



## Scientisation

An examination of some of the databases reveals the kind of information that has been documented. The Native American Ethnobotany Database<sup>11</sup> provides information on specific uses of plants and trees as food and cosmetics, for agriculture and handicrafts, in medicines for humans and animals, and for decorative purposes among others. Each entry is a few lines long, and the sources for the database are original research, published materials, and grey literature. Much of the information that such ethnobotanical databases contain is reminiscent of earlier anthropological research from around the turn of the century on traditional knowledge. The difference is that the same knowledge and research is now represented through the powerful, utilitarian idiom of indigenous knowledge and justified on the grounds that it is crucial for successful development results.

Other databases contain more detailed information about their classified cases. For example, the World Bank database on indigenous knowledge classifies cases using several different keywords. Each case has a unique identifying number, and is arrayed by country, region, and the source that furnished the information. The case descriptions contain information about the people and their reasons for a particular practice. But ultimately, the description is aimed to give the reader a sense of the potential for generalisation and the lessons that the example furnishes for development or environmental conservation. Ironically enough, most of the cases on which the database contains information are examples of collaboration between some international development agency and a local group to initiate a development programme – as if the cases that are being documented are available only because of the external support being provided by the development agency. The information in this database is far more detailed in comparison to that contained in the Native American Ethnobotany Database. But the underlying process that has led to the creation of these two databases and their chief objectives are not very different.

Consider first the mechanics and logic of the creation of databases. The instrumental logic of development that underpins the creation of these two databases on indigenous knowledge, as indeed of all databases which seek to make indigenous knowledge useful to development, transforms what indigenous knowledge is seen to signify. The first demand of this logic is that useful indigenous knowledge be separated from those other knowledges, practices, milieu, context, and cultural beliefs in combination with which it exists. Only the forms of indigenous knowledge that are potentially relevant to development, then, need attention and protection. Other forms of such knowledge, precisely because they are irrelevant to the needs of development, can be allowed to pass away. I call the identification and separation of useful knowledge the process of *particularisation*. Successful particularisation is the first necessary step in the creation of any database. It occurs in conformity with the need of those practitioners of development who see indigenous knowledge as a resource to be used. Outside of the potential role that indigenous knowledges can perform in the service of development, they have no claims to mobilise powerful resources in their favour.

But particularisation takes place together with other processes. The second demand of the instrumental logic of development is that particularised knowledge be tested and validated using the criteria deemed appropriate by science. These scientific criteria are integral to any particularised statement about indigenous practices being considered knowledge. Thus, it would be quite right to say that even for advocates of indigenous knowledge, it must first be recast in the image of science before being utilised for development (Massaquoi 1993, Rajan and Sethuraman 1993). Independently, such knowledge has no existence, only possibilities. The use of scientific criteria to test and examine, and the documentation of these tests can be referred to as *validation*. Once validated, particular examples of indigenous knowledge are ready for inclusion in a database of knowledge.

Validation has a corollary: abstraction. Not all elements of useful indigenous practices are

necessary for development. Only the strictly useful elements need be abstracted for maximum effect. Rituals, words, movements, gestures, and actions that may be the concomitant of the administration of a herbal medicine or drug in an indigenous practice can be divested and discarded as not being part of the crux of the usefulness of the herbal medicine or drug. They can form no part of interest from the point of view of development. Only those elements of indigenous practices need be retained that can more easily be transplanted into other contexts. The stripping away of what seems to be non-essential also facilitates the next stage of the process through which indigenous knowledge is made ready for development.

Once knowledge is particularised and validated (abstracted), it needs to be catalogued, and archived, and then circulated before it can be used more widely. This can be termed the process of *generalisation*. Only insofar as a particular element of indigenous knowledge is capable of being generalised is it really useful for development. If suitable only for an individual and particular context, indigenous knowledge need not be studied at all – not at least by those interested in development.

At one level, the very process of being included in a widely accessible catalogue of knowledge renders indigenous knowledge potentially generalisable. But the process of generalisation does not end with the inclusion of a validated piece of information in a catalogue. Cataloguing of knowledge in a database only prepares it for generalisation. Whether the generalisability inherent in this process will be realised depends on the future actions of others regarding that piece of knowledge. Who refers to that knowledge, in what fora, for what purposes, and with what effect are some of the factors that will determine whether the knowledge will actually be generalised (Latour 1987).

