Management future: water management

Business, Management

Corporate water management: Risk for corporations - Opportunity for consultancy services Student Number: 440008 University of Portsmouth word count: 2646 (excluded figures, table of contents, references and executive summary) “ This is to verify that this is my own work and that it has not been used in part in the assessment of other units in my degree” ********** Executive summary: Water scarcity will be a vital resource for business in the future. In a report in 2008, it is indicated that water imports to UK accounted for 62% virtual water consumption [(Chapagain & Stuart, 2008)].

It is predicted that the usage of water in agriculture will rise 30% in 2025 [(Black, 2010)] and water availability per capita has reduced by 5 times compare to statistic in 1950 [(UNDP)]. In correlation with the decrease in water supply, there has been significant increase in social concerns and customer attitudes toward environmental problems [(Top of Mind Survey, 2010)]. The water impacts on individuals, corporations, and communities have been realized and increasingly concern about over the same period.

Water footprints, water supply-managements are identifiable practices which are introduced for public and private sectors [(WWF, 2009; IBM, 2008)]. However, despite the impacts of water issues, the business responses to the problems have been considerably weak [(Barton, 2010)]. At the same time, consultancy market has been indicated as a potential field of investment (Appendix 4). Triangulation of trends data suggests a potential market for consultancy service of water management.

The article highlighted the business opportunities and profitability that it could bring which include: better knowledge of water supply chain to reduce

environmental impact which is an essential value for business, understanding of water footprints practices hence improving CSR. It also proposed the main competitive advantages as low capital requirements and uniqueness of the services. However, it is predicted to have a reducing market share for the future. Low barrier of entries and the shortage in human-resource might be the main ressures. In order to examine this business opportunities, different sets of strategic and market analytical frameworks have been exercised aligning with discussion throughout the article. Contents 1 - Introduction: 4 2 – Methodology4 3 – Trends data related to Water management5 3. 1 - Water – a scarce resource5 3. 2 – Escalating concern for social responsibility7 4 – Connections between trends8 5 – Future prediction8 5. 1 - Water scarcity – a worsening trend8 5. 2 - Demand for CSR trend10 6 – Opportunity evaluation and justification 11 – Conclusion12 References13 Appendices16 Appendix 1: Waterstressmap and Population density16 Appendix 2: Water and Water footprint17 Appendix 3: Opinion survey on climate changes (ONS, 2010)18 Appendix 4: Business Opportunity analysis20 1 - Introduction: Companies have been focused on “ green washing” their images with environmental activities concern with fossil fuels, emission, carbon footprints, etc. But another major subject has been long omitted in this area however is water and water usage throughout the supply chain of the business.

It is critical to understand that consumptions of goods and services play tremendous role in water preservation on a global scale [(Ercin, Aldaya, & Hoekstra, 2009)]. For theequalityand sustainability in the future growth, better knowledge and insights to water management are required for

businesses in order to achieve its CSRgoals. Environmental consultancy services and business advisories, with timely response can play a proactive part in encouraging, promoting, and providing water management services for businesses in the near future.

The service will focus on aligning economic growth of sustainability with water preservation and other related-environmental problems in the business. The consultancy can also provide traceability service and educate traceability managers [(Wylie, 2010)] who can examines global supply chain through imports, exports, setting water standards, water footprint reporting, etc. The potential customers are massively wide-ranged from private companies to multinational companies as well as government and non-government agencies. Justification of business opportunity will be carried out in the last section along with the conclusion.

The next section will briefly describe the research methodology of the study and key trends related. 2 – Methodology For this project, secondary data is used as the main source. Chris defined secondary sources as data which has been collected previously and reported by other people (2005). The secondary data are fact and figures from different environmental electronic source including United Nation (UN) website, Water Footprint Network (WFN) website and Office of National Statistic (ONS) website. Data about water footprint, CSR is from professional reports, and journal articles.

