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Fisheries Science in Tropical Developing Countries: Some Observations Relevant to Scientometry[a]

by

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Introduction

This contribution is the personal view of a "western" scientist who has worked (and continues to work) in several developing countries (Ghana, Indonesia, Philippines) for about 7 years, has travelled extensively throughout the developing world and has gained in the process an appreciation of some problems associated with writing, publishing and citing scientific papers in the Third World.

The author's speciality is (tropical) fishery biology, which may be viewed as applied aquatic biology, but which also has (as is also the case with the related agricultured sciences) strong affinities to some social sciences (fishery economics, rural sociology, etc.).

The marine fisheries of tropical countries yield approximately 20 million tons of fish and allied products per year (30% of the world's marine catch); the inland fisheries probably add 2-3 million tons to this figure. The role of fisheries biologists is to provide a scientific basis for the conservation of the resources from which this yield is extracted, to help the industry optimize its operations, augment its catch where feasible, and to develop methodologies through which the yields from capture fisheries can be augmented by the budding aquaculture industries.

As a whole, fishery scientists throughout the developing world do not live up to these tasks; their use (or rather non-use) of the scientific literature is one of the reasons for this—and it also prompted earlier, small contributions by the author on this topic.[1, 2]

What are perceived as major constraints in the use of scientific literature in tropical fisheries research is discussed below.

Material and Method

This contribution is not built upon a quantitative approach in the sense that e.g., questionnaires have been sent to selected samples of fisheries biologists.

The author had however the opportunity to meet, while lecturing, in a series of postgraduate courses in tropical fisheries biology, (mainly organized by the Food and Agriculture Organization of the UN, or FAO), during consultations in various countries and at conferences and workshops a very large number of colleagues from developing Third World countries, notably by from Southeast Asia (Philippines, Indonesia, Thailand, Burma) South Asia (Pakistan, Bangladesh, India, Sri Lanka, Maldives), East Africa (Mozambique, Tanzania, Kenia, Somalia), West Africa and Caribbean (numerous countries) as well as Latin America (Peru, Ecuador and Costa Rica).

Discussions with these colleagues on professional matters have usually centered on approaches to increase their scientific output and on the major constraints preventing such increase. These discussions, which covered the years 1975 to 1984 form the basis for the generalizations concerning scientists which are presented below.

Within his field, the author has concentrated on the development on methodologies suitable for use in the investigation of many tropical fisheries , rather than on the detailed investigation of specific fisheries. A consequence of this is that he had to acquire a thorough knowledge of that part of the fishery literature from and/or relevant to tropical countries. This knowledge forms the basis for the generalization below concerning the fishery literature.

Result and Discussion

Most fisheries scientists in tropical countries are not aware of the need to routinely read scientific literature, nor of the need to publish the results of their various investigations.

The libraries of a number of major laboratories have in the last decade given up their attempt to keep up with the relevant literature—mainly due to relatively smaller budget allocations for library acquisition, and to the rapidly increasing costs of western publishers.

While the author has seen isolated volumes of the FAO-supported Aquatic Science and Fisheries Abstract (ASFA) in some libraries (especially when they had links with a FAO Project), he has never seen, on the other hand, copies of "Current Contents"—which match his observation that he hardly gets reprint requests from tropical developing countries.[1]

Usually, scientific libraries are not maintained by trained librarians, not kept in airconditioned rooms (which leads to rapid decay of books) and also not well frequented.

There is obviously a link between the first set of observations (that colleagues in Third World countries read and publish little) and the second set concerning the state of many (most?) libraries.

Sorting out cause and effect is difficult. The author suspects that the reluctance of colleagues to actually use their libraries is the ultimate cause for their often sorry state, rather than the opposite.

It seems there is more than a grain of truth in the often-heard statement that promotions, in most scientific institution of the Third World are not linked to scientific excellence or output, but rather to "having been there first" (e.g., when an institute was founded, or when Independence came, and the foreigners left).

There is certainly a link between this observation and the fact that young fishery biologists in developing countries often see no point in writing up their results—or even in conducting investigations that will lead to publishable results.

Many—if not the majority—of the scientific contribution relevant to tropical fisheries are published by UN organizations, especially by FAO and its regional commissions and projects. This applies both to the theoretical level, in which models and methodologies are first presented and to the practical level, in which applications to specific countries are presented.

Fisheries-related journals produced in developing countries are, as opposed to FAO and UNESCO publications not available internationally, and are often even not available outside of the capital, and/or of the institutions which produce them. These journals are often published irregularly, and may cease publication without any notice. Moreover, as opposed to FAO and UNESCO publications, the articles in these journals are usually based on concepts and methodologies which are long out of date (which ties up with the state of libraries discussed above). Whether the article in most of these journals are formally "reviewed" or not seems perfectly irrelevant, because the few publishing authors have no "peers" within reach of the journals' editors, and publishing an article or not is more often than not a personal/institutional issue rather than something that is decided on the merits of a manuscripts.

What does this imply for scientometric research in or for developing countries?

The first, and most obvious point is that—at least as far as fisheries research is concerned—the documents produced by UN organizations (i.e., FAO and UNESCO) must be included in any data base that aims at assissting scientific output and impact in the Third World, whatever the *apparent* status of these documents.

The second point is that the inclusion of journals in a data base cannot either be based on apparent status, but rather must be based on the very existence (however ephemeral) of a journal (i.e., if there is one, take it in!).

A third conclusion is that, overall scientific output of Third World researchers being as low as it is, the non-inclusion of "technical reports" and other "grey literature" will result in a severe distortion of any measure of output of impact. This applies especially to fishery science, which is very "applied", but should also apply, for similar reasons to the agricultural sciences. It should be added here that the non-inclusion (via highly selective criteria for inclusion) of most of the agricultural literature is particularly in developing countries, the kind of errors which concerned institutions e.g., ISI should avoid.

The fourth conclusion—an optimistic one—is that publishing, being cited, being in touch with the world, etc. is something that scientists in the Third World also appreciate. A serious attempt to expend the ISI and/or other data bases to address this problem in very explicit terms may well represent a way to help overcome the lack of correlation between status and scientific excellence that is at present characteristical of so many scientific institutions in the Third World.

References

1) Pauly, D. 1982. Reprints as a neglected resource. ICLARM Newsletter 5(2): 18-19.