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## Privatization and the Future of Water Services

Jeffrey S. Wade

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# PRIVATIZATION AND THE FUTURE OF WATER SERVICES

*Jeffry S. Wade\**

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During the past fifteen to twenty years, problems with the provision of drinking water and sanitation services around the world have been addressed by attempts to recast clean water as an essentially economic, rather than public, good. Within this conceptual framework, the private sector has been perceived as a provider of capital and efficient, affordable service. The effort to privatize water and sanitation services has had successes and failures, but as currently structured cannot be accepted as the most appropriate response in many cases, given its overriding emphasis on profit and its inability to account for water as anything other than a commodity. If these services are to incorporate the full range of social, economic and environmental values necessary to sustain water resources over time, public and governmental involvement in providing stakeholder input and setting management policy remain essential to the process.

## I. INTRODUCTION

Humankind has no more complicated relationship to any natural resource than it does to water. Water has interrelated values essential to human life. It provides domestic supply for drinking and cooking, hygiene, gardening and domestic animals; it is vital to agriculture and most types

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\* Director, Environmental Division, Center for Governmental Responsibility, University of Florida Levin College of Law, Gainesville, Florida.

of industry; it serves as a means of transportation and as a form of waste disposal; it supports essential ecosystem services and provides habitat for many wildlife species and commercial species; it offers recreational opportunities; and it carries deep spiritual, religious, and aesthetic significance. Water has been the source of disasters such as floods and droughts, and has nurtured and transported hundreds of debilitating and deadly diseases affecting millions of people. Over the centuries, our efforts to use and control it have required massive expenditures of time, money, and resources, and have resulted in untold loss of lives and property. However, there is no question that having reasonable access to sufficient quantities of clean water and adequate sanitation is necessary not only to human survival, but to our economies, cultures, and quality of life.

Current usage rates and population projections suggest that there is little margin for error in our management of the resource.<sup>1</sup> Accessible fresh water amounts to about one percent of all water on earth; the remainder is sea water, or is frozen in glaciers or polar ice.<sup>2</sup> Fresh water resources are also unevenly distributed in place and time.<sup>3</sup> Combined with increases in deforestation, urbanization, water diversion projects, manufacturing plants, and inefficient industrial farming, these conditions have contributed to a situation in which the long-term sustainability of water for human and environmental needs is becoming much less certain.<sup>4</sup> The uncertainty is magnified by the potential effects of global climate change and the needs of a projected world population of over nine billion people by 2050.<sup>5</sup>

Currently, more than one billion people lack access to adequate amounts of clean water, while almost two and a half billion lack basic sanitation services.<sup>6</sup> Worldwide, water is implicated in 80% of all sickness

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1. Alan Richards, *Coping with Water Scarcity: The Governance Challenge*, at 2, Institute on Global Conflict and Cooperation, University of California, Multi-Campus Research Unit, Policy Paper No. 54 (2002).

2. U.N. International Decade for Action: Factsheet on Water and Sanitation, available at <http://www.un.org/waterforlifedecade/factsheet.html> (last visited May 22, 2008).

3. STEPHEN MCCAFFREY & GREGORY WEBER, *GUIDEBOOK FOR POLICY AND LEGISLATIVE DEVELOPMENT ON CONSERVATION AND SUSTAINABLE USE OF FRESHWATER RESOURCES 2* (U.N. Environment Programme 2005).

4. Ger Bergkamp & Claudia W. Sadoff, *Water in a Sustainable Economy*, in *STATE OF THE WORLD 2008: INNOVATIONS FOR A SUSTAINABLE ECONOMY* 109-10 (Worldwatch Institute 2008).

5. See PETER H. GLEICK, *NATIONAL ASSESSMENT OF THE POTENTIAL CONSEQUENCES OF CLIMATE VARIABILITY AND CHANGE, WATER: THE POTENTIAL CONSEQUENCES OF CLIMATE VARIABILITY AND CHANGE FOR THE WATER RESOURCES OF THE UNITED STATES* (2000).

6. PETER H. GLEICK ET AL., *PACIFIC INST. FOR STUD. IN DEV., ENV'T & SEC., EMERGING THREATS TO THE WORLD'S FRESHWATER RESOURCES* 6 (2001).

and disease.<sup>7</sup> Global consumption of water is doubling every twenty years, more than twice the rate of human population growth.<sup>8</sup> Approximately 18% of the total arable land in the world is currently occupied by irrigated agriculture, producing more than 33% of total agricultural production;<sup>9</sup> the FAO recently projected a more than 20% expansion of irrigated areas by 2030.<sup>10</sup> Irrigation is currently responsible for 70% of global water withdrawals and 90% of withdrawals in low-income countries.<sup>11</sup> If current trends continue, by 2025, approximately two-thirds of the world's population will live in water stressed areas.<sup>12</sup> Most researchers and informed policymakers consider the need to supply adequate clean water and sanitation for human and environmental needs as one of the most important challenges of the twenty-first century.<sup>13</sup>

## II. RECOGNITION OF THE HUMAN RIGHT TO WATER

Despite the growing crisis, formal international recognition of water as a basic human need and a fundamental right was slow in developing.<sup>14</sup> The Mar del Plata Action Plan adopted by the U.N. Water Conference in 1977 did recognize that “all peoples, whatever their stage of development and their social and economic conditions, have the right to have access to drinking water in quantities and of a quality equal to their basic needs,” though the plan had no enforceable status as international law.<sup>15</sup> Under the International Covenant on Economic, Social, and Cultural Rights, the right to water was implied as a precondition for an “adequate standard of

7. WORLD HEALTH ORGANIZATION, WORLD HEALTH REPORT 2002: REDUCING RISKS, PROMOTING HEALTHY LIFE (2002), available at <http://www.who.int/whr/2002/en/> (last visited Feb. 7, 2008).

