INTRODUCTION

The global water industry faces a mixture of challenges which could be unique among the world’s industries. Starting with a long-standing history of under-charging for vital services, the water industry is faced with the necessity of providing service to virtually anyone who asks for it, and at conditions (water demand patterns, wastewater volume and strength characteristics) established largely by the buyer with only minimal opportunity for control by the seller. Water utilities are further constrained by virtue of their status either as creatures of government or as regulated entities, and by the increasing necessity of obtaining and encouraging public involvement in decision-making.

These traditional challenges are now being eclipsed by a new imperative: the necessity of operating in an eternally sustainable fashion. The topic of sustainability is of increasing concern within the water industry in light of climate change, droughts, floods, demographic pressures, and a general and growing awareness of resource limitations. Ecological sustainability addresses our ability to continue to function with existing behaviors over the very long term. As it relates to water utilities, the sustainability discussion must also include management, operational, and even financial sustainability as important challenges to be recognized and addressed.

And while sustainability has become a new imperative, it comes at a price. Occasional breathless claims notwithstanding, achieving a higher degree of sustainability in the water industry will come at increased cost. Increased costs are the primary driver behind the problem of affordability.

Water and wastewater services must be provided to meet the needs of existing and future residents and wherever and whenever customers choose, for as long as people live in cities on this earth. And this daunting assignment must be accomplished within a price structure that is affordable by the least affluent families in the customer base, as well as allowing desirable economic development opportunities to occur. Sustainability is an imperative, but one that cannot be funded effectively in the absence of a strong regional economic base and a healthy water utility. The following short paragraphs attempt to introduce a few of the concepts required for water utilities to operate in a sustainable fashion while not losing sight of economics or economic development necessities.

SUSTAINABILITY IN THE WATER INDUSTRY

Pleas for a more holistic approach to water planning and a greater recognition of ecosystem needs in decision making are becoming common in the water industry. Utility managers have a head start in this dialog relative to managers from many other industries in that the eternal need for water has always been apparent and as a result, utility managers are accustomed to considering the sustainability concept, at least at its most basic level.

This is not to imply too much, as attempts to establish concrete applications of sustainability in the water industry still provide significant challenges. One example is the attempt to provide a working definition of sustainable water use; one approach is provided by (Gleick, 2000) “… that use of water that supports the ability of human society to endure and flourish into the indefinite future without undermining the integrity of the hydrological cycle or the ecological systems that depend on it.”.

From a management and public policy perspective more specifics are needed. One example is the effort to ascribe clear, logical, and well researched economic values to water. Frederick, (1996), provides an extensive overview of valuation estimates of water in a wide variety of uses, both direct and indirect, using a variety of valuation methods. The wide range of values demonstrates one of the difficulties in developing policy guidance relevant to a variety of locations and situations – unique circumstances are present in every location, and the impacts of these circumstances can swamp more
general factors and provisions. Policy makers intending to do more than issue proclamations are advised to recognize and attempt to appreciate this situational diversity with as much awareness as is given to ecological diversity.

**ECONOMICS**

Non-trivial sustainability initiatives are almost certain to change a utility’s cost structure, and this change is almost certain to result in increased costs. Exceptions to extreme statements can be found, but the plain fact is that the water industry is engaged in a headlong rush for efficiency, and opportunities to save money are adopted as quickly as they can be found. Such change may be good in the long run, or even necessary for survival, but these benefits do not preclude the required increase in investment in the near term.

An economic cost is one thing, but one particular aspect of the increase in cost is of special concern. The most significant challenge from a manager’s perspective is not just that old ways must change, nor even that cost pressures related to regulatory and other drivers are already forcing utility budgets to expand, it is that in many communities the customer base is facing true affordability concerns for the first time. The topic of affordability is not a new one in the water industry, but it is only in recent years that utility rates and charges have reached levels sufficient to cause legitimate concern at more than a handful of utilities.

The phenomenon is primarily related to residential customers. Rates charged to commercial and industrial customers may be high enough to cause economic distress and dislocation in rare circumstances, but these instances are much more a function of large structural changes than they are related to water and sewer bills. By contrast, in some communities the affordability problem for residential customers has moved from being an “expedient political tool” to the status of a legitimate social concern.

While the difficulties associated with this issue should not be underestimated under any circumstances, solutions to affordability problems are available to utilities in prosperous communities. The truly difficult scenario is that of the poor community. Water utilities may merely be a microcosm of the broad sustainability challenge in this case, but it can scarcely be considered an overstatement to say that some poor communities simply can’t afford to address this concern. As a result, to prevent affordability from becoming a roadblock to sustainability initiatives, first attention may most profitably be focused on assisting the relatively prosperous communities with their legitimate affordability concerns.

**ECONOMIC DEVELOPMENT**

Consideration of the potential impact of sustainability initiatives on economic development suggests the value of briefly considering the theory and practice of the art of economic development. (With as many unknowns and as many fundamental disagreements as exist in the literature, it seems best not to go too far in claiming “science status”, lest practitioners of the physical sciences rise up in protest.) The analysis of economic development issues began in earnest in the 1930’s, although from its earliest days, economics has recognized the interesting question of why some communities thrive economically while others do not. (Think for a moment of the title of Adam Smith’s world changing book: “An Inquiry Into the Nature and Causes of the Wealth of Nations”). Attention has borne bitter fruit though as theories, studies, and public policy have changed repeatedly through the years, with the unfortunate result being that the demonstrable benefit from generations of well intentioned analysis and action is minimal.

Economic development activities are of interest to academic economists, from the perspectives of the return on investment received, the potentially destructive competition among and between cities for desirable development opportunities, and the mechanism of decision making at the local government level (Huang, 2001). Differences of opinion about not only the effectiveness of economic development efforts but also the reasons local governments engage in such efforts suggest that great care must be taken if we are to avoid disrupting a process we so inadequately understand.

The discussion has real-world implications because of the efforts of local governments which much be allocated among virtually unlimited opportunities. While particular economic development initiatives are frequently ineffective, there are studies documenting the beneficial impact of public investment in the local stock of “public capital” on per-capita personal income (Duffy-Deno, 1989). So it is important that local government spending decisions be prudently made.

With this introduction, it may be possible to reach one important conclusion given the evidence of incremental progress as can be seen in Carruthers (2007) where regional growth is seen as occurring through both demand-induced and supply-induced mechanisms. For purposes of this paper, demand-induced mechanisms are those in which the market signals a need for additional investment of resources, causing firms to make additional
investments in capital and labor resources. This growth is perhaps susceptible in any given location to disruption by increases in costs resulting from sustainability or other initiatives. By contrast, supply-induced growth (or economic health) is driven by “personal preference”. The relevant aspect of this conclusion for the purposes of this paper is that the presence of two different types of development driver may suggest a potential opportunity for communities fortunate enough to find themselves in economically strong circumstances. Specifically, local economies benefiting from supply-induced growth may be unusually well situated to invest in sustainability initiatives and still continue to prosper. The costs of implementing sustainability initiatives should not be overlooked, but prosperous communities where growth is a function of personal location decisions may be uniquely well situated to bear the necessary economic and economic development impacts of sustainability efforts.

LITERATURE CITED


