Chapter 12
Value-Oriented and Rental Approach in <IR> of Private Water Utilities Companies

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12.1 Introduction

The integrated report is a model of accountability in a unified information space where on the basis of unity of information and with the help of the possibilities that contemporary information technologies give; many aspects of the company's activities may be represented in synergy. The report serves not only management purposes but also keeps external users such as investors, state authorities, clients, and regulators informed.

The integrated report allows the use of combinations of different methods and tools known to us from economic theory, statistics and accounting, and their development. It allows the introduction of combinations of diffuse information data and techniques to create an adequate and changing information model that is flexible and capable of responding to the new and changing needs of creating value for both the organization and other interested parties.

In this essay the aim is to introduce theses that can be discussed in relation to the integrated accountability of water utility companies as a specific business. Such a discussion is also relevant in connection with the fact that there are already water utility companies that prepare Integrated Reports. The article looks at the issue of representing the value of water in the field of water extraction, processing and supply companies. Water is a natural resource on which their business activity is based. In most cases, they occupy the position of "natural monopolies" in the respective supply region, which raises a number of questions as to the characteristics of their profits, the added value and their business modelling. The paper does not address directly the question of the relationship between value and price, as this is a separate research issue.

The theory of rent was applied to the hydroelectric sector (Rothman 2000; Amundsen et al. 1992), but was not applied to the WUC. WUC's business differs

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significantly from that of energy, based on waterpower. As with hydroelectric plants, however, as with WUC, water is the basis of their profits. Moreover, both types of business have a different economic and social significance. While electricity can be obtained from many sources other than water, there is no substitute for water when it comes to thirst, food production and industry, as a whole. That is why the water treatment and supply business has a special vital and social significance.

12.2 The Value

Integrated reporting has several important as well as specific objectives, including presentation and emphasis on value added created by the "six capitals", the application and link between the value added generated by the different types of capital and the business model (or how the organization generates its profits) and its strategic development. The integrated report should also show for which stakeholders are creating value in the organization and what value added is created for them.

In view of this, the methodological guidelines for integrating reporting define the six capitals of the organization that add value for it and its stakeholders (International Framework of <IR> 2013).

<IR> has the ambition to provide the stakeholders (above all the investors) with a more complete assessment of the value of companies.

Yet there is no tool to evaluate the full cost of the companies, to register all value drivers and the levels at which value is created in the company. In the future it will be necessary for an integrated reporting approach to be developed in this direction.

The disclosure of companies' full cost and value added requires the complex task of coping with value in economic science.

Theoretical and applied methods for assessing the economic value of natural resources, including water, have been developed by a number of scientific studies, guides and standards.

In the extremely important work "*The Measurement of Environmental and Resource Values. Theory and Methods* "by Myrick Freeman III, Herriges and Kling a classification has been made of the existing methods of measuring the values of nature and resources recovered for human use, including water. The authors analyze the entire palette of methods and tools that have been developed over the years and classify these methods in the following groups: Welfare Measures (40–126); Valuing Changes in Risk (127–170); Aggregation of Values Across Time (171–189); Valuing Longevity and Health (190–236); Environmental Quality Measures for Valuing Changes in Productivity of Natural Resource Systems (257–268); Recreation Demand Models of Valuation (269–309); Property Value Models (310–359); Hedonic Wage Models (360–381); Stated Preference Methods for Valuation, which is the preferred tool in the present article (383–418) (Myrick Freeman III et al. 2014). The models listed vary greatly. Some of the models are market-based; others are models of non-market valuation. Some of these methods, in

fact, try not to produce value, but a price, which in the approach of the subjective economic schools is equal to value. Due to the fact that these are economic methods, they have the tendency and/or make the effort to monetize value. In addition to systematizing and detailing all developed methods and tools for assessing nature and resource values, the study also shows their shortcomings as well as the directions in which scientists should work for their development.

There are also a large number of studies whose main subject is water valuation. Their detailed listing is impossible within the limited scope of this paper and is beyond the scope of its specific purpose. A common example is the methodology of Systems of National Accounts and System of Environmental and Economic Accounts (SNA 2008; SEEA 2012) that recommend a methodology for assessing the economic value of water supply as a monetary assessment of the water stocks owned by net water vendors based on the Net Present Value (NVP) and being calculated with bank interest rate (SEEA 2012, p. 23). Other authors, not abandoning this method, develop the concept of the "social discount rate" or "social rate of time preference", water projects included. This is based on the fact that in most cases water supply is a public or state-owned project (Young 2002, pp. 1, 4–6).

Methods and techniques for decoupling economic and environmental value and their assessment have been developed and appraised in various empirical cases such as *"Assessing the Environmental and Economic Value of Water"*.

Other researchers, such as Eric Plottu and Beatrice Plottu, in "*The concept of Total Economic Value of Environment"* systematize and practically apply "value in use" and "non-use values" in the concept of Total Economic Value (Plottu and Plottu 2007, pp. 52–61).

In Economics, there are many and different means of "value" and its estimate. Economics does not refer to "value" in general, but to "value" that has an adjective in front of it.