Statistical and qualitative data gathered is the vital foundation to discussions of the business and triangulation of trends and figures. In fact, the major advantage of secondary data is its readiness for collection, extensive amount of empirical research are available in qualitative and quantitative forms from

various sources. Secondary data are decoded and explained so that they are understandable and easy to read [(Saunders, Lewis, & Thornhill, 2009, pp. 195 - 200)]. Secondly, it is inexpensive with information which cannot be easily obtained individually.

However, limitations of secondary data are also considered. Secondary data are collected and analyzed for different purposes and therefore general and irrelevant to the topic of the project. Furthermore, data used in the research are collected variably thus its quality and reliability must be questioned [(Francis & Wesley, 1963)]. Primary data collection could be useful but will be costly and time-consuming for the project [(Chris, 2005, p. 107)]. Appendices provided statistics related to water footprint, opinion survey aboutclimate changeand other water-related data. Some of the figures and table will be irectly put into the content of the article for better explanation to viewer. There are a lot of strategic and marketing analytical frameworks have been used which are PESTEL analysis, Porter’s five forces, Longenecker’s opportunity recognition criteria (Appendix 4). 3 – Trends data related to Water management There are two main trends which are connected and interrelated to the business opportunity. There are also sub-trends discussed within each of the category to further analysis. 3. 1 - Water – a scarce resource “ The Earth cannot withstand a systematic increase of material things.

If we grow by using more stuff, I'm afraid we'd better start looking for a new planet. " (Spoken by Robert Shapiro) a) Water shortage Nowadays, problems with water have been a rising controversy for humanity. World usages of water have been quadrupled to 4000 km3 per years while population has

growth 3 times in 60 years (figure 1). Major contribution for the increase is agriculture and a growing figure on industry and municipal water use. Figure 1: Estimated Annual water use of the world [(Kirby, 2004)] According to UN estimates, more than half of the world's population now lives in cities [(BBC News, 2008)].

Population density map (Appendix 1) of UK shows an inextricable link of urban areas with water stress map (Appendix 2. 4). World supply of portable water declines, the density of population in urbanized area increases the inefficiency of water supplies and continuingly enlarges water problems [(Cetron ; amp; Davis, 2008)]. Human activities include industry, domestic use, etc which could affect the water supply as well as other trends such asglobalizationand industrialization. [(International Year of Fresh Water 2003)] b) Water management – UK Case The amount of water used to producefoodand goods imported by developed countries such as UK is worsening water shortages in the developing world” (Black, 2010) In the case of UK, import goods from other countries are contributing to the water shortage in other nations. According to Chapagain ; amp; Stuart (2008), 62% of the total water in the UK is accounted for by water from other countries, while 38% is used from domestic water resources (Appendix 2. 1) Previous data shows that water consumed by UK residents are averagely 152 litres per days from 1995 to 2008(Appendix 2.). Nevertheless, the amount of water indirectly embedded in consumption are massively larger. Embedded water in 1kg of beef are 15000 litres while 1 chunk of cheese are 2500 litres; hence with this calculation UK consumers only see 3% of water usages they are accountable for (Black, 2010). From 1995 to 2001, 70% of water source

are from import goods while 30% water of UK usage are self-generated (Appendix 2. 2). With the increasing trend of usage of importing water, water exhaustion will occur for the rest of the world. 3. 2 – Escalating concern for socialresponsibility) Demand for social responsibility from customers and society. Consumers and society are growingly concern about climate and environmental issues. In an opinion survey of ONS, the number of UK residents who are worried about climate changes andenvironmentis over 80% constantly from 2006 to 2009, 30% of people seriously concern about environmental problems (Appendix 3. 3). Nevertheless, the percentage believes environmental impacts to be top three priorities declined from 2007 to 2009 of 9% (Appendix 3. 1). This may due to a recession which introduced major economic problems during the period thus shifted society's attention.

On the other hand, 82% of respondents are ready to change their behaviour to reduce climate change's consequences (Appendix 3. 3). b) Water CSR: responses for Business sustainability For businesses, CSR has been ranked 3rd in 2009 and 2nd in 2010 as concerning issues for consumer goods industry [(Top of Mind Survey, 2010)]. Friedman (2007) also identified in his article a strong link between good CSR and profitability of the firm. However, disclosures of corporate water performance from different sectors are surprisingly weak.

