulk) Water Supply
WSSA	Water and Sanitation South Africa
WWT	Wastewater Treatment

## TRANSLITERATION TABLE

ء	'	خ	kh	ش	Sh	غ	gh	ن	n
ب	B	د	d	ص	Ṣ	ف	f	ه	h
ت	T	ذ	dh	ض	ḍ	ق	q	و	w
ث	Th	ر	r	ط	t	ك	k	ي	y
ج	J	ز	z	ظ	ẓ	ل	l		
ح	ḥ	س	s	ع	'	م	m		

Short Vowels		Long Vowels	
ـَ	A	ا+ـَ	ā
ـِ	I	ي+ـِ	ī
ـُ	u	و+ـُ	ū



# CHAPTER ONE

## INTRODUCTION

### 1.1. BACKGROUND

#### The Importance of Water

Water's position is very significant. With it, the creation of every living thing was begun. In *Sūrah al-Anbiyā'* verse 30 Allah (swt) says:

Do not the unbelievers see that the heavens and the earth were joined together (as one unit of creation), before we clove them asunder? We made from water every living thing. Will they not then believe?<sup>1</sup>

The major element forming the human body is water. This vital resource makes up 60 percent of the human body.<sup>2</sup> The proportion of water to vital organs is very significant. In adult body, water constitutes 71% of the liver, 62% of the heart, 77% of the lungs, 70% of the kidneys, 73% of the pancreas, and 75% of the brain consists of water.<sup>3</sup> If the amount is reduced, people will suffer from dehydration which can result in death. A person can live no more than four to five days without water.<sup>4</sup> As the need for water is fundamental, the right to access water is part of the universal human rights.

Water is a natural resource like coal, oil, and soil. However, water is different from other natural resources. There are three major differences between water and other natural resources. First, water moves from place to place. Second, the total

<sup>1</sup> The Qur'ān, *al-Anbiyā'*: 30. All translations of the Qur'ānic verses in this dissertation are quoted from Abdullah Yusuf Ali, *The Holy Quran: Text, Translation and Commentary*, (Maryland: Amana Corp, 1989).

<sup>2</sup> Stephen J Vandas, Thomas C Winter, & Wiliam A Battaglin, *Water and the Environment*. (Alexandria: American Geological Institute, 2002), 7.

<sup>3</sup> RM Forbes, AR Cooper, & HH Mitchell, "The Composition of the Adult Human Body as Determined by Chemical Analysis", *The Journal of Biological Chemistry*, vol. 203, (1953): 361.

<sup>4</sup> Ibid.

quantity of water on the earth is fixed; it can be neither decreased nor increased. Third, water is essential for the survival of living beings.<sup>5</sup>

In the *Sunan* Abū Dāwūd, one ḥadīth says: “Muslims have common share in three (things): grass, water and fire.” This ḥadīth explains that water is a public or social good. No one could limit any access to water. As water is very urgent for the sustenance of living being, therefore there should not be any obstruction to get access to use or consume it. In other ḥadīth, Prophet (pbAbuh) also mentioned that “a Muslim is a brother of a Muslim. Each one of them may benefit from water and trees.”<sup>6</sup>

Water, grass, fire, and salt are then interpreted by the scholars broadly as natural resources which are extremely important. The term "common" indicates that these resources are needed by all people. Therefore, every human being has equal rights to get them. In order to guarantee this, an authority that has the power to manage and regulate these resources is highly needed. In this case, it is the government who has to be in charge. If private sector takes control of the water management, it is likely to provide water on the basis of price since private sector by its very nature is profit oriented.

Water (*al mā'u*) is considered as public good in Islam, together with pasture (*al kalā'*), fire (*al nār*, or what can also be interpreted as energy), and salt (*al milḥ*). Water is a resource needed by all living beings without exception. There is no substitute for water. Water should be recognized as the common good. According to Barlow & Clarke, the notion of the commons is “the idea that through our public institutions we recognize shared humanity and natural resources to be preserved for future

<sup>5</sup> Robin Clarke, *Water: The International Crisis*, (Cambridge: The MIT Press, 1993), 19.

<sup>6</sup> Abū Dāwūd, *Sunan*, book 013, ḥadīth number 3064. All translations of the ḥadīth narrations in this dissertation are quoted from The Ḥadīth Software, Islamasoft Solution UK.

generations.” And according to Vandana Shiva, water is a common because “It is the ecological basis of all life and because its sustainability and equitable allocation depend on cooperation among community members.”<sup>7</sup>

### **Water as Natural Monopoly**

A natural monopoly exists when the costs of production are such that it is less expensive for market demand to be met with one firm than with more than one.<sup>8</sup> The most commonly mentioned examples of natural monopolies are utilities such as water supply systems, railroads, natural gas supply, and electric power transmission systems. Such industries are usually being characterized by incurring very large costs and often being inefficient. In water example, it would be very costly to build a second set of water and sewerage pipes in a city. Water, gas delivery service, and other public utilities have a high fixed cost and a low variable cost.