According to Green's opinion (Green 2003, p. 21) it is possible to summarize the manifold groups of "the value" in economy in two groups:

1. Value in and of itself;
2. Instrumental value.

Or, which is the same:

1. Intrinsic value ("valuable in and for itself") and
2. Instrumental value or "economic form of instrumental value"- an assessment that is made by comparison with something else, aim or purpose (Myrick Freeman III et al. 2014, p. 6).

The first group concerns the understanding of value in classical economics. Adam Smith, David Ricardo and, to a great extent, J.B. Sey, as well as Marx, accept that intrinsic value in itself can be defined by the cost of production. According to Smith, intrinsic value deviates only rarely from the "exchange value" (market value).

From this point of view, the value of water should be equal to the full cost of water (Green 2003, p. 10). Full Value of Water is the sum of the Economic and Intrinsic Values and Equal of Value in Use (Green 2003, p. 22). Intrinsic values in practical application are not estimated (Rogers et al. 1998, pp. 25, 27).

The problem of assessing phenomena that have an intrinsic value is that they cannot be replaced by anything else either as a function or as an utility (Green 2003, p.23). Such is the case with water.

The representatives of the environmental sector in economy differentiate between "economic" and "environmental" values (Dietz et al. 2005, pp. 336–365), which are defined and by "environmental ethics". The ecological values are defined as: "*Worth that a community or society places on environmental goods or services such as aesthetic and recreational facilities and resources. See also environmental value added."* (Nash 1989). Thus, environmental value added has been defined*: "Net impact of an organization's activities on the environment over a specific period"* (Business Dictionary 2018). In fact, there are many points of view of "ecological value" and "worth" depending on the views of authors dealing with the problem. However, the value of water for life on Earth is indefinable, because it is absolute, therefore it is an absolute worth and has an absolute value.

The problem with multiple points of view and definitions does not prevent the question of the value of water being placed when it comes to water utility companies (WUC). Integrated reporting allows all reporting methods and all types of reporting to be used in "one report".

When it comes to assessing the value of water, we face a number of problems and contradictions that are rooted in water's unique nature uncomplaint when evaluating the value in its entirety, and problems in terms of accounting treatment—problems associated with water's characteristics as "the basis of life" and at the same time as a factor of production that should have a certain return on its economic use.

Water is seen as a "natural resource" and the assessment of its economic value is made in practice by costing:

- The cost of securing its natural functions (the functioning of the water cycle, water flow measures, anti-drought measures and the like);
- Collection and treatment costs;
- The cost of bringing it to the consumers—households, industry, agriculture.
- The costs for research, management and information on the status of the water basins.

That is to say that in measuring the economic value of water the cost approach is used, monetary indicators are used, and in the environmental report and water balance—physical indicators. With these are measured and quantified indicators that relate to "human water treatment" and costs for it.

It is difficult to find a solution to the other aspects of the problems related to water assessment and presented in major world water documents, such as the Dublin Declaration and the Rio de Janeiro Declaration.

The Dublin Declaration points out, first of all, the importance of water to sustain life, and then for economic development and for nature. The Dublin Declaration states: "*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." and "*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.*" (The Dublin Statement on Water and Sustainable Development 1992a).

In the same year as the Dublin Conference, the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro was held, continuing the development of the 1972 Stockholm Conference (Report Of The United Nations Conference on the United Nations Environment Conference 1972).

The United Nations Conference on Human Environment, meeting in Stockholm from 5 to 16 June 1972, proclaims that: "*Both aspects of man's environment, both natural and man-made, are essential to his well-being and to the enjoyment of basic human rights-even the right to life itself."* (Report Of The United Nations Conference on the United Nations Environment Conference 1972, p. 3).

The Conference of Rio de Janeiro adopts the following in its preamble, Principle 1 and Section Two "*Conservation and management of resources: Protecting and managing fresh water": "Human beings are at the centre of concern for sustainable development. They are entitled to a healthy and productive life in harmony with nature*". And: *"The preamble and the following eight chapters address the challenges that adaptation of human behaviour to sustainable development poses to prevailing social and economic structures and institutions* (*Preamble, The Principal 1)*. With this, the Rio Declaration recognizes that water is a social and natural good, and only after that—economic (The Rio Declaration on Environment and Development 1992b, p. 1).

Although it states that water is *"a resource, essential to sustain life*", the water value assessment in the Dublin Declaration is limited to an economic assessment in the presence of competitive uses, to a certain extent ethical—by measuring affordability, and to some extent, to its environmental assessment, but not to the assessment of sustaining life. The economic assessment of water, according to the document, is the "assessment of assessments "in an ecological, ethical (equitable use) and vital sense, based on the fact that the assessment of water as an economic asset will also provide its ecological and vital features for all living creatures on the planet. Thus, for the assessment of water as ~~a~~ life, a special and complex approach is not applied, but "economic fundamentalism".

The Rio Declaration changes this approach to "economic value fundamentalism" towards natural goods, placing first in their definition the characteristic of a "social" and "natural" good.

We should also note the forgotten definition of "aspects of man's environment" at the Stockholm conference as "natural and the man-made".

Economic theory on water valuation is incomplete. The most common is that "the value of water is the willingness to pay" once people's vital needs for water have

been met. More complex models for evaluating the full value of water have been created using categories such as "value in use" and "non-used values".