I use the term *scientisation* to refer to the three processes of particularisation, validation, and generalisation. In the context of indigenous knowledge, these three processes can collectively be seen as the basis for establishing the truth content of a particular indigenous knowledge-based practice. In this sense, scientisation can also be seen as being identical to “truth-making”. All efforts to make indigenous knowl-

edge useful to development must run the gamut of these three processes. Scientisation of indigenous knowledge helps it emerge as fact. Take the example of neem (*Azadirachta indica*). Over the past 5 years, more than 500 papers on the uses of neem have appeared, a level and rate of publication far higher than in the past two decades. But although farmers in India have been using various parts of the neem tree for generations as feed, pesticide, and for human consumption, the vast majority of neem products marketed by corporations have been unsuccessful because of the relative instability when exposed to sunlight (Gupta 1996). Thus, although hundreds of different uses of neem can be identified as indigenous practices,<sup>12</sup> the number of patents and scientific papers on neem was minuscule in comparison until the 1980s. Only in the 1990s, with burgeoning scientific research and patent requests on neem has the indigenous knowledge on the tree begun to be investigated more intensively. But the exploration of this knowledge occurs together with questions about the extent to which it has remained indigenous and about who benefits from the scientisation of this knowledge (see below).

Statements that are successfully particularised, validated, and generalised become knowledge by satisfying a particular relationship between utility, truth, and power. The process of scientisation helps instantiate a division within indigenous knowledge systems so that only useful indigenous knowledge systems become worthy of protection. Whatever the truth value of other indigenous knowledge systems, their lack of utility makes them unsuitable for inclusion into databases that possess instrumental power in development initiatives. By being left outside of even the imperfect mechanisms of protection that activists for indigenous knowledge have devised, those pieces of indigenous knowledge that are deemed without any use cannot be used to advance salvage claims. They become neither true nor false; they are simply unnecessary to those engaged in the important task of development and environmental conservation.

On the other hand, once useful knowledge is isolated and documented, the machinery of development can crank into action. The potential utility of knowledge becomes the criterion that will lead to any efforts in favour of protec-

tion. Once a particular piece of knowledge is deemed useful, that is, once the truth value of some useful knowledge is ascertained, it can become the object of further action. The power of joint international development initiatives can be used to stamp that knowledge as indigenous knowledge. Utility becomes a necessary condition before procedures of truth-making can be initiated. Use value in combination with scientific validation invokes the power of protection.

But the valid doubt that should assail one at this point is whether there is anything particularly indigenous about knowledge that has undergone the sanitisation implicit in the movement from particularisation to generalisation. In the very moment that indigenous knowledge is proved useful to development through the application of science, it is, ironically, stripped of the specific characteristics that could even potentially mark it as indigenous.

The objective of those who advocate the creation of databases and catalogues of indigenous knowledge is admittedly twofold. They seek to develop local capacity to “capture” indigenous knowledge (World Bank 1998). They are also interested in developing mechanisms of dissemination and exchange of such knowledge. But instead, the creation of databases to capture and disseminate indigenous knowledge generates effects that for all their unintendedness are strikingly apparent. I examine these effects along three dimensions: practical, epistemological, and political.

## Indigenous/practical

In his recent book, *Seeing Like a State*, Scott (1998) makes a strong argument about the perils of a marriage between powerful states and high modernism: when strong states undertake modernising projects, the basis for their planned reconfiguration of the world is typically a highly simplified version of a complex reality. By ignoring multiple, crucial, little noticed details, they prepare the way for disasters to unfold. Scott adapts this central thesis of his book to what he calls practical knowledge, or *metis*.

Scott’s thesis in favour of practical knowledge is that its successful use depends upon the intimate familiarity that practitioners gain in numerous applications of the knowledge in

many subtly differing situations. All practical knowledge, although the application of some familiar or unrecognised principle, is useful precisely because of the experience gained in the use of that knowledge. An unthinking, strict, bookish application of a known principle of knowledge likely fails to take into account the many, small, almost imperceptible variations that a constantly changing context creates. Thus workers on factory floors, operators of old pieces of machinery, doctors and surgeons, contract farmers, and many other workers constantly make small adjustments and changes in applying specified procedures for a task. It is these small and minute adjustments, gained through experience and impossible to enunciate as a matter of principle, that make the difference between success and failure of a task being pursued by a practitioner.

There is an important resonance between Scott’s argument about *metis* and the processes of particularisation, validation (abstraction), and generalisation that advocates of indigenous knowledge deploy. It is easy to see how the process of creating databases of indigenous knowledge is in error precisely in stripping away all the detailed, contextual, applied aspects of knowledge that might be crucial in producing the positive effects claimed for that particular piece of indigenous knowledge. The process of particularisation readies knowledge about a particular indigenous practice for validation on scientific criteria. But it limits the examination of the contextual factors that might be responsible for the effects being claimed for a particular indigenous practice.

A database depends for its efficacy on the homogenisation of elements that constitute it. The tabular form of the database implies that all cases that become its members will contain information on the variables that the makers of the database consider relevant. Furthermore, all cases must also be fully describable precisely in terms of those variables. Information on all important aspects of a particular entity should be anticipated in advance by the makers of a database, and the aspects included in a database should completely describe an included entity in all its essential features. Even prior to the examination of a particular piece of information about an indigenous practice, the maker of a database should be able to specify those factors



Selling neem branches for dental hygiene, India, 1984. R. & S. Michaud/Rapho