8. GLEICK ET AL., *supra* note 6.

9. UNITED NATIONS, FOOD AND AGRICULTURE ORGANIZATION, WORLD AGRICULTURE: TOWARDS 2015/2030, AN FAO PERSPECTIVE ¶ 4.2 (2003).

10. *Id.* ¶ 4.3.2.

11. U.N. International Year of Freshwater 2003: Factsheet, at 1, <http://www.un.org/events/water/factsheet.pdf> (last visited Mar. 30, 2008).

12. *Id.*

13. See generally U.N. Educ., Sci. & Cultural Org. [UNESCO], World Water Assessment Programme, *The 1st UN World Water Development Report: Water For People, Water For Life* (2003) [hereinafter World Water Assessment Programme], available at [http://www.unesco.org/water/wwap/wwdr/table\\_contents.shtml](http://www.unesco.org/water/wwap/wwdr/table_contents.shtml); GLEICK ET AL., *supra* note 6.

14. CÉLINE DUBREUIL, WORLDWATER COUNCIL, THE RIGHT TO WATER: FROM CONCEPT TO IMPLEMENTATION 11 (2006).

15. U.N. Water Conference, Mar del Plata, Arg., Mar. 14-25, 1977, *Mar del Plata Action Plan*.

living”<sup>16</sup> and the “enjoyment of the highest attainable standard of physical and mental health.”<sup>17</sup> But not until the Convention on the Rights of the Child was adopted in 1986 was the human right to adequate and safe water explicitly recognized by the international community.<sup>18</sup>

16. International Covenant on Economic, Social and Cultural Rights, adopted and opened for signature, ratification and accession by General Assembly on Dec. 16, 1966. Entry into force, Jan. 3, 1976. art. 11:

1. The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing, and housing, and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international co-operation based on free consent.

Covenant on Economic, Social and Cultural Rights, art. 11, ¶ 1, Dec. 16, 1966, 993 U.N.T.S. 3.  
17. *Id.* art. 12.

1. The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. 2. The steps to be taken by the States Parties to the present Covenant to achieve the full realization of this right shall include those necessary for: . . . (b) The improvement of all aspects of environmental and industrial hygiene; (c) The prevention, treatment and control of epidemic, endemic, occupational and other diseases.

*Id.*

18. Convention on the Rights of the Child, G.A. Res. 44/25, art. 24, U.N. Doc. A/RES/44/25 (Nov. 20, 1989).

1. States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services. 2. States Parties shall pursue full implementation of this right and in particular, shall take appropriate measures: a) To diminish infant and child mortality; b) . . . c) To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and clean drinking-water, taking into consideration the dangers and risks of environmental pollution.

*Id. See also* Convention on the Elimination of all Forms of Discrimination Against Women, G.A. Res. 34/180, art. 14, U.N. Doc. A/Res/34/180 (Dec. 18, 1979).

2. States Parties shall take all appropriate measures to eliminate discrimination against women in rural areas in order to ensure, on a basis of equality of men and women, that they participate in and benefit from rural development and, in particular, shall ensure to such women the right: . . . (h) To enjoy adequate living

In 1992, the U.N. General Assembly provided additional support by adopting Chapter 18 of Agenda 21, which included protection of water quality and aquatic ecosystems, and provision of adequate amounts and quality of water for human development.<sup>19</sup> In 2000, the United Nations adopted the Millennium Development Goals and formalized a commitment to stop the unsustainable exploitation of water resources by developing water management strategies which promote equitable access and adequate supplies, and to halve, by 2015, the proportion of people without sustainable access to safe drinking water.<sup>20</sup> In 2002, the World Summit on Sustainable Development added a commitment to halve, by the year 2015, the proportion of people who do not have access to basic sanitation.<sup>21</sup>

### III. THE “COMMODIFICATION” OF WATER

Though international recognition of the importance of safe water resources and sanitation has been established, effective management remains elusive, and competition among different users of water continues to rise. In the developing world, particularly, the result has been an increase in the numbers of people without sufficient access to water and sanitation, an increase in costs for providing these basic necessities, and greatly intensified stress on water-related resources. The management problems are complex and, in no small measure, related to the many values and functions that water has within human societies.

Though most water managers recognize the importance of a multi-dimensional strategy in achieving water resource sustainability,<sup>22</sup> in the late 1980s, in part as a response to dissatisfaction with public management schemes, much of the policy debate became more single-mindedly focused

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conditions, particularly in relation to housing, sanitation, electricity and water supply, transport and communications.

*Id.*

19. U.N. Conference on Environment and Development, Rio de Janeiro, Braz., June 3-14, 1992, *Agenda 21*, ch. 18, U.N. Doc. A/CONF.151/26.