From a benchmarking study of 100 companies [(Barton, 2010)] which examine water performance disclosure quality with a score range from 0 to 100 points, there is no company surpasses 43 points and the average highest score are achieved in mining sector with only 28 points (figure 2). Figure 2: Average score by sector of water disclosure quality from 100

companies [(Barton, 2010)] 4 – Connections between trends Water shortage and water-related stresses put corporations into potential problems. Recent reports of WWF and WFN (Or, Cartwight, ; amp; Tickner, 2008; Hoekstra A. Y. 2008) has identified four type of risk related to water issues that business could possibly face: * Physical risk: The shortage of water in the future will be a major problem for businesses. * Reputational risk: Disclosure, quality of disclosre, and other water CSR issues may be questioned by public thus damaging company’s image. * Regulatory risk: As water shortage is a global trend, government will introduce more strict policies and regulations on water resources. * Financial risk: The consequences of the above will be increase in cost/decrease in revenue. (Or, Cartwight, ; amp; Tickner, 2008)

For CSR of water, Gerben - Leenes ; amp; Hoekstra, (2008) presented the “ business water footprint” as total fresh water used directly and indirectly in a production process of a business. It categorized as 2 major type: operational water footprints which are water used directly in the operation and supply chain water footprint which are used indirectly. Barton, (2010) implies that reduction of water footprint should be part of business environment approach along with other methods like carbon footprints. International trade and business activities has a close link with local water depletion andpollution[(Hoekstra ; amp; Chapagain, 2008, p. 8)]. 5 – Future prediction 5. 1 - Water scarcity – a worsening trend “ Forecasts suggest that when the world's population soars beyond 8bn in 20 years time, the global demand for food and energy will jump by 50%, with the need for fresh water rising by 30%. ” [(Black, 2010)] Human activities especially agriculture will

incessantly put pressures on water supply (figure 3). Climate change and population growth will burden agriculture to produce more which increase the demand for water while industry consumption of water will reduce astechnologyincreases.

Figure 3: projection of water usage in agriculture, industry and municipal Water availability is projected to keep a decrease for the future (Figure 3). Figure 3: Water availability per capita (UNDP) For a more depressing view, several projections illustrated that approximately 48 to 60 countries will face water scarcity by 2050 with at least 2 billion people in danger [(UN-Water, 2010)]. If the problem with water becomes critical globally, the UK development will also be influenced. Water imported to UK are majorly for agriculture products (Appendix 2. 2).

The main source of water (virtual water) in UK comes from imported goods and foods. 5. 2 - Demand for CSR trend Government in response to energy and environmental issues will impose strict regulations on corporate, industries will have more pressures for social responsibilities. Water responsibility should have a much wider-range of measurement and business should embrace a wider set of values to sustain economic growth in the future and prevent incoming water crisis. * Sustainability in future? Figure 4: risk over time associated with corporate water-related interventions. (WWF, 2009)] In the time of government intervention and corporate responses to water-related issues and other mega-trends (Demographic shift, economic growth, and climate change), risks of water will decrease to a level that meet intervention level (figure 4). In fact, a sustainability future can be achieved with responsibilities shared for everyone [(HMGovernment, 2005)]. 6 –

Opportunity evaluation and justification The growing concern of water scarcity and public interest in social responsibility are two main trends which will impose pressures to both policies makers and businesses.

Pioneers with awareness to areas where water issues are most serious can express actual developments; and turn this to competitive advantage [(Pegram, Or, & Williams, 2009)]. However, in order to make clear alignment between policies, water-based knowledge and corporate interests (shareholder values, profitability, CSR), there will be a gap for corporate water management developed whilst will encourage consultancy services. Water management consultancy service will have two main focuses: * Water footprints accounting practices for corporations Supply-chain water management The former will enhance business practices of CSR, assisting in building a green image for company and control, review efficiently and effectively the water supply-chain while the latter will analysis, evaluate and give advices to where business could improve its water supply chain. Both will be Unique Selling Points in consultant industry which other competitors do not have (auditors, financial advisors, etc). The uniqueness of the service and excellent quality will be main differentiations to competitors.