Water is a complicated "object" for economic research. It is not a commodity like any other commodity. In all research on the problems of water, both declarations state "water is life." But in economy, the category of "value of biological human life" has not been introduced and operationalized, although without the existence of man's biological life, "economic life" is impossible. In economic sciences, notions such as "the useful life of assets", indicators of "the quality of life of the people", "the standard of living" have been introduced as concepts, but not the life of human beings as biological life in itself.

For example, the standard of living is a category that R. Fogel defines as "*covered more abundant food supplies and better housing*" (Fogel 1994, p. 4).

Professor Fogel proves the link between human health and economic development. Human health is a necessary prerequisite for its ability to work and create added value, i.e. to be economically active. He has stressed that we should first be able to define the concept of "good life" (Fogel 1999).

The economic category "good life", derived and explored by Fogel's Climometrics, should include access by default and the right to water of all living creatures on the planet, including people, without which their biological existence is impossible.

Economic science and accountability of economic activity have inevitably reached the creation of a relation between purely economic and ethical categories, taking into account both quantitative and qualitative indicators of the performance of economic subjects, which is reflected in the IR and other forms of non-financial reporting. While combining ethical categories and ethical issues with economic ones has already been largely successful, this is not the case with the biological categories and the category of "life".

Defining the full value of water is really complicated, because defining it needs to define and value "biological life" also, as water is the foundation of life.

The French researcher Philippe Saint-Marc rightly concludes that "*Traditional economic science, based on production and labour, ignores the worth (value) of what constitutes* "a *gift of nature". But today these "gifts" have become a rarity, as a result of their waste, as well as the absurd ignorance and indifference to all biological phenomena on the part of political economy and urbanistic doctrines*." (Saint-Marc 1977, p. 331).

It would seem right to ask the question if these "free gifts" are used by "the natural monopoly" to make a profit? It would be reasonable to ask the question: What is the "business model" of such a company (how does it create its profit)? How does it create value added for itself, its investors and other stakeholders? Or is the term "natural monopoly" an ironic term for the monopoly that uses nature-created resources, gift of nature and naturally does not show its value in reports?

The <IR> methods do not provide guidelines for water value reading by any of the developed methods, this is not done by the WUC in their accountability models either.

The integrated report, with its huge potential of incorporating all types of methodologies and tools, and its purpose—to evaluate the company's full value, the company's added value and to expose their business model cannot escape these issues despite the problems in economic theory with the issue of value.

The value of water is related to the definition of water as a vital necessity, a gift of nature, as well as capital.

12.3 Value, Capital and Business Model

Capital—these are the resources pertaining to the economic activity of the enterprise. In this sense, natural resources are also delimited in <IR>.

In <IR> manufactured capital is defined as follows: "*Manufactured physical objects which are available to an organization for use in the production of goods or provision of services, including:*

- *Buildings*
- *Equipment*
- *Infrastructure such as roads, ports, bridges etc.*
- *Waste and water treatment plants.*

Manufactured capital is often created by other organizations but includes assets produced by the reporting organization for sale or when they are retained for its own use." (International Integrated Reporting Council (IIRC) 2015, p. 12). And: *"Natural Capital—All renewable and non-renewable environmental resources and processes that provide goods or services that support the past, current or future prosperity of an organization." Including:*

- *Air, water, land, minerals and forests;*
- *Biodiversity and eco-system health* (International Integrated Reporting Council (IIRC) 2015, p. 12).

Business model background paper for <IR> provides guidelines to take into account water technology projects in "*Manufactured capital*", Infrastructure (such as roads, ports, bridges and wastewater treatment plants (Business model background paper for <IR> 2013, p. 11).

In conformity with these definitions, water as a gift of nature is used by water supply companies and is:

1. Separate capital—a gift of nature,
2. Non-manufactured capital;
3. It directly relates to the past, present and beneficial development of the organization and to the creation of value for society as a whole.

These characteristics logically make water stand out as different capital from the manufactured physical capital objects.

Raw water that WUC supply to households, agriculture and industry is not a man-made resource and hence "capital" that <IR> refers to the "natural capital" group. It is "natural capital" that enables these WUC to perform their business functions.

Water is a natural, material, non-financial capital asset. It has a characteristic of a capital asset because it meets the generally accepted characteristics: a permanent asset that is used to carry out business and earn income, it is used on a daily basis, and is a worth for its ruler.

Water is a gift of nature and a "common pool resource" (at least in the part recognized as "common pool resources" such as seas, oceans, lakes, groundwater), which yield water for purification and supply (See: Ostrom et al. 1994). These circumstances make it necessary to divide the assets, product of human labor that water companies possess and water as non-man-made and non-financial capital (a capital asset). As a gift of nature and non-man-made natural capital, raw water is a capital asset of humanities. Existing stocks can increase or decrease over time. The <IR> provides the opportunity for such WUC capital treatment in order to gain a more accurate assessment of sources and means for value creation for these companies.

On the other hand, companies operating in the extraction, purification and water supply business are high tech companies that make significant investments in their business. They invest in serious science projects with slow return incurring high costs, such as all R & D spending, due to which they possess a large intellectual capital, largely shaping their market value as companies.