20. JOHN SCANLON ET AL., *WATER AS A HUMAN RIGHT?*, IUCN ENVIRONMENTAL POLICY AND LAW PAPER NO. 51, 28-29 (2004); U.N. Millennium Declaration, G.A. Res. 55/2, U.N. Doc. A/Res/55/2 (Sept. 8, 2000).

21. World Summit on Sustainable Development, Aug. 26-Sept. 4, 2002, *Johannesburg Declaration on Sustainable Development*, U.N. Doc. A/CONF.199/L.6/Rev.2 (Sept. 2, 2002) [hereinafter *Johannesburg Declaration*]; World Summit on Sustainable Development, Aug. 26-Sept. 4, 2002, *Plan of Implementation of the World Summit on Sustainable Development*, U.N. Doc. A/CONF.199/L.6/Rev.2 (Sept. 2, 2002) [hereinafter *Johannesburg Plan*].

22. See *Johannesburg Plan*, *supra* note 21, ¶ 2.

on achieving economic efficiencies in water use by way of privatization of services. In 1992, the International Conference on Water and the Environment held in Dublin established general principles for action to reverse the trends toward excessive consumption, pollution and rising threats from drought and floods.<sup>23</sup> The conference reports set out recommendations for action at the local, national, and international levels, based on the following, known as the Dublin Principles:<sup>24</sup>

- Principle No. 1: Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.
- Principle No. 2: Water development and management should be based on a participatory approach, involving users, planners, and policymakers, at all levels.
- Principle No. 3: Women play a central part in the provision, management, and safeguarding of water.
- Principle No. 4: Water has an economic value in all its competing uses, and should be recognized as an economic good.

These statements expressed important considerations in the establishment of water management regimes, including Principle 4, which essentially acknowledged the need to include some consideration of the economic role of water and the potential for applying appropriate pricing schemes.<sup>25</sup> However, in the growing debate over how to overcome perceived governmental failures, Principle 4 came to be interpreted as emphasizing a demand responsive approach to water supply and sanitation projects, with demand measured in communities' willingness and ability to pay for capital, operating and maintenance costs.<sup>26</sup> Particularly for urban

23. International Conference on Water and Environment, *The Dublin Statement on Water and Sustainable Development*, Dublin, Ir. 1992.

24. *Id.*

25.

Water has an economic value in all its competing uses and should be seen as an economic good. [However, it is recognized that] 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.

*Id.*

26. BELINDA CALAGUAS, WATERAID, THE RIGHT TO WATER, SANITATION AND HYGIENE AND THE HUMAN RIGHTS-BASED APPROACH TO DEVELOPMENT 12 (1999).

supply, the argument made was that pricing policies needed revision in order to reflect and recover the true costs of extracting and providing water.<sup>27</sup> The fourth Dublin Principle became highly controversial and was opposed by water professionals from the developing world, who argued that no water development initiatives could be sustainable if water was considered a purely economic good without addressing the issues of equity and poverty.<sup>28</sup>

The “commodification” theme was echoed and expanded in Chapter 18 of Agenda 21,<sup>29</sup> which recommended the following economically focused measures for water management:

- Promoting schemes for rational water use through levying of water tariffs and other economic instruments, including the need for evaluation/testing of charging options that reflect true costs and ability to pay and for undertaking studies on willingness to pay.
  - Charging mechanisms should reflect true cost and ability to pay.
  - Developing transparent and participative planning efforts reflecting benefits, investment, protection, operation and maintenance (O & M) costs, and opportunity costs of the most valuable alternative use.
  - Managing demand based on conservation/reuse measures, resource assessment and financial instruments; changing perceptions so that “some for all rather than more for some” be fully reflected in valuing water.
  - Developing sound financial practices, achieved through better management of existing assets, and widespread use of appropriate technologies are necessary to improve access to safe water and sanitation for all.
  - In urban areas, for efficient and equitable allocation of water resources, introducing water tariffs, taking into account different circumstances and, where affordable, reflecting the marginal and opportunity cost of water, especially for productive activities.
  - In rural areas, providing access to water supply and sanitation for the unserved rural poor will require suitable cost

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27. *Id.*

28. Muhammad Rahaman & Olli Varis, *Integrated Water Resources Management: Evolution, Prospects and Future Challenges*, 1 SUSTAINABILITY: SCI., PRAC. & POL’Y 15, 16 (2005).

29. U.N. Conference on Environment and Development, *supra* note 19.



recovery mechanisms, taking into account efficiency and equity through demand management.<sup>30</sup>

The issue of water valuation was also widely discussed during the Expert Group Meeting on Strategic Approaches to Freshwater Management held in Harare, Zimbabwe in 1998.<sup>31</sup> The meeting considered valuing water within the broader context of integrated water resources management and developed specific recommendations for discussion by the sixth session of the U.N. Commission on Sustainable Development, which dealt with water resources issues.<sup>32</sup> The meeting agreed on major guiding principles in valuing water:

- **Economics.** Water planning and management need to be integrated into the national economy, recognizing the vital role of water for the satisfaction of basic human needs, food security, poverty alleviation, ecosystem functioning and taking into account special conditions of non-monetary sectors of the economy.
- **Allocation.** Water needs to be considered as a finite and vulnerable resource, and a social and economic good, and the costs and benefits of different allocations—social, economic and environmental—needs to be assessed. The use of various economic instruments is important in guiding allocation decisions.
- **Accountability.** It is essential to ensure efficiency, transparency and accountability in water resources management as a precondition for sustainable financial management.
- **Covering Costs.** All costs must be covered if the provision of water is to be viable. Subsidies for specific groups, usually the poorest, may be judged desirable within some countries. Wherever possible, the level of such subsidies and who benefits from them should be transparent. Information on performance indicators, procurement procedures, pricing, cost estimates, revenues and subsidies needs to be provided in order to ensure transparency and accountability, to maintain confidence and improve investment capacities in the sector.
- **Financial Resources.** Increased financial resources will need to be mobilized for the sustainable development of freshwater

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30. World Water Assessment Programme, *supra* note 13, ch. 13, at 326.