There are insufficient data about market share and demand for consultant services presently; a primary data research would be useful but the scope of this project does not allow. Nevertheless, the market demand are predicted to dramatically increase with the concerns about water-scarcity and social responsibility demand [(Or, Cartwight, & Tickner, 2008)]. Particularly, UK will require a wide range of knowledge about water supply-chain management. It is indicated via Porter’s five forces than 5 threats to this

industry is considerably low (Appendix 4. 2) which can be explained by its service-nature and knowledge-based gaps.

Nevertheless, in the long-term, demand for consultancy services could be decreased. Government regulations and business awareness increase [(Barton, 2010)] which may reduce water risks thus the need for consultant services will reduce. This will lead to the problem of sustainable profitability and development in the long-term of the business. Furthermore, reputation development will be crucial for consultant service to ensure quality, reliability and effectiveness of the service provided. This is a long-term process which requires a lot of marketing and R& D funding.

Another factor needs to be considered is financial side of the business. With small capital investment requirement, the investment in business is predicted to be low (estimation of ? 50. 000). With a small to medium-size enterprise which operates efficiently, business could have a payback time of 2 to 3 years and IRR rate amount to 10% cost of capital. However, what is critical is knowledge-based values (intangible assets), with the little people who can have water knowledge and corporate business knowledge about CSR and other consultancy areas combined.

Training and Learning may be a problem for mid-long term development that business could possibly face. Last but not least, potentially large number of competitors could appear in the future. Demand for this knowledge gap of water will be filled with concerns about water crisis. IBM has run its program about water name “ smarter water management” to explore approaches to water management [(IBM, 2008)]. Master (Msc) course for water

management has been introduced as part ofeducationscheme for Unesco-IHI: Institute of water education [(UNESCO, 2009)].

However this education development could as well turn into advantages when more water-managers are available to reduce bargaining power of suppliers. 7 – Conclusion In conclusion, with the water shortage as a predicted trend for humanity in the future and the demand for social responsibilities comes from society in which customers are the direct pressure. It is noticeable for firms and companies to have appropriate response to the problem in a global scale. Therefore, with the demand for water-management knowledge in the future, this would suggest that there is an unexplored field of water-consultant services for consultant industry.

The uniqueness of the services provided by corporate water management package will be the main competitive advantage for the companies as clients' growingly concern for CSR. Low capital investment required, critical knowledge-based resources about water-management will contribute to the business success rate. However, the reduction in demand for the service in the future and reputation requirements will be the major issues that business may have to face in the long-term development. References Barton, B. (2010). Musky water?

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Appendices Appendix 1: Water stress map and Population density 1. 2 Population density in the UK Sources: ONS (2003) 1. 2 Water stress in regions of UK Sources: ONS (2003)

Appendix 2: Water and Water footprint Consist of 3 figures: Water footprint in UK, Water footprint versus water scarcity, self-sufficiency and water import dependency. Domestic water consumption in UK 2. 1 Water footprint in UK (extracted from WFN, 2010) | Water footprint| Water footprint by consumption category| | Total| Per capita| Consumption of domestic water| Consumption of agricultural goods| Consumption of industrial goods| | | | Internal water footprint| Internal water footprint| External water footprint| Internal water footprint| External water footprint| Measurement: m3/cap/yr |

UK| 73. 07| 1245| 38| 218| 592| 114| 284| 2. 2. Water footprint versus water scarcity, self-sufficiency and water import dependency per country period 1997-2001 (Extracted from WFN, 2010) Country| Total renewable water resources| Internal water footprint| External water footprint| Total water footprint| Water scarcity| Water self-sufficiency| Water import dependency| | 109 m3/yr| 109 m3/yr| 109 m3/yr| 109 m3/yr| %| %| %| UK| 147. 00| 21. 67| 51. 40| 73. 07| 50| 30| 70| .| | | | | | | 2. 3. Domestic water consumption in UK (source: ONS)

Appendix 3: Opinion survey on climate changes [(ONS, 2010)] 3. 1 Percentage considering climate change to be the most important/in top three most important issues facing Britain 3. 2 Attitude to climate change and behavior change for UK residents 3. 3 How concern you are to climate change and environmental impacts Appendix 4: Business Opportunity analysis This part will consist of 3 figures: water management future -

PESTEL analysis, water management consultancy market – Porter's five forces anaylysis, Longenecker's opportunity evalution criteria 4. 1 Water management PESTEL analysis.