From here what logically follows is that the capital structure of water-supply enterprises must be divided in <IR> as "man-made capital" and "non-man-made capital" (Fig. 12.1):

1. Non-manufactured capital, Non-financial capital or Capital assets—Raw water—a gift of nature, and,
2. Manufactured capital or Capital assets—dams, pipelines, water treatment plants, equipment, Intellectual capital etc. (After purchasing or extracting raw water from the company, the water is its capital asset).

With the growth of urbanization and the world's population, the cost of extracting, purifying and supplying water to consumers is steadily increasing. The

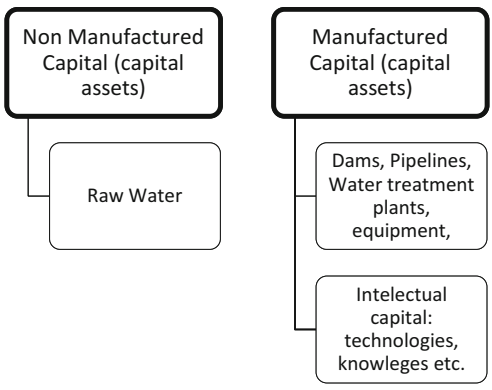

Fig. 12.1 Division of capital assets of water utilities companies

cost of water usually rises due to the investments made by the WUC. However, there is no convincing evidence that the increase in the price of water improves its quality. The separation, assessment and disclosure of companies' costs for the so-called "Environmental services" in this case is justified. For clarity on this issue, it is possible to use "modals for estimating the values of environmental services" including "Human health, Mortality; Chronic morbidity; Acute morbidity; Direct impact on humans; Economic productivity of ecological systems; Ecological, services (such as recreation); Effects on non-living systems such as materials, non-use values such as ecological stability and biodiversity." (Myrick Freeman III et al. 2014 p. 437).

Too little space is given to the Environment report in <IR> at the end of the Integrated report model. When natural resources are the base of companies' business this aspect can be developed and presented in more detail. Such is the case with water supply companies. The source of their business activities is water. The <IR> does not report by economic value (by monetary means) losses from the degradation of water resources as a result of water supply.

Different types of industries can adapt their integrated reporting models to the specific nature of their business and use different methods to analyze the status and forecasts for their future performance. This differentiated approach to the different industries is successfully applied in sustainable accountability standards such as SASB (SASB 2016).

In the integrated report of water companies, there is also a need and opportunity to create information and links between the:

1. Social aspects of water delivered—affordability; fair pricing, social return of investments;
2. Natural and vital aspects of water—the preservation of water resources and their proper distribution for the needs of households, agriculture and industry;
3. Ecological aspects—preservation, conservation of water resources and protection of the water balance;
4. Economic and financial aspects of businesses for extraction, treatment and supply of water, – Profits (Created by new investments and created by existing investments), Costs, investments and return on investment in man-made assets, rents distribution;
5. Risk to the business and investors;
6. Risk to water users for water supply, quality risk.

These aspects are related to and applicable in the content elements of <IR> in:

1. The business model of the water company;
2. The strategy of the WUC;

Complex valuation may be used in:

1. Assessment of the water use facility (lake, dam) on the basis of comparison of the values created by the property rights of the WUC, average for the region.
2. Market assessments to identify the reasons for the observed price difference between suppliers;

3. A conditional assessment approach using a poll to assess WTP for improved water and supply quality and their willingness to accept WTA to reduce water quality.

12.4 Rental Approach

With the emergence of cities and their growth, the business with water has become one of the most profitable businesses nowadays.

In 2003, a special stock index for water utilities companies, the Palisades Water Index (ZWI) was created (The Law Dictionary). This is such a lucrative business that at the end of 2012 it is superior to the banking sector in the stock exchange (Fig. 12.2).

The components of the Palisade Water Index include the following companies given in Table 12.1 These companies, included in ZWI make large investments in

