SYSTEMS OF KNOWLEDGE:
DIALOGUE, RELATIONSHIPS AND PROCESS

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Abstract. During the last 20 years, the existence of rich systems of local knowledge, and
their vital support to resource use and management regimes, has been demonstrated in a wide
range of biological, physical and geographical domains, such as agriculture, animal
husbandry, forestry and agroforestry, medicine, and marine science and fisheries.
Local knowledge includes empirical and practical components that are fundamental to
sustainable resource management. Among coastal-marine fisheries, for example, regular
catches and, often, long-term resource sustainment are ensured through the application of
knowledge that encompasses empirical information on fish behaviour, marine physical
environments, fish habitats and the interactions among ecosystem components, as well as
complex fish taxonomies. Local knowledge is therefore an important cultural resource that
guides and sustains the operation of customary management systems. The sets of rules that
compose a fisheries management system derive directly from local concepts and knowledge
of the resources on which the fishery is based.
Beyond the practical and the empirical, it is essential to recognise the fundamental socio-
cultural importance of local knowledge to any society. It is through knowledge transmission
and socialisation that worldviews are constructed, social institutions perpetuated,
customary practices established, and social roles defined. In this manner, local knowledge
and its transmission, shape society and culture, and culture and society shape knowledge.
Local knowledge is of great potential practical value. It can provide an important
information base for local resources management, especially in the tropics, where
conventionally-used data are usually scarce to non-existent, as well as providing a shortcut
to pinpoint essential scientific research needs. To be useful for resources management,
however, it must be systematically collected and scientifically verified, before being
blended with complementary information derived from Western-based sciences.
But local knowledge should not be looked on with only a short-term utilitarian eye.
Arguments widely accepted for conserving biodiversity, for example, are also applicable to
the intellectual cultural diversity encompassed in local knowledge systems: they should be
conserved because their utility may only be revealed at some later date or owing to their
intrinsic value as part of the world’s global heritage.
At least in cultures with a Western liberal tradition, more than lip-service is now being paid
to alternative systems of knowledge. The denigration of alternative knowledge systems as
backward, inefficient, inferior, and founded on myth and ignorance has recently begun to
change. Many such practices are a logical, sophisticated and often still-evolving adaptation
to risk, based on generations of empirical experience and arranged according to principles,
philosophies and institutions that are radically different from those prevailing in Western
scientific circles, and hence all-but incomprehensible to them. But steadfastly held
prejudices remain powerful.
In this presentation I describe the ‘design principles’ of local knowledge systems, with
particular reference to coastal-marine fishing communities, and their social and practical
usefulness. I then examine the economic, ideological and institutional factors that combine
to perpetuate the marginalisation and neglect of local knowledge, and discuss some of the requirements for applying local knowledge in modern management.

**Key words:** Systems of Knowledge, Local Knowledge, Fisheries, Resource Management.

**Abbreviations:** FAD - Fish Aggregation Device.

1. Introduction

During the past 20 years the deep and rich local knowledge systems that underpin many community-based renewable natural resource use and management systems have been widely demonstrated, especially for agriculture, animal husbandry, forestry and agroforestry, medicine, technology, and biological, physical and geographical phenomena. In comparison there has been comparatively little study of local knowledge in fishing communities, although this has begun to change (Ruddle, 1994a; 1994b; 1994c).

As would be expected, those studies demonstrate that in fishing communities also local knowledge is an important cultural resource that guides and sustains the operation of traditional community-based management systems; knowing where, when, and how to fish, for example, governs a great many of the fishing decisions made by small-scale fishers. Further, the sets of rules that comprise a fisheries management system derive directly from local knowledge and concepts of the resources on which the fishery is based. Thus local knowledge of the environment and resources used, as well as of the society within which the resultant goods and benefits are distributed, is fundamental to the continuity of sound community-based management practices and to the design of new systems of sustainable resource management (Ruddle, 1994a; 1994b; 1994c).

As with other bodies of local knowledge, those in coastal societies are empirically-based and practically-oriented. Some are complex and highly organised. Most such knowledge combines empirical information on fish behaviour, marine physical environments and fish habitats into comprehensive and frequently complex fish taxonomies, directed toward ensuring regularly successful catches, and, often, long-term sustainment of aquatic resources. In some instances, explicitly conservationist objectives are evident (Ruddle, 1994a; 1994b; 1994c).

Local knowledge of tropical marine environments and resources is of great potential practical value in the modern world. It can provide an important information base for local resources management, especially in the tropics, where conventionally-used data are usually scarce to non-existent, as well as providing a shortcut to pinpoint essential scientific research needs. First, however, it must be systematically collected and organised, and then evaluated and scientifically verified, before being blended