31. Commission on Sustainable Development, 6th Session, Apr. 20-May 1, 1998, *Report of the Expert Group Meeting on Strategic Approaches to Freshwater Management*, Harare, Zimb. Jan. 27-30, 1998.

32. *Id.*

resources if the broader aims of sustainable economic and social development are to be realized, particularly in relation to poverty alleviation. Evidence that existing resources are used optimally will help mobilize additional finance from national and international sources, both public and private.<sup>33</sup>

Though they have different emphases, and include consideration of water as a social good, as well as subsidies for the poor, the need to recapture all costs for water services is a major theme in many of the international statements and agreements on the topic. As a result, most of these principles support an approach to water services in which privatization is encouraged and in which consumer behavior and market forces are expected to increase efficiencies and allocate water to its highest and best uses.

In support of assigning higher prices to water, some water professionals in the developed world point out that, traditionally, water has been regarded as an essentially unlimited free resource, with little if any consideration of negative externalities.<sup>34</sup> According to the argument, water users have been charged only a percentage of the costs of withdrawal, processing, transfer and disposal, and thus have little incentive to use water efficiently.<sup>35</sup> With the escalating costs of water delivery, it is the position of these professionals that economic measures such as full cost pricing and other tools for demand management must be used in order to allocate and use water more efficiently.<sup>36</sup>

In fact, water has a unique combination of characteristics that distinguish it from any other economic good and which imply a very different approach to management and pricing.<sup>37</sup> First, water is *essential*, since life, economy and environment depend on it; water is *scarce* and is limited by moisture levels and unequal distribution in time and place; it is *fugitive*, constantly changing form and moving from place to place; it exists within an *indivisible system*, the water cycle, subject to interconnected and interdependent processes, where upstream interference will have downstream effects; water is also *bulky* and *non-substitutable*;

33. *Id.* ¶¶ 24-28.

34. World Water Assessment Programme, *supra* note 13, ch. 13, at 326-28.

35. *Id.*

36. *Id.*

37. Hubert H.G. Savenije, *Why Water Is Not an Ordinary Economic Good, or Why the Girl is Special*, Value of Water Research Report Series No. 9 (Oct. 2001) (presented at the Second WaterNet/WARFSA Symposium on Integrated Water Resources Management: Theory, Practice, Cases, Cape Town, South Africa, Oct. 30-31, 2001).

and it is *complex*: it is essentially a public good, bound within a system that freely crosses human borders and political authorities, affecting essentially all economic activities, but with a high merit value, often not expressed in monetary terms, since it relates to our perception of beauty, well-being and health.<sup>38</sup> Markets for water are not homogeneous, because some users have a high willingness to pay, consuming small amounts of water (domestic users, industries), others have a low willingness and ability to pay and use large amounts of water (farmers), and others have no ability to pay (environment, the very poor).<sup>39</sup>

These factors strongly suggest that the pricing of water and the policies regarding access to it require a sophisticated analysis, taking into account not only its value as an economic good, but also its value as a social, cultural, and environmental good. In many, if not most, cases, private sector water pricing policies have not observed or responded to the complexity of the resource. Privatization proponents also argue for the phasing out of public subsidies, though this fails to recognize the fact that, in many developed nations, initial water infrastructure development was based on very large subsidies.<sup>40</sup> For the developing world, in which basic infrastructure will require hundreds of billions of dollars in additional construction, it is important to carefully consider whether strict application of full cost recovery is ethical or practical.<sup>41</sup>

#### IV. THE PRIVATIZATION OF WATER SERVICES

Until recently, water supply and sanitation services were provided by national and municipal governments, since these services have been viewed as social or public goods, which were more appropriately managed by public entities.<sup>42</sup> The private sector was considered an inappropriate fit, since it is not normally focused on issues of poverty, underdevelopment or environment.<sup>43</sup> Its primary emphasis is on commercial contractual relationships and the generation of profits by providing physical infrastructure and services, not by encouraging a community's sense of

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38. *Id.*

39. *Id.*

40. Rahaman & Varis, *supra* note 28, at 18.

41. *Id.*

42. John Thompson, *Private Sector Participation in the Water Sector: Can It Meet Social and Environmental Needs?*, 2001 INT'L INST. FOR ENV'T & DEV.

