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### **INDIGENOUS KNOWLEDGE SYSTEMS - THE TRUE ROOTS OF HUMANISM**

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#### **1. Introduction**

I once was the chairman of a board that was delegated a limited number of tasks in the local management of fishing in lakes and rivers in my community. The real decisions were, as always, taken on a higher level - in this case by the county governors office. And they seldom followed our recommendations. People were, and are still, not happy about this so we decided to invite the head of the office on the county level to come to us so people could have a chance to explain to him in an open meeting how things are and should be. He came and proved to be a well trained biologist and a friendly person. We had a long discussion and people explained to him in everyday words how they felt about things - and they did well as far as I could judge. After the meeting, the biologist was very angry with me and he told me that he hadn't learned anything useful from this meeting, it had been a waste of time to listen to such nonsense and he blamed me that the people had been insulting him all the time by expressing doubts about his knowledge of the local biological resources. He said he would never come again to such a meeting. I was very surprised, but here was little I could do. Things remained as they had been. Afterwards I have realised that this had been classical encounter between modern western biology and traditional indigenous knowledge with almost all the ingredients of these kind of encounters.

## 2. Indigenous knowledge

Human beings gather knowledge basically for two purposes: survival and meaning. We try to understand and come to grips with the environment in order to survive. And we try to find reasons for our survival that go beyond the intuitive reaction to physical threats. This is in short the basis for all kind of activities which aim at building up knowledge systems.

Long before the development of modern science, which is quite young, indigenous peoples have developed their ways of knowing how to survive and also of ideas about meanings, purposes and values. It has become customary to refer to this kind of knowledge as “indigenous knowledge”

or “traditional knowledge”, “local knowledge”, traditional ecological knowledge” “ethno ecology” etc. and it is often seen as a contrast to, or at least as very different from, western ways of generating, recording and transmitting knowledge. Indigenous knowledge the rest of indigenous cultural elements, this part has also been considered as “primitive”, “pre-logical” “illogical”, “irrational” and incoherent. My aim here is very modest. I want you to realise that we are dealing with different ways of generating knowledge and that indigenous knowledge systems, at least in some ways, are equal and some times even superior to western scientific ways of understanding the same realities. In our common endeavours aiming at finding out more about the universe we live in, we can not afford to reject any possibilities of new insight about reality.

I understand indigenous knowledge in a broad sense as knowledge developed and hold by the original inhabitants of an area and their use of it in daily life. That means that that I do not limit myself to knowledge systems of only Inuits or Indians or Saamis.

There is no space here for a thorough presentation of the characteristics of indigenous knowledge. Indigenous peoples view the world we live in as an integrated whole. Our beliefs, knowledge, arts and other forms of cultural expression have been handed down through the generations. Integrated in these elements is the knowledge. Some of the characteristics compared to so-called western scientific knowledge were put up by Wolfe et. al 1991:12 in this way:

	<b>Indigenous knowledge</b>	<b>Western scientific knowledge</b>
Relationship	<i>Subordinate</i>	<i>Dominant</i>
Dominant mode of thinking	<i>Intuitive</i>	<i>Analytical</i>
Communication	<i>Oral</i>  <i>Teaching through doing and story-telling</i>	<i>Literate</i>  <i>Didactic</i>
Characteristics	<i>Holistic</i> <i>Subjective</i> <i>Experimental</i>	<i>Reductionistic</i> <i>Objective</i> <i>Positivist</i>
Data creation	<i>Slow/Inclusive</i>	<i>Fast/Selective</i>
Prediction	<i>Short time cycles</i> <i>Recognises the onset of long-term cycles</i>	<i>Short-term linear</i> <i>Poor long-term prediction</i>
Explanation	<i>Spiritual - includes the Inexplicable</i>	<i>Scientific Hypotheses</i> <i>Theory and Laws</i>

Biological classification	<i>Ecological</i>  <i>Inclusive-internally differentiating</i>	<i>Genetic and Hierarchical</i>  <i>Differentiating</i>

Indigenous knowledge is oral, usually not written. But there is historical evidence of written cultures like the Maya culture. Learning is to do things.