Water as natural monopoly means that water services follow the pattern of the economies of scale: more than one provider could mean a higher price. Thus, in the presence of a ‘natural monopoly’, the imposition of direct competition is not desirable. It could even be detrimental. The shortage of natural monopoly is that it fails to capture ‘consumer surplus’, it is then believed to lead to allocation inefficiency. Another negative aspect would be that the company will not be motivated to cut costs as there is no competitor to worry about. The company can sell at any price. These deficiencies will then provide justification for a regulation.<sup>9</sup>

<sup>7</sup> Vandana Shiva, *Water Wars: Privatization, Pollution and Profit*, (Cambridge: South End Press, 2002), 24.

<sup>8</sup> Kenneth E Train, *Optimal Regulation: The Economic Theory of Natural Monopoly*, (London: The MIT Press Cambridge, 1994), 1.

<sup>9</sup> Mohammad Mova Al Afgani, “Safeguarding Water Contract in Indonesia”, *Law, Environment and Development Journal*, vol. 3, no.2, (2007): 151.

Due to its unique nature, water appears to be a public good with private features in its distribution. These are the characteristics of a natural monopoly. Water utilities are monopolies not only because of the economic advantages related to the economies of scale but also because of the economic advantages related to technical considerations that prevent competition between several providers in a given area. The management of a pipe network, the related heavy investments, the supply and the treatment of water, and sometimes the sewage plants necessitate a monopoly.<sup>10</sup>

According to Masudul Alam Choudry, natural monopolies are allowed in Islamic political economy only to the extent that special kind of resources must be state controlled. By its nature as a public good which is needed by every living creatures, and concern that to make it private will restrict right to access it, water supply must be controlled by the government.<sup>11</sup>

**Earth Water Distribution**

There are about 1390 million cubic kilometres of water on the earth. Table 1.1 below summarizes the estimation of the water balance of earth:

Table 1.1  
Earth Water Distribution

Form of water	Area (km <sup>2</sup> )	Volume (km <sup>3</sup> )	% of total water	% of freshwater
<b>Salt water</b>	<b>510,065,600</b>	<b>1,350,000,000</b>	<b>97.1</b>	
World Ocean	361,126,400	1,338,000,000	96.3	
Saline groundwater	148,939,100	14,000,000	1	
Salt lakes	820,000	85,000	0.006	

<sup>10</sup> Ephraim Clarke, & Gérard Mondello, 'Regulating Natural Monopolies: The Case of Drinking Water in France', *Journal of Contemporary Water Research and Education*, 72 (2002): 78.

<sup>11</sup> Masudul Alam Choudry, *Comparative Economic Theory: Occidental and Islamic Perspective*, New York: Kluwer Academic Publishers, 1999), 157.

Table 1.1 – *Continued.*

Form of water	Area (km <sup>2</sup> )	Volume (km <sup>3</sup> )	% of total water	% of freshwater
<b>Ice</b>	<b>36,821,000</b>	<b>33,400,000</b>	<b>2.4</b>	<b>75</b>
Glaciers	15,821,000	33,100,000	2.38	74.4
Antarctica	13,586,000	30,100,000	2.17	67.6
Greenland	1,785,000	2,620,000	0.19	5.9
Arctic islands	230,000	83,000	0.006	0.2
Mountains	220,000	34,000	0.002	0.1
Permafrost	21,000,000	300,000	0.022	0.7
<b>Freshwater</b>	<b>510,065,600</b>	<b>11,100,000</b>	<b>0.8</b>	<b>24.9</b>
Fresh groundwater	148,939,100	11,000,000	0.79	24.7
Lakes	4,200,000	91,000	0.007	0.2
Soil moisture	148,939,100	16,000	0.001	0.04
Wetlands	5,300,000	12,000	0.001	0.03
Rivers	1,000,000	2,100	0.0002	0.005
Biological water	510,065,600	2,400	0.0002	0.005
Reservoirs	400,000	7,000	0.0005	0.016
Farm ponds	1,377,000	600	0.00004	0.0013
<b>Atmospheric water</b>	<b>510,065,600</b>	<b>13,000</b>	<b>0.00094</b>	<b>0.029</b>
<b>Hydrosphere total</b>	<b>510,065,600</b>	<b>1,390,000,000</b>	<b>100</b>	<b>100</b>

Source: Kotwicki, 2010.<sup>12</sup>

Based on the table, more than 97 per cent of water is in the form of salt water, the majority of which are world oceans, and others are saline groundwater, and salt lakes. The other 33 million cubic kilometres is in the form of ice, which includes glaciers and permafrost. The rest 11 million cubic kilometres is in the form of freshwater, which includes fresh groundwater, lakes, soil moisture, wetlands, rivers, biological water, reservoirs, and farm ponds, and another 13 thousand cubic kilometres is in the form of atmospheric water. Ice constitutes 2.4 per cent of the total amount; while freshwater constitute less than one percent of total balance of water on earth, and atmospheric water constitute less than 0.001 per cent.