43. *Id.*

ownership over a water project, or engaging with poor communities in the longer term process of development.<sup>44</sup>

In the last fifteen to twenty years, many governments have struggled to finance the capital, operational and maintenance costs of water and sanitation systems, including those associated with occasional expansions and rehabilitation.<sup>45</sup> Increasing international emphasis on economic approaches to social and environmental problems, and the seeming inevitability of globalization have lead to a reexamination of the potential for the private sector to take on these responsibilities.<sup>46</sup> The perceived advantages of the private sector with regards to capital access and efficiency suggest that it could reduce costs while increasing service quality and coverage.<sup>47</sup> Though at least one World Bank study has demonstrated no efficiency advantage for the private sector in water service provision,<sup>48</sup> these perceptions, and a general worldwide infatuation with market-based approaches to solving development related problems, have stimulated a significant increase in the transfer of such services to the private sector.<sup>49</sup> Between 1990 and 1997, cumulative expenditures by the private sector in water and sanitation projects in developing countries was \$25 billion, compared with \$297 million from 1984–1990.<sup>50</sup>

Privatization and public-private partnerships were extensively discussed at the Hague forum,<sup>51</sup> the Bonn conference,<sup>52</sup> and the World Summit on Sustainable Development.<sup>53</sup> Generally, privatization refers to the “transfer of some or all of the assets or operations of public systems

44. *See id.*

45. *Id.*

46. *Id.*

47. Thompson, *supra* note 42.

48. Antonio Estache et al., *Infrastructure Performance and Reform in Developing and Transition Economies: Evidence from a Survey of Productivity Measures* (World Bank Policy Research, Working Paper No. 3514, 2005); *see also* Seppälä, Hukka & Katko, *Public-Private Partnerships in Water and Sewerage Services: Privatization for Profit or Improvement of Service and Performance*, 6 PUB. WORKS MGMT. & POL'Y 45-46 (2001).

49. *See* Seppälä, Hukka & Katko, *supra* note 48, at 42-43.

50. Thompson, *supra* note 42. *See also* Janice A. Beecher, *Privatization, Monopoly, and Structured Competition in the Water Industry: Is There a Role for Regulation?* (In Proceedings of the Annual Conference of the American Water Works Association, Washington, D.C.) 1999.

51. Second World Water Forum, Mar. 17-22, 2000, *Ministerial Declaration of the Hague on Water Security in the 21st Century*, Hague, Neth., 2000.

52. Bonn International Conference on Freshwater, Dec. 3-7, 2001, *Facilitator's Report on Working Group A: Governance, Integrated Management and New Partnerships*, Bonn, F.R.G. Dec. 2001.

53. World Summit on Sustainable Development, Aug. 26-Sept. 4, 2002, U.N. Doc. A/CONF.199/L.6/Rev.2 (Sept. 2, 2002).

into private hands.<sup>54</sup> There are numerous ways to privatize water, such as the transfer of the responsibility to operate a water delivery or treatment system, the transfer of physical asset ownership along with operation responsibilities, or even the sale of non-physical assets such as water rights to private companies.<sup>55</sup> These changes are sometimes referred to as privatization, or as public-private partnerships (PPPs), or as private sector participation (PSP).<sup>56</sup>

There is no inherent conceptual contradiction between private sector participation and proper representation of the full range of water values and human needs, but contradictions can arise in particular circumstances. The key issues center on how privatization is implemented, in what context, to what extent, and in which regulatory environment.<sup>57</sup>

Models of private sector participation in water and sanitation services can be divided into four general categories.<sup>58</sup> *Full privatization* or complete divestiture is less common, especially in developing countries, since among other things, the private entity takes on full liability for the project.<sup>59</sup> *Partial private-sector responsibility* includes all situations in which responsibility is shared between the private and public sectors through one of several contractual forms, including service or management contracts, lease contracts or concessions.<sup>60</sup> Multinational corporations often utilize these contractual arrangements in order to act through local subsidiaries.<sup>61</sup> *Co-operative models* typically take the form of a government-owned public limited company.<sup>62</sup> *Informal sector provision* involves local, small-scaled operations which tend to occur in low- and middle-income countries.<sup>63</sup> The most common form of private sector participation, in terms of numbers and investment size is the concession contract.<sup>64</sup>

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54. GARY WOLFF & ERIC HALLSTEIN, PACIFIC INST. FOR STU. IN DEV., ENV'T & SEC., RESTRUCTURING WATER SYSTEMS TO IMPROVE PERFORMANCE 11 (2005).

55. *Id.*

56. *Id.*

57. See generally Water and Sanitation; What Will Deliver the Improvements Required for Urban Areas?, Environment & Urbanization Brief No. 8 (Oct. 2003).

58. JESSICA BUDDS, WATER, ENGINEERING AND DEV. CENTRE, PPP AND THE POOR IN WATER AND SANITATION (2000).

59. *Id.*

60. *Id.*

61. See *id.*

62. *Id.*

63. BUDDS, *supra* note 58.

64. *Id.*

Essentially, privatization of water services is based on arguments that: 1) the private sector is more likely than public entities to maintain natural resources because it possesses more financial resources; 2) the private sector has the technical expertise and to efficiently manage resources; 3) private sector contracts have incentives built in which encourage better performance and service; 4) increased investments improve access and availability, particularly in rural areas; 5) consumer user fees encourage responsible use of scarce resources.<sup>65</sup>

The equally powerful arguments against privatization are that it can: 1) fail to serve under-represented communities, where necessary capital expenditures are unprofitable; 2) worsen economic inequities and the affordability of water (natural monopolies tend to overprice and under-produce); 3) fail to protect right to water and sanitation as “public goods;” 4) exclude public participation; 5) ignore impacts on ecosystems and downstream users; 6) neglect the potential for water-use efficiency and conservation; and 7) reduce protection of water quality.<sup>66</sup> Another of the concerns involving privatization is that it may encourage a fragmented perspective on interconnected issues.<sup>67</sup> A single-minded focus on marketable aspects of the resource may result in single-purpose water planning and management policies, raising additional concerns for creating and maintaining information and transparency.<sup>68</sup>

The case of Cochabamba, Bolivia serves as an example of the types of problems that privatization can create.<sup>69</sup> In 1998, as part of the conditions to guarantee a large loan for refinancing water service in Cochabamba, the World Bank required the government to sell the public water system to the private sector.<sup>70</sup> With only one bid to consider, the Bolivian government transferred the operation to Aguas del Tunari, a subsidiary of a

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65. Eric Webreck, *The Challenge of Battling Privatization: A Case Study of Swedish Water Companies*, 5 SUSTAINABLE DEV. L. & POL'Y 30 (2005). See also Jessica Budds & Gordon McGranahan, *Are the Debates on Water Privatization Missing the Point? Experiences from Africa, Asia and Latin America*, 15 ENV'T & URBANIZATION 87, 92-98 (2003).

66. PETER H. GLEICK ET AL., PACIFIC INST. FOR STUD. IN DEV., ENV'T AND SEC., *THE NEW ECONOMY OF WATER: THE RISKS AND BENEFITS OF GLOBALIZATION AND PRIVATIZATION OF FRESH WATER 3-5* (2002); see also Eric Gutierrez et al., *New Rules, New Roles: Does PSP Benefit the Poor?* (Synthesis Report), WaterAid/Tearfund (Sept. 2003).

67. Rahaman & Varis, *supra* note 28, at 18.

68. *Id.*

69. See MAUDE BARLOW, COMM. ON THE GLOBALIZATION OF WATER, INT'L FORUM ON GLOBALIZATION, *BLUE GOLD: THE GLOBAL WATER CRISIS AND THE COMMODIFICATION OF THE WORLD'S WATER SUPPLY* 30-31 (2001).

70. *Id.* at 30.

conglomerate led by Bechtel.<sup>71</sup> Soon after the sale, Aguas del Tunari doubled the price of water, pricing it at close to half a month's income for those on minimum wage or unemployed.<sup>72</sup> The Bolivian government also granted monopolies to private water suppliers, advocated full-cost water pricing, and agreed with the World Bank that none of the loan would be used to subsidize water service to the poor.<sup>73</sup> Water from any source, including that from captured rainwater, could only be accessed after purchasing a permit.<sup>74</sup> Service and system connections remained at low levels.<sup>75</sup> The public reacted very strongly against these measures, and after several marches and protests, arrests, violence and the death of one boy, the government revoked its authorization of the program.<sup>76</sup>

This, and several other high profile cases,<sup>77</sup> indicate that free-rein privatization of public water services runs the risk of rejection when water pricing and services are approached with an emphasis on profit rather than the provision of high value public service.<sup>78</sup> Governmental and stakeholder involvement in the planning and oversight of privatizations is essential, but does not, in and of itself, guarantee success in achieving sustainable and integrated water resources management. The values of water as a social and environmental, as well as economic, good must be observed in all institutional and operational aspects of water management. It is an inherently local process that should take advantage of all management tools available, not just those prescribed as general solutions by powerful private institutions.

## V. IMPORTANCE OF INTEGRATED MANAGEMENT

One of the most important of these tools is "integrated water resources management" (IWRM). The concept of IWRM has been under discussion since the middle of the 20th century, but a widely accepted definition was not formulated until 2000, when the Global Water Partnership defined it as "a process which promotes the coordinated development and

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71. *Id.*

72. *Id.* at 30-31.

73. *Id.* at 31.

74. BARLOW, *supra* note 69, at 31.

75. *Id.*

76. *Id.*

77. See, e.g., Lorena Alcázar et al., *Institutions, Politics, and Contracts: The Attempt to Privatize the Water and Sanitation Utility of Lima, Peru* (The World Bank Dev. Research Group, Working Paper No. 2478, 2000); Gutierrez et al., *supra* note 66, Summaries of the Case Studies.

78. See GLEICK ET AL., *supra* note 66, at 3.

management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.”<sup>79</sup> Though there has been criticism that this definition is vague and may be incapable of implementation,<sup>80</sup> what is clear is that there is no truly viable alternative, and that efforts must continue to more clearly define the concept, develop policies and techniques for its application and create the institutional structures for its implementation.

The advantage of IWRM is that it can more closely address the multiple characteristics and functions of water relative to human beings, ecosystems and economies. It not only deals with water supply and wastewater treatment, but also addresses flood control and drought management, agriculture and poverty alleviation, ecosystem function, and overall sustainability. Effective implementation of IWRM requires a broader, basinwide focus, which includes consideration of the range of human and environmental requirements for adequate water quality and quantity, effective stakeholder input, and a clear governmental involvement.<sup>81</sup>

Generally, the necessary “integration” should include that between: land and water management; freshwater and coastal zone management; surface water and ground water; water quantity and water quality; and upstream and downstream water-related interests.<sup>82</sup> Application of IWRM also requires sensitivity to cross-sectoral issues in policymaking, including

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79. GLOBAL WATER PARTNERSHIP, TECHNICAL ADVISORY COMM., INTEGRATED WATER RESOURCES MANAGEMENT 22 (2000). See also Second World Water Forum, *supra* note 51, ¶¶ 5-6.