While western science tries to understand a whole from the pieces, indigenous knowledge sees things as wholes. Western science believes itself to be objective, while indigenous knowledge is deliberately subjective and sees human beings as part of the whole.

Classification systems can be very different from western ways. One example is the Inuit taxonomic classification of living organisms which is more based on ecological thought than genetic relatedness. We could go on with this list. Most western scientists reject indigenous knowledge as a methodical and non-scientific. And it is true that western science is sometimes superior in its ways of accumulating data and make predictions. On the other hand, it is selective and very dependent on the way data are selected. Still, indigenous knowledge-systems are said to be “high context” systems which means that they are designed to incorporate very high level of contextual information specific to a given locale. Indigenous knowledge -systems can consequently be very different from each other and there is no single indigenous system: “each group has a system specific to their locale” (Wolfe et al 1991: 13).

### 3. Examples

As is well known, many of the new chemicals in medicines have in fact been discovered and developed by indigenous communities and later taken over, sometimes stolen, and copyrighted by western doctors and companies. This kind of examples are many, which in itself is an evidence of the contributions from indigenous knowledge to the whole world.

“Knowing and naming go hand in hand”, writes Douglas Nakashima, who is the leader of the UNESCO Local and Indigenous Knowledge Systems project (LINKS) in the foreword to *An Environmental Encyclopaedia of Marovo Lagoon, Solomon Islands*, marvellous work by Edvard Hviding at Bergen University in Marovo and English and he continues: ”By understanding to what people assign names in their natural environment and how these natural things are further clustered into groups that are also named, we gain insights into the ways in which people think about and interact with the world around them” (Hviding 2005:VII).

I will demonstrate this from my own environment with terminology from my own language, Saami, that I have learned and used from childhood.

We have much snow and ice and therefore we need to deal with it.

These are some of the terms that describe the condition and layers of snow:

<i>geardni</i> “thin crust of snow” <i>gaska-geardi</i> ‘layer of crust’ <i>gaska-skárta</i> ‘hard layer of crust’ <i>luotkku</i> “loose snow” <i>moarri</i> “brittle crust of snow, thin frozen surface of snow.... which does not quite bear” <i>njáhcú</i> “thaw” <i>ruokya</i> “thin hard crust of ice on snow” <i>seajaš</i> “granular snow at the bottom of the layer of snow”	<i>skáva</i> “very thin layer of frozen snow” <i>skávvi</i> “crust of ice on snow, - formed in the evening after the sun has thawed the top of the snow during the day” <i>soavli</i> “very wet, slushy snow, snow-slush” <i>skaavdi</i> “empty space between snow and the ground” <i>vahca</i> “loose snow (especially new snow on the top of a layer of older snow or on a road with snow on it)”
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<i>skárta</i> “thin (more or less ice-like) layer of snow frozen on to the ground”	
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The quality and quantity of snow is usually judged according to transportation and pasture needs. *Siivu* is the term for “the going, the state of the ground etc. for traveling, the travel conditions” and *ealát* is ‘snow condition when the reindeer can find food under the snow’ (also: “something to live on (especially for reindeer), (sufficient) pasture”). There are many terms according to these needs:

