

Indicators for Water Resource Management

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Abstract: Physical, social and institutional indicators can be relied on to reveal an inter-play of change. However, it is sometimes problematic to link the dynamics of this change with the reality of a situation. The Marina Baja County located in the Alicante province of Spain, has been the focus of intensive work to determine the indicators of change in the hydrological network, as well as water supply and demand patterns for incorporation into present and future policy. An aggregation of the results from four studies undertaken over a decade is presented here. Indicators that have been developed provide a rich bank of knowledge about the co-dynamics of the physical, institutional and social aspects of this water using community that currently suffers a seasonal water deficit. This paper attempts to provide an explanation of the meaningfulness of these indicators, as well as a review of how they are being used in a context of change.

Key words: Indicators, co-dynamics, physical-biological, socio-institutional.

One of the primary objectives of the Commission on Sustainable Development is to ensure that clean water is available for all, and that human health and state of the environment indicators will help to point the way to the equitable achievement of this goal (Comprehensive assessment of the freshwater resources of the world, 1997). Almost a decade later however, questions still remain about how best to achieve this goal in an era of what is termed Integrated Water Resource Management. Integrated Water Resource Management (IWRM) equates with the concept of sustainable water management. A concept that is still proving to be problematic when it is operationalized (Eisenhuth *et al.*, 2004).

IWRM however, does provide the multi-disciplinary means in which decision-makers can formulate present, as well as future policy

instruments that reflect the goals of sustainable water management in a way that transcends the limitations imposed through the use of individual disciplinary approaches. This is because IWRM provides a far more integrated means with which to make assessments of what could, or could not be, the sustainable management of increasingly scarce water resources. By comparing the indicators produced from multi-disciplinary studies, it is possible to make assessments of how they facilitate the realization of the goals of sustainable water management.

Indicators provide researchers and policy analysts with the means to communicate complex ideas about the sum total of scientific knowledge and judgment currently available. They are the tools that are used to observe, describe and evaluate actual