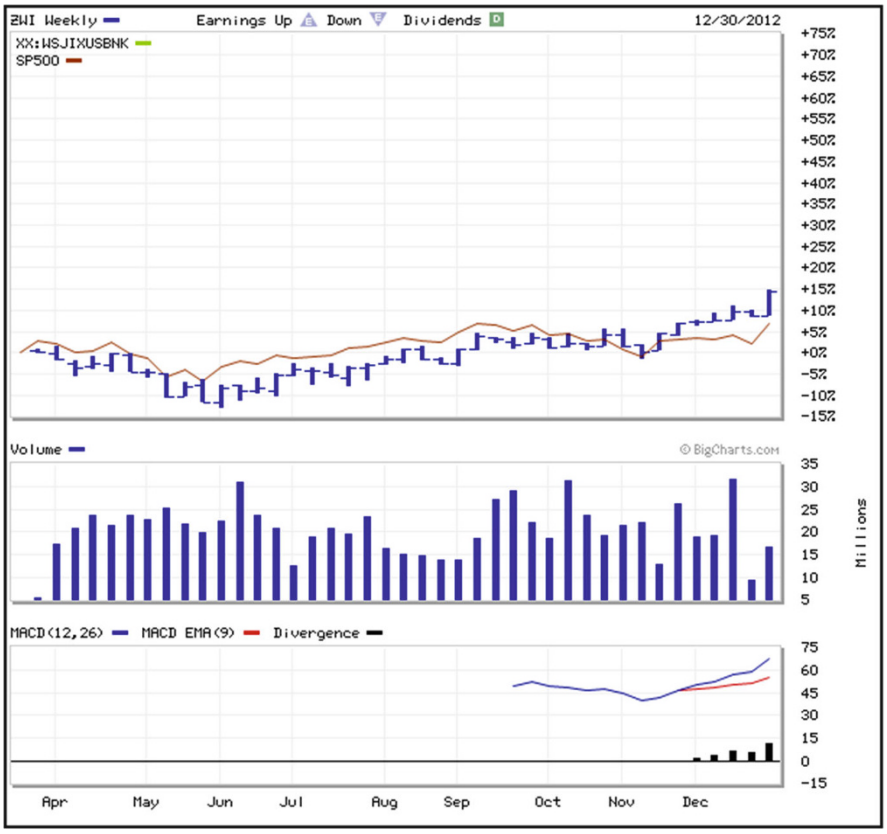

Fig. 12.2 Comparison between S&P 500 bank sector and Palisades Index. 04 March 2017; 5 years, weekly (Market Watch)

Table 12.1 List of companies-components of Palisade Water Index, ZWI (Market Watch)

Name of company and % from ZWI	<IR>/other nonfinancial reports	Description	Headquarter/ Web site
1. Tetra Tech (NASDAQ: TTEK) 4.58%	NO/ Sustainability report	Public, worldwide, Water, Environment & Infrastructure, Resource Management & Energy	US, Pasadena, http://www.tetratech.com/
2. Itron Inc. (NASDAQ: ITRI) 4.12%	NO	Public, worldwide, Water Communication modules (metrics software and others)	US, Washington http://www.itron.com/
3. URS Corporation (NYSE: URS) 4.07%	NO Sustainability and CSR report	Subsidiary of AECOM, worldwide Engendering, constructions (URS was acquired by AECOM on October 17, 2014)	US, California San Francisco, http://www.urs.com/
4. AECOM (NYSE: ACM) 4.00%	NO, sustainability report	Public, worldwide Professional services, R&D	US, California, Los Angeles, http://www.aecom.com/
5. Danaher Corp (NYSE: DHR) 3.98%	NO Sustainability and CSR reports	Public, worldwide, Conglomerate (multi-industry company) Test & measurement, industrial technologies, environmental, and Life Science & Diagnostics	US, Washington http://www.danaher.com/
6. Badger Meter (NYSE: BMI) 3.95% (flow meters)	YES	Public, Worldwide, Water meters, meter reading and analytics technologies for municipal water utilities Flow measurement and control products for water Residential water metering, Commercial water metering Water and wastewater treatment facilities	US, Milwaukee, https://www.badgermeter.com
7. Veolia Environment, (NYSE: VE) 3.92%	NO Sustainability report	Public limited company (Societe Annonime) French transnational company, Water treatment, waste management, HVAC, street lighting, facility management services	Paris, France http://www.veolia.com/
8. Valmont Industries Inc. (NYSE: VMI) 3.86%	NO/ Sustainability and CSR reports	Public, worldwide, Central pivot and linear irrigation equipment	US, Nebraska, http://www.valmont.com

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Table 12.1 (continued)

Name of company and % from ZWI	<IR>/other nonfinancial reports	Description	Headquarter/ Web site
9. Calgon Carbon Corporation (NYSE: CCC) 3.79% (filtration)	NO/sustainability report	Public, worldwide Manufactures and markets products that remove contaminants and odors from liquids and gases, both for industrial, municipal, and consumer market, carbon recycling	US, Pittsburgh, Pennsylvania http://www.calgoncarbon.com/
10. Agilent Technologies (NYSE: A) 3.69%	No, Sustainability, environmental, corporate citizenship reports	Public, worldwide, Food, environmental and forensics, pharmaceutical, diagnostics, chemical and energy, and research	US, Santa Clara, California, http://www.agilent.com/
11. Lindsay Manufacturing Co. (NYSE: LNN) 3.65%	NO/sustainability reports	Public, Center pivot irrigation systems, infrastructure	US, Omaha, Nebraska http://www.lindsay.com/
12. Lindsay Manufacturing Co. (NYSE: MWA) 3.56%	NO/sustainability reports	Public, North America, Water infrastructure	US, Atlanta, Georgia, http://www.muellerwaterproducts.com/
13. Pentair, Inc. (NYSE: PNR) 3.50% (pumps, motors, filtration, water tanks)	NO/sustainability and CSR reports	Public, worldwide, Water & Fluid Solutions Valves & Controls, technical solutions	UK Worsley, greater Manchester, Incorporated in Ireland http://www.pentair.com/
14. ITT Industries (NYSE: ITT) 3.38%	NO/sustainability report	Public, Conglomerate, Worldwide, Pumps	US, New York, http://www.itt.com/
15. Watts Water Technologies (NYSE: WTS) 3.37%	NO/sustainability reports	Public, worldwide, Valves Global provider of plumbing, heating, and water quality solutions for residential, industrial, municipal, and commercial settings	US http://www.wattswater.com US: North Andover, Europe: Amsterdam
16. Pall Corporation (NYSE: PLL) 3.25%	NO/sustainability reports	Subsidiary of Danaher corporation Filtration, fluid management, electronics, municipal and industrial water purification, aerospace... R&D	US, New York, http://www.pall.com/
17. Pall Corporation. (NYSE: NLC) 3.20%	NO/sustainability reports	Owner: Ecolab (conglomerate)-public, Wholly subsidiaries, Chemicals and water treatment	US, Naperville, Illinois, http://nalco.ecolab.com/