Corporate water Management Future – PESTEL AnalysisPolitical * Privatization of water has been demonstrated as a threat to water supply with concerns about politics, pollution, human right to access water and the threat of monopolization of water (Salina, 2008). * Sustainability development policies has been developed since 2005 by UK government (HMGovernment, 2005) which shows concerns of government about future environmental problems * Political issues between parts of the world will indirectly affect the supply of water especially to poor people. " Water war" as a black swan but actually happened in Bolivia in 2000 (Salina, 2008)Economic * Cost of water will go up as the water supply decrease, unstable supply of water will * Import/export goods will play a major role for water management in the 21st century (Chapagain ; amp; Stuart, 2008). Water consumption of developed countries outmatched other regions which is a serious misallocation. * Specialization, outsourcing will have major impact on water supply and quality.

Agriculture, industry increasingly pose negative effects on water (International Year of Fresh Water 2003) * Businesses increasingly concerns about corporate social responsibilitySocial * Access to freshwater is a growing concern for the society. 1. 2 billion people are suffering from water shortage in 2009 (Living Planet Report, 2008) * Sanitation of water is an apprehension as diseases related to water are increasing. Changing attitude of community about climate change and water shortage in the future will *

Water users does not realize the real amount of water they using hence exercise shortage of responsibilities * Drought, water-related epidemic are wild-cardsTechnological * Government spending on management and water preservation research * New method of calculating virtual water: water footprint * Water preservation practices * Innovations in water allocation, water protection methodsBreakthrough in technology, innovative discovery of water management can be a wild cardEnvironmental * Pollution of water reduce availability of water supply for humanity, chemicals from industrial activities cannot be fully absorbed by water lead to many other problems with the ecosystems * Carbon emissions, global warming: “ According to UN-Water’s reports (2010) Global warming will be the cause of rising salinity level of water, sea level increases by 5 to 88 cm compared to 1990 figures.

Consequently, it is revealed that 20% of water scarcity is responsible by climate change. * Water living stocks are reducing as rivers, lakes, other water sources deplete. (Living Planet Report, 2008)Legislation * The right to access fresh and clean water: Large non-government organizations (WHO, UN) set up policies and declaration that water is a fundamental source to life andhealthwhich people have the right to access regardless economic circumstances. * Control over import/export goods: Water footprint regulations on corporations to estimate virtual water| 4. 2 Water management consultancy market - Porter analysis (Content in the next page) 4. Longenecker’s opportunity evaluation criteria [(Longenecker, Moore, Palich, ; amp; Petty, 2005)] Market factors * The consultancy service will be based on business need to manage water-sources, it must be clear that firms start to realize the important of Water-related CSR. * Technology available

(water footprints) but not widely adopted * Knowledge gap (corporate water management, manage water supply chain) Competitive Advantage * The product or service delivered must surpass competitors in some key areas. * Unique service provider: Water management for businesses, footprint accounting. * Deliver long-term value in CSR for clients. Economics The financial feasibility of the project and the ability to grow and being profitable needs to be examined. (Rickman, 2005)] * Possibly a very large market (apply for all corporation, organizations, and companies) * Low initial costs, setup costs, flexible. Management Capacity * Low capital requirement, small amount of management requires * Could operate as small business type. * Investigation of government policies changes, collaboration with resource-protection, environmental organizations (WFN, UN). * Marketing strategy aims for big organizations first then small and medium enterprises. Fatal Flaws * Business perception for CSR will remain limited (another short-term trend) ---------- [1]. Corporate social responsibility [2]. Robert Shapiro, CEO of the Monsanto Corporation which is a