<i>bearta</i> “heavy going because the ground is bare (without snow) in many places” <i>bohkolat</i> “deep snow of varying depth; small (steep) snow-drift on road or where one goes (plur.: wave-like little (steep) snow drifts” <i>časttas</i> “hard snowdrift (smaller than <i>skálvi</i> )” <i>čearga</i> “snowdrift which is so hard that it bears; crust of drift-snow” <i>činus</i> “firm, even snow (but not firm enough to bear)” <i>dobádat</i> “sticky snow, heavy wet snow” <i>fáska</i> “snow blown together by the wind, snowdrift (of snow blown along the ground)” <i>gálja</i> “very slippery going, frozen, slippery surface” <i>girrat</i> “heavy (of the going in frosty weather, especially when there has been a hard frost after a fall of snow)” <i>joavggahat</i> “place where the snow lies particularly deep after a fall of snow” <i>lavki</i> “slippery going; ice covered with loose, dry snow with no foothold” <i>moarri</i> “the kind of going, surface, when the frozen snow or crust of ice breaks and cuts the legs of horses or reindeer” <i>muovllahat</i> “place where people or animals	have ploughed through or plunged along in deep snow or a soft bog” <i>njeadga</i> “‘ground drift’ (drifting snow which gets blown up from the ground( which covers roads or tracks” <i>oavlluš</i> “depression, hollow, with slushy snow in it, on land or on ice” <i>oppas</i> “untouched, untrdden, covering of snow (where no way, road, has been made by walking or driving, or where reindeer have not grazed), deep snow, untrdden reindeer pasture in winter” <i>rodđa</i> “hard going (too little snow)” <i>sievlla</i> “the state of things when the spring snow is so soft that one sinks in it” <i>skálvi</i> “big (high, steep and usually hard) snow-drift” <i>skoarádat</i> “the kind of going in which one hears a grating noise (as the kjerris, sleigh, ski passes over a rough surface)” <i>spatna</i> “hard, firm, snow to drive on (when there is little snow)” <i>veadžahat</i> “place where snow has been blown away; (nearly) bare patch (where the wind has blown away the snow)”
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The need for terminology for reindeer comes from the fact that in good reindeer herding practices, there is a need to identify and describe animals for various purposes. One obvious need is the selection of animals for slaughtering, which in turn affects the structure of the herd. This is the terminology on male reindeer according to age:

Age in years	Basic terms	Alternative designations after castration
0 - 0.5	<i>miessi</i>	
0.5 - 1	<i>čearpmat</i>	
1 - 1.5	<i>(varit-čoarvedahkki)</i>	
1.5 - 2	<i>varit</i>	
2 - 2.5	<i>(vuobirs-čoarvedahkki)</i>	
2.5 - 3	<i>vuobirs, vuorsu</i>	
3 - 3.5	<i>(gottos-čoarvedahkki)</i>	<i>spáillit</i>
3.5 - 4	<i>gottos</i>	<i>heargi&lt;-&gt; spáillit</i>

4 - 4.5	( <i>goasohas-čoarvedahkki</i> )	<i>heargi</i> <-> <i>spáillit</i>
4.5 - 5	<i>goasohas</i>	<i>heargi</i> <-> <i>spáillit</i>
5 - 5.5.	( <i>máhkanas-čoarve-dahkki</i> )	<i>heargi</i> <-> <i>spáillit</i>
5.5. - 6	<i>máhkanas</i>	<i>heargi</i> <-> <i>spáillit</i>
6 - 6.5		<i>heargi</i> <-> <i>spáillit</i>
6.5 -	<i>nammaláhpát</i>	<i>heargi</i> <-> <i>spáillit</i>

There is a rich terminology with reference to body shape, body condition and behaviour characteristics (the translations are from K. Nielsen: Lapp Dictionary):