<sup>12</sup> Vincent Kotwicki, "Water Balance on Earth", *Hydrological Science Journal*, vol. 54, no.5 (2010): 834.

## Water Crisis

Available fresh water is less than one percent of the world's total water stock. The rest is sea water, or inaccessible in ice caps, ground water and soil. It is mistaken if people assume that world's water supply is infinite. Kravčík<sup>13</sup> describes the hydrologic cycle of water. First it evaporates from a plant, earth surface, swamp, river, lake or the sea, and then falls back down to earth as rainfall. If the drop of water falls to a forest, lake, or field, the hydrologic cycle is maintained. However, if the earth's surface is paved over, forests and pasture are denuded and drained; the drop will not form part of river basins and continental watersheds, but will directly head out to sea, where it will be stored. The consequent reduction in continental water basins results in reduced water evaporation from the earth's surface, while the seas level is rising.

Stikker<sup>14</sup> explains that “while the only renewable source of fresh water is continental rainfall, the world population keeps increasing by roughly 85 million per year. By the increase in population, the consumption of water is doubling every 20 years worldwide. The aquatic ecosystems are threatened. The condition is worsened by the pollution and the abusive way in using water. The availability of fresh water per head is decreasing rapidly.

According to the United Nations, 31 countries are facing water stress and scarcity and more than one billion people on earth already are short of access to potable drinking water. If current trends persist, the demand for fresh water is expected to rise to 56 percent by 2025. People will be living in conditions of absolute

<sup>13</sup> As cited in Maude Barlow, *Blue Gold: The Global Water Crisis and the Commodification of the World's Water Supply*, IFG Committee on the Globalization of Water, Canada, (2001): 9.

<sup>14</sup> *Ibid.*, 6.

water scarcity. Commenting on this condition, Ismail Serageldin, Vice-President of the World Bank said, "The wars of the next century will be about water."<sup>15</sup>

### **The History of the Growing International Concern about Water Resources**

In 1977, the United Nations Water Resource Conference at Mar del Plata which focused entirely on freshwater resources, constituted the first real attempt by international organizations to alert the international community to the dangerous overuse of water resources and the increased water scarcity observed in many regions of the world. The main concern expressed during the conference was that all people, whatever their stage of development and their social and economic condition, have the right to have access to drinking water in quantities and of a quality equal to their basic needs. As a result from the conference, the International Drinking Water Supply and Sanitation Decade was launched in 1981, aiming at providing safe drinking water and sanitation to underserved urban and rural areas by the year 1990.<sup>16</sup>

In 1992, International Conference on Water and Environment was held in Dublin. The conference resulted in four principles<sup>17</sup> as follow:

**Principle No. 1:** "Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment"

Since water sustains life, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or ground water aquifer.

<sup>15</sup> Ibid., 1, 6.

<sup>16</sup> Matthias Finger, & Jeremy Allouche, *Trans-national Corporations and The Re-regulation of The Water Industry*. (London: Spon Press. 2001), 22.

<sup>17</sup> United Nations, "UN Documents: Gathering a Body of Global Agreements", <http://www.un-documents.net/h2o-dub.htm>. This site provides document consists of the four principles of the Dublin Conference, and the explanation for each principle.

**Principle No. 2:** “Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels.”

The participatory approach involves raising awareness of the importance of water among policy-makers and the general public. It means that decisions are taken at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.

**Principle No. 3:** “Women play a central part in the provision, management and safeguarding of water.”

This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision-making and implementation, in ways defined by them.

**Principle No. 4:** “Water has an economic value in all its competing uses and should be recognized as an economic good.”

Within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.

Principle four is the first step towards economic approach to water resources.

It is also the most contested principle among the actors involved in water issues.

### **Water Privatisation**

After the Washington Consensus<sup>18</sup> in 1989, the privatisation policy has become very well known and is applied worldwide. State Owned Enterprises (SOEs) around the

<sup>18</sup> Initially coined in 1989 by John Williamson, it refers to a set of ten specific economic policy prescriptions to reform economic condition promoted by ministers of economics in Latin America.