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Table 12.1 (continued)

Name of company and % from ZWI	<IR>/other nonfinancial reports	Description	Headquarter/ Web site
18. Insituform Technologies Inc. LLC (NASDAQ: INSU) 3.15%	NO	Public, worldwide, Subsidiary of Aegion corporation, Pipeline installation and repair	US, St. Louis http://www.insituform.com http://www.aegion.com/
19. NOV Ameron International (NYSE: AMN) 3.10%	NO/sustainability report	Public, worldwide, Water transmission supplier of highly-engineered concrete and steel pipe systems	US Pasadena, California, http://www.nov.com/ameron.aspx
20. General Electric (NYSE: GE) 3.01% (GE Energy)	**YES** (integrated "summary" report)	Public, worldwide, Conglomerate, Power & Water sector including GE Energy (water and process technologies)—a division of General Electric with headquartered in Atlanta, Georgia, United States- http://www.ge-energy.com/ Water & Process Technologies Water treatment technologies	US, Boston, Massachusetts, http://www.ge.com/ http://www.ge-energy.com/
21. Flowserve Corp (NYSE: FLS) 2.95%	NO	Public, Pumps, valves Water resources industries Water supply	US Irving, Texas, http://www.flowserve.com/
22. FEP Holding Company LLC Franklin Electric (NASDAQ: FELE) 2.85%	NO	Public, worldwide, Residential water systems, Pumps and motors	US, Fort Wayne Indiana, http://franklinwater.com US Nearby Fort Wayne, Indiana http://www.franklin.com franklin-electric.com/
23. Siemens AG Ads (NYSE: SI) 2.82%	NO Sustainability reports	Public limited company (Aktiengesellschaft) Worldwide	Germany Berlin, Munich http://www.siemens.com/
24. IDEX Corporation (NYSE: IEX) 2.79%	NO Sustainability report	Public, Fluidics systems, hydraulic rescue tools	US Lake Forest http://www.idexcorp.com/
25. Layne Christensen Co. (NASDAQ: LAYN) 2.79%	**YES**	Public Global water management, construction and drilling company	US Houston, Texas, http://www.layne.com/en/

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Table 12.1 (continued)

Name of company and % from ZWI	<IR>/other nonfinancial reports	Description	Headquarter/ Web site
26. Gorman-Rupp (NYSE MKT: GRC) 2.65%	NO	Public Worldwide, Manufacturers pumps for municipal, water, wastewater, sewage, industrial, construction	US Ohio http://gormanrupp.com
27. Roper Industries (NYSE: ROP) 2.51%)	NO	Public Conglomerate Water and fluid handling, pumps, appliances, pumps, industrial controls	US, Florida, http://www.ropertech.com/
28. Consolidated Water Co. Ltd. (NASDAQ: CWCO) 1.56% (water utility)	NO	Private water utility company, CWCO Water utility Retail water operations, bulk water operations and services operations.	Cayman Islands http://www.cwco.com
29. Southwest Water Co. (NASDAQ: SWWC) 1.33%	NO	Water utility, Sewer services and connections	UK http://www.southwestwater.co.uk
30. American States Water (NYSE: AWR) 1.29%	NO	Public, Water utilities	US San Dimas, California, United States http://www.aswater.com/
31. Aqua America (NYSE: WTR) 1.24%	NO	Public Water and wastewater utility company	US Bryn Mawr, Pennsylvania, http://www.aquaamerica.com/
32. Companhia de Saneamento Basico do Estado de Sao Paulo (Sabesp); (NYSE: SBS) 1.03% (water and wastewater utility)	NO	Public limited company Water Waste services	Brazil, São Paulo, Brazil http://www.sabesp.com.br/

intellectual and structural capital and have high value man-made assets. The leaders in the water utilities business are high-tech companies that create and deliver technology and equipment to the water sector, for the detection and extraction of water and its delivery to consumers. There is a growing tendency for water companies to use the integrated reporting model for management purposes and for the purposes of their business communication.

The various WUCs have a varied use of incoming raw water: license, purchases, concessions, with various agreements. This makes it difficult to account and report water as a natural capital the integrated company report in a comparable way.

It also makes it difficult to assess the value created by their "property rights". Some WUCs have their own water collection dams built with their own investments; others are using high-tech methods incurring large capital expenses. Other WUCs use dams built and maintained by the state or with municipal funds and buy from them raw water at different prices.

For example, the Veolia-owned "Sofyiska Voda" Water Supply Company in Bulgaria buys at 0.02 Euro 1 cubic meter of water from the state-owned "Iskar" Dam, built with state funds, financed by state funds, owned by the National State Energy Company, whereas it sells water for household needs at the price of 1.24 Euro. In this way, it has paid 1.5 million Euros for incoming water and has sold water for 75 million Euros, with 50% loss of incoming water in the transmission system. Nevertheless, the price of water has increased from 2000 to 2016 by 337,93% (Protocol from the Public Discussion for approval of prices of water supply and sewerage services of Sofyiska Voda AD 2016).

Such a company cannot be compared to companies that have made their own investment in dams and in modern methods of extracting raw water or purifying mud water with their own installations, these being the result of their own technological and scientific developments and investments.

Given these two circumstances, it is possible to make use of integrated reporting and the rental approach in relation to the value assessment of their property rights and approximation to the calculation of the full value of the product they produce—extracted, purified and/or water delivered to the full value (and value added), created by the companies.

"Economic Rent" is a long time developed economic category, starting with Adam Smith and David Ricardo. For Ricardo, it is an amount that is paid to the owners due to the limitation of an important productive resource (Ricardo 1817, p. 38). Ricardo explores the rent of land and mines. According to him, rent from mines does not differ from that of soil, as a scarce resource. Ricardo specifically states that rent is not paid for air and water, as they are abundant "*. . . no rent can be paid for . . . nothing is given for the use of air and water or for any other for the gifts of nature who exists in a bounder quantity.*" (Ricardo 1817, pp. 40–41). Ricardo's classical view for the emergence and existence of a rent is linked to two criteria: ownership (or "property rights") and quantitative resource constraints. Two other definitions of the neoclassical theory of economic rent are in circulation: "Marshallian rent", and the so called "Rent of Pareto". The neoclassical treatment of economic rent practically abandons the *property attribute* and stresses Ricardo's resource limitation. The reason for this is historical. Historically, property rights were established on the land, whereas this was not done with water either at Marshall's or Pareto's time. This historical circumstance continues to affect the perception of water resources as free, the same way air is free. The measurement of the various types of economic rent (Ricardian, Marshallian and Paretian) gives different end results when measuring the wealth created for the owner and the

producer by the limited resource (Brar 1977). When there are insufficiently specified property rights to water resources, and when not WUCs, but others are involved in their collection and preservation, in the construction and maintenance of dams, the water balance, etc., in terms of satisfying the *mainstream*, the most suitable for use is the so-called Paretian rent. Thus the Paretian rent is a surplus of earnings over the amount necessary to keep the factor in its present use (Brar 1977). The use of Paretian rent also gives us the opportunity to keep track of the sustainability of the water system.

Various tools exist for calculating value added. Especially popular is the Economic Value Added (EVA). Essentially, EVA is the economic profit of the company. It compares the operating profit and the cost of capital. Incorporating the value of water as a non-man-made capital into the EVA calculations would yield different results for the value created/degraded by WUC.

Economic rent, in turn, shows the return on factors of production. In the case of water, the *Paretian rent* shows the return on water as the only and limited resource for WUC's business and the profit from water treatment and supply. It also shows the wealth of the owner through his ownership of the factor of production. The <IR> could include this issue in water company accountability in relation to their business model and their social impact through the distribution of the rent between them and the owner of the water resources—the society represented by its organizations (The creation of tools in this respect is the subject of different scientific research).

Contemporary economics usually neglects rent as an analytical category. In recent times, the rental approach has been revived in works such as "*Rents, Rent-Seeking and Economic Development: Theory and Evidence in Asia*" by, Khan and Jomo (2000), "*Rent-Seeking, Institutions and Reforms In Africa: Theory and Empirical Evidence for Tanzania"* by Pius Fischer (2006), "*Skin in the Game, Hidden Asymmetries in Daily Life*" by Nassim Nicolas Taleb (Taleb 2018); Michael Hudson's and Dirk Bezemer's "*Incorporating the Rentier Sectors into a Financial Model*",(Hudson and Bezemer 2012); Era-Dabla Norris and Paul Wade, "*Rent Seeking and endogenous Income Inequality",* (Norris and Wade 2001).

Another difficulty in introducing the rental approach in assessing the value added of WUC is the treatment of the National Income and Product Accounts of the annuity recipients as "providing a service, an economic contribution equal to what the rentiers receive as 'earnings'" (Hudson 2012, p. 5).

The question of "seeking for rent" or "seeking for profit" is relevant to <IR> of water companies and its disclosure in the Business Model for several major reasons: (1). The large profits that private water companies receive; (2). The large loans they receive from financial institutions, the state and the municipalities; (3) Regulated prices of water and the formation of water tariffs by regulators; (4). WUC operate under the conditions of the so-called "natural monopoly". As long as there is "trade with water rights" in some countries and regions, it is complementary on a national scale and does not change their local monopoly situation. Rent is one of the major forms of the manifestation of property rights.

The WUC's position of monopolists in this field also raises the need to highlight the question of whether their profits are rent seeking or the result of investments and effective work.

The proof of "rent-seeking" or normal business "seeking for profit" in the case of monopoly status directly affects the WUC's business model and has a direct relevance to the issue of value added. According to Trucost's research, 25% of unpriced natural capital costs are from water (Roberts 2013).

Gordon Tullock's original "rent-seeking" concept dates back to 1967 (Tullock 2005, p. 35). It is further developed by himself and other scientists such as Arye L. Hillman, Eliakim Katz, William J. Corcoran, Gordon V. Karels, Richard S. Higgins, William F. Shughart, Robert D. Tollison, Richard S. Higgins, Fred S. McChesney and others dealing with the problem. The establishment of rent—seeking is well developed (Rowley et al. 1988)."*Rent seeking is defined as the study of how individuals compete for artificially contrived transfers*" (Tollison 1982, p. 601).

When rent seeking is a result of free demand and supply, it is equivalent to profit seeking and is a normal business activity. When we have a case of government intervention, corruption or regulation in favor of collector groups and in monopoly status, clarifying whether profits are the result of normal profit or rent seeking is necessary.

Striving for rent is in itself a positive phenomenon in economy because it is a search for profit that is normal for every business. In this case, he seeks a profit, accumulated in the usual economic way, an attempt to obtain a surplus over the normal return on resources in a decent manner. In this sense, "green/ecological rent" and "natural/water rent" are positive economic phenomena. Such WUC rents are the result of the use of more productive technologies, more efficient deliveries without losses in the water transmission system.

However, rents can be obtained through non-economic means by the abuse of power-influence or use of non-economic means such as lobbying and hidden government decisions. This leads to the usurpation of the distribution of state or public resources. Such is the monopoly rent. In this case, as Tollison argues, the profit is transferred from customers and the ultimate owner of property rights to the monopolist (Tollison 1982, p. 576).

The theory of rent has evolved not only in the argumentation of "rent- seeking". "Water rent" and "environmental rent" can also be defined and calculated.

Water rent within the sphere of water supply is a relationship between the "common pool resources—the owner of the resource—private, public or a state WUC and the customers".

In the different cases water rent can be:

- A monopoly rent- when there is one supplier, as with water suppliers who use the exclusive properties of the created by nature water resource or natural resource—water. This rent is expressed in the imposition of monopolistically high prices on delivered water. The reasons may be different: a monopoly on technology or a variety of "rent-seeking" in monopoly and regulation conditions such as the described case-low efficiency, large losses in the system, but as a result—monopolistically high prices.

- Differential (Ricardian rent)—when different water companies compared to one another use sources of water supply acquired and/or extracted at a different degree of difficulty.

The rental approach allows assessing the quality and availability of the water resource for water companies; their investment needs, and further exposes the cost of their supply. The chartered rental approach can also provide information on fairness/price justification when water companies buy water from owners of water repositories.

At the same time, it can tell us if their business is related to "rent seeking" or their profits are the result of their fair efforts.

Rent, including water rent, may be equal to zero if there is poor management, inefficient technology and other factors that prevent profitability. There are WUCs that claim to have zero profits, insignificant profits or are at a loss due to their low water supply prices set by regulators. This is a statement for which there is no objective evidence. Rather, it should be assumed that they do not acquire water rent because of poor management, outdated technology, unskilled staff and, as a result, poor performance.

Water rent is a kind of natural rent. In many cases, private companies largely privatize it. The distribution of the natural water rent is a matter that can also be solved in the Integrated-reporting model. It is logical to distribute it between the supreme owner—the population, the state and the water companies. The equitable distribution of water rent is also a matter of ethical nature and there is reason for it to be considered (Yakovets 2003, p. 8).

Natural rent can be seen as a profit above the industry average, realized at the expense of using more efficient technologies, better management, higher qualification of staff, own scientific and technological developments. Natural anti-rent occurs also from non-compliance with established environmental standards for quality, efficiency and limitations. It creates national and international expenses related to the protection of the environment and especially the waters that would be avoided in compliance with the standards and limitations. Anti-rent damages are both short-term and long-term and are anti-sustainable.

Along with positive annuity, anti-rentals can also be defined (Yakovets 2003, pp. 76–107).

The anti-rent is an overpayment received "not by the rules" and can be seen as a rent seeking option.

12.5 Conclusions

Water as a resource that belongs to the planet and the whole of humanity differs from the value of the man-made capital that WUC use in treatment and supplying water resources. Water as a natural capital, according to the definition of <IR>, it is a gift of nature, a non-man-made natural material capital. The water should be treated as a

capital asset, different from that created by man in the business of the water supply companies. Economic science, in spite of its special attention to value theory, seems to have refused to treat natural capital as a separate capital asset in companies' work. <IR> gives the opportunity for water to be defined and valued as a separate material and intellectual capital from man-made capital assets in water business because of the particular importance and status of water as a gift of nature and the most important resource for life in economic use, and as a human right. The rental approach in <IR> makes it possible to specify the property rights to water resources. Applying different types of rents in calculating the WUC's value added makes it possible to assess the latter more accurately. The rental approach sheds more light on the WUC's business model, clarifies the return on the productivity factor—water and the investments made. This approach can clarify to a greater extent the actual return on the water companies' investments. Along with this, the rental approach provides greater insight into the source of the profits of these companies and what they are due to: rent seeking, monopoly, unfair pricing, or technological advances and good governance. Applying this rental approach can be of benefit to society, bearing in mind its property rights, and nature, the creator of water.

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