[IWRM] . . . includes the planning and management of water resources, both conventional and non-conventional, and land. This takes account of social, economic and environmental factors and integrates surface water, groundwater and the ecosystems through which they flow. It recognizes the importance of water quality issues. . . . [IWRM] depends on collaboration and partnerships at all levels, from individual citizens to international organisations, based on a political commitment to, and wider societal awareness of, the need for water security and the sustainable management of water resources. To achieve integrated water resources management, there is a need for coherent national and, where appropriate, regional and international policies to overcome fragmentation, and for transparent and accountable institutions at all levels.

*Id.*

80. Asit K. Biswas, *Integrated Water Resources Management: A Reassessment*, 29 WATER INT'L 248, 250 (2004).

81. Rahaman & Varis, *supra* note 28, at 18.

82. GLOBAL WATER PARTNERSHIP, *supra* note 79, at 24-26.



such concerns as the many potential economic effects of large-scale capital investment programs; the interrelated costs and benefits of land use decisions on water-related resources; the full incremental costs of policies which increase demand for water services; the relative values in use, measured in economic and social terms, of policies which allocate water between different uses; the trade-offs in any policy decision between short-term benefits and long-term costs; and the importance of subsidiarity, in which tasks are undertaken at the lowest appropriate level.<sup>83</sup>

In the attempts to clarify and effectively implement IWRM, several principles have emerged as being most relevant and potentially useful. Though they lack the specificity necessary for application in the field, the following principles are fairly representative of those put forward by other institutions and analysts, and suggest a general structure for designing more directly applicable approaches.<sup>84</sup>

1) IWRM should be applied at the catchment level. The catchment is the smallest complete hydrological unit of analysis and management. Integrated catchment management (ICM) becomes the practical operating approach . . .

2) [I]ntegrate water and environmental management . . . IWRM can be strengthened through the implementation of Environmental Impact Assessments (EIAs), water resources modeling and land use planning . . . Water should be managed conjunctively with codependent natural resources, namely soil, forests, air and biota.

3) [S]ystems approach . . . [R]ecognizes the individual components as well as the linkages between them . . . Disturbances at one point in the system [may be felt indirectly in] another part of the system . . . may be damped out due to natural resilience and disturbance . . .

4) Full participation by all stakeholders, including workers and the community. This will involve new institutional arrangements . . . [including] high levels of autonomy, but (also must include) . . . transparency and accountability for all decisions . . . Driven bottom-up by local needs and priorities, and top-down

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83. *Id.* at 27-28.

84. *See, e.g.,* INT'L WATER ASS'N, U.N. ENV'T PROGRAM, INDUSTRY AS A PARTNER FOR SUSTAINABLE DEVELOPMENT: WATER MANAGEMENT (2002).

by regulatory responsibilities, it must be adaptive, evolving dynamically with changing conditions.

5) Attention to social dimensions. This requires attention to, among other things, the use of social impact assessments, workplace indicators and other tools to ensure that the social dimension of a sustainable water policy is implemented . . . [I]ncludes the promotion of equitable access, enhanced role of women, and the employment and income implications of change.

6) Capacity building. At many levels, . . . stakeholders lack the necessary knowledge and skills for full application of IWRM. Community stakeholders may not be familiar with the concept of water resource management, catchment management, corporate governance, and their role in these . . . Capacity building categories include education and awareness raising about water; information resources for policy making; regulations and compliance; basic infrastructure; and market stability . . .

7) Availability of information and the capacity to use it to make policy and predict responses. This [requires] sufficient information on hydrological, bio-physical, economic, social and environmental characteristics of a catchment to allow informed policy choices to be made; and secondly, some ability to predict the most important responses of the system to factors such as effluent discharges, diffuse pollution, changes in agricultural or other land use practices and the building of water retaining structures . . .

8) [Consideration of] full-cost pricing [for cost recovery,] complemented by targeted subsidies. [There is] support for this principle, . . . but also significant opposition from those who felt that the interests of the poor might not be sufficiently protected, even with an associated subsidy system . . . Opposing views hold that full-cost pricing, when applied in its narrowest sense, offends the principle that water is [also primarily] public good and a human right. [There is a relationship between] the economic sustainability of water and sanitation services . . . and the recovery of costs through user fees or tariffs that are equitably assigned based on ability-to-pay . . .

9) Central government support through the creation and maintenance of an enabling environment. The role of central

government in ICM should be one of leadership, aimed at facilitating and coordinating the development and transfer of skills, and assisting with the provision of technical advice and financial support, to local groups and individuals. Where specific areas of responsibility fall outside the mandate of a single government department, appropriate institutional arrangements are required to ensure effective inter-departmental collaboration . . .

10) Adoption of the best existing technologies and practices, . . . [including] management instruments. Professional associations . . . are primary sources of knowledge on BMPs (best management practices), and BAATs (best appropriate affordable technologies). Multi-stakeholder, consensus-oriented forums for IWRM should avoid lowest-common denominator solutions through adherence to BMPs and BAATs that are adaptive to local needs.

11) Reliable and sustained financing. In order to ensure successful implementation of IWRM approaches, there should be a clear and long-term commitment from government to provide financial and human resources support. This is complemented by income from a healthy water and sanitation market, . . . [when there] is active reinvestment in the sector.

12) Equitable allocation of water resources. This implies improved decision-making, which is technically and scientifically [and socially] informed, and can facilitate the resolution of conflicts over contentious issues . . . [E]xisting tools (such as multi-criteria analysis) to help decision-making by balancing social, ecological and economic considerations . . .

13) . . .

14) Strengthening the role of women in water management. A review by the World Bank of [a large number of] water projects showed that ensuring women's participation in decision-making positively affects both project quality and sustainability.<sup>85</sup>

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85. *Id.*

## VI. SOFT PATH TO WATER SUSTAINABILITY

Ultimately, large-scale, centralized, and capital-intensive approaches to water supply and sanitation are destined to become less plausible as solutions to the problems posed by growing human demands and constant or diminishing environmental supply. For decades, these industrial, “hard path” approaches have dominated thinking about how to manage and protect water resources, but have produced many unintended negative consequences, at the expense of many potentially effective new approaches. The conception of IWRM has already begun to evolve and embody these new management philosophies and technologies. The new approaches, collectively termed “soft path,” attempt to improve productivity of water use, instead of constantly seeking new sources of supply; they attempt to match water services and qualities to users’ needs; they judiciously employ tools such as water markets and pricing, but only where appropriate, as a means of encouraging efficient use, equitable resource distribution and sustainable systems over time; and they include local communities in the decision-making process for water management, allocation and use.<sup>86</sup> Many of these approaches are decentralized or distributed systems which are more non-structural in character and which make extensive use of conservation and demand management, low-tech approaches to efficiency and sanitation, and the assimilative and treatment capacity of soils.<sup>87</sup>

Current approaches to water management tend to focus almost exclusively on supply management, in which the fundamental question is “how can we meet the projected water needs given current trends in water use and population growth?” The typical outcomes of this approach are the construction of dams, pipelines, canals, wells, treatment plants, desalination systems and reservoirs.<sup>88</sup> An intermediate approach to water services is more concerned with demand management, in which the fundamental question is “how can we reduce needs for water to conserve the resource, save money and reduce environmental impacts?” The outcomes of this approach are efficiency gains through technical fixes and

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86. Peter H. Gleick, *Global Freshwater Resources: Soft-Path Solutions for the 21st Century*, 302 *SCIENCE* 1524 (2003); Gary Wolff & Peter H. Gleick, *The Soft Path for Water*, in *THE WORLD’S WATER 2002-2003: THE BIENNIAL REPORT ON FRESHWATER RESOURCES* ch. 1 (Peter H. Gleick ed., 2002).

87. RICHARD PINKHAM, ROCKY MOUNTAIN INST., 21ST CENTURY WATER SYSTEMS: SCENARIOS, VISIONS AND DRIVERS W99-21, at 6 (1999).

88. OLIVER M. BRANDES & DAVID B. BROOKS, FRIENDS OF THE EARTH CANADA AND THE POLIS PROJECT ON ECOLOGICAL GOVERNANCE, *THE SOFT PATH FOR WATER IN A NUTSHELL* (2005).

consumer education.<sup>89</sup> The soft path approach looks at water, not as an end-product, but as the means to accomplish certain tasks. The fundamental question becomes “how can we deliver services currently provided by water in ways that recognize the need for economic, social and ecological sustainability?” The outcomes of the process are options to reduce water use through innovation, conservation, water reallocation, and changing patterns of use and reuse, with more water left *in situ*.<sup>90</sup>

What is occurring is that conventional methods of water supply, stormwater, and wastewater management are improving, while newer technologies, as well as refinements of older technologies, are emerging as new options.<sup>91</sup> Institutional and managerial innovations are also rapidly evolving.<sup>92</sup> The soft path that they embody represents a new paradigm for the supply of water services.<sup>93</sup>

Ultimately, the inclusion of soft path approaches would appear to have much greater potential to meet long-term water service needs than today’s centralized, capital-intensive, energy-intensive, and relatively wasteful management regimes. Given current investment in the older schemes, however, the transition to newer approaches will not take place quickly or easily. Most legal and policy structures do not supply specific support for a soft path approach, though economic and cultural adaptation should slowly force the necessary structural changes. Some soft path technologies and management approaches have been adopted and applied in specific cases, but it remains to be seen how, and over what period of time, technical and political opinion will shift, to provide wide-ranging support for the soft path. What does not seem in question is that a more decentralized, diverse, non-structural approach, which focuses on water services, and which takes advantage of the natural assimilative capacities of soil and vegetation, represents at least one part of a sustainable solution to the problems of supplying water services to increasing human populations.

Given their role in representing and protecting public interests in the development process, governmental entities must take part in creating the conditions under which the transition to an integrated and soft path can be made. These responsibilities will include everything from imagining and re-imagining land use, developing planning and regulatory programs to

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89. *Id.*

90. *Id.*

91. See PINKHAM, *supra* note 87, at 5-6 (a table comparing “The Old Paradigm” and “The Emerging Paradigm”).

92. *Id.*

93. *Id.*

encourage efficient development patterns, producing extensive educational programs, subsidizing appropriate technologies, and assuring full public participation in development of water policies, to carefully crafting the contractual obligations and monitoring procedures under which privatization of services can take place in appropriate circumstances.