<i>baggi</i> “one who is small and fat, a small animal (esp. reindeer) with large belly”	<i>leaggán</i> “hollow-backed”
<i>biltu</i> “shy and wild one (usually of female reindeer; sometimes of girls)”	<i>leamši</i> “low, fat female reindeer”
<i>beavrrit</i> “reindeer with longer legs and a slimmer build than usual”	<i>moggaraš</i> “female reindeer who slips the lasso over her head” (in order to avoid being caught)
<i>buoidi</i> “fat”	<i>njirru</i> “female reindeer which is very unmanageable, difficult to hold when tied”
<i>busat</i> “who has large testicles or (of reindeer) only one, but a very large, testicle”	<i>njoalppas</i> “with sloping hind quarters”
<i>čálggat</i> “young animal who is so far advanced that he can accompany his mother even in difficult conditions”	<i>ravdaboazu, ravddat</i> “reindeer which keeps itself to the edge of the herd”
<i>čeačni</i> “short-legged animal”	<i>rávnnot</i> “draught or pack reindeer which remains in good condition for a long time”
<i>darsi</i> “fatty, a short fat person etc. (...esp. of a fat reindeer with short, branchy antlers)”	<i>rávža</i> “miserable, emaciated reindeer without a proper coat”
<i>doalli</i> “apt to resist (esp. of reindeer; the opposite of <i>láiddas</i> )”	<i>roaibu</i> “reindeer which is so emaciated that its bones protrude”
<i>guoirras</i> “thin, lean and dry”	<i>roaivi</i> “thin old reindeer”
<i>jáhnit, julsu</i> “big fat male reindeer”	<i>roanzžas</i> “tall, thin and emaciated”
<i>goanzi</i> “a tall, ungainly creature (also of a long-legged animal)”	<i>roašku</i> “big thin reindeer”
<i>gissor</i> “small draught reindeer”	<i>riebbi</i> “reindeer calf or lamb with a disproportionately large belly”
<i>goaisu</i> “ale reindeer who keeps apart all the summer and is very fat when autumn comes”	<i>ruoinnas</i> “lean”
<i>jáđas</i> “obstinate, difficult to lead”	<i>sarat</i> “smallish male reindeer which chases a female reindeer out of the herd in order to mate with it”
<i>joliin leat</i> (be in) “good condition” or “middling fatness”	<i>silan</i> “a lean feeble one ... that soon tires”
<i>láiddas</i> “easy to lead by a rope or rein”	<i>silli</i> “very lean...not persevering., not showing endurance in work”
<i>livat</i> “draught reindeer which is [must be “has”] worked so hard that it cannot be used for long journeys”	<i>skoaldu</i> “reindeer with a big head and a long nose”
<i>lojat</i> “very tractable driving-reindeer”	<i>spoairu</i> “long-legged, thin reindeer”
<i>lojáš</i> “very tame female reindeer”	<i>stoalut</i> “reindeer which is no longer afraid of the dog”
	<i>šlohtur</i> “reindeer which hardly lifts its feet”
	<i>váibbat</i> “exhausted animal”
	<i>vuonjis</i> “quite rested”

Only about the shape of the antlers we have some 50 words and then there is the color, the feet, the head, the nature of the coat and the earmarks, which is a chapter of its own. By combining these terms the description can be very accurate, as this example shows: *mu eamida-skivdnje-mearkkat-leanze-muzet-gálbbenjun-beavrrihis-lojes-áldo-biellu* meaning word-by-word ‘my wife’s-with an oblique cut-marked- with antlers which stick out very slopingly to the side-brownish-black- white on the nose and (or) forehead- with longer legs and a slimmer build than usual-good-tempered-female reindeer-with a bell’.

There is a very experienced American biologist at the University of Tromsø in Northern Norway who has been studying reindeer for many years in the Arctic. And there is a

particular reindeer herd he has gathered data on for a long time. Actually, he has all this herd, individual by individual, on his computer. I made an experiment a couple of years ago with the owner of the reindeer herd and this biologist. I selected a certain number of animals randomly from the herd and I asked the owner of the herd and the biologist to tell me what they deemed to be important of every one of the selected animals. They knew a lot of every one of them. The most important lesson from this was the difference in what they had cared about to observe and what they saw as useful information. The biologist came up with very exact data on age, weight development, reproduction abilities, health condition and genealogical facts. The owner on the other hand concentrated on general appearance, behaviour, mobility, willingness to follow or lead other animals, position in the herd in grazing situations, ability to defend the calves (for the cows), time for giving birth to calves (for the cows), condition in the spring, the ear mark and ownership of the animal and so on. It was a classical example of the kinds of differences in perspective that characterize indigenous knowledge and western scientific knowledge. Of course, weight is important when the animals are slaughtered for sale. But the point is that in order to secure the survival and healthy growth of the herd as a whole, you have to pay attention to many other factors. This knowledge is the prerequisite for having the benefit from the other qualities. So far, true skills in reindeer herding can only be developed by active participation in the work with the herd and can not be learned elsewhere.

**4. Why care about indigenous knowledge?**

A first argument in favour of indigenous knowledge is that many indigenous communities and cultures are dependent on this kind of knowledge, because it has not been superseded by other kinds of knowledge. I know this very well from my community.

Indigenous knowledge is not restricted to only local communities and animals and plants. The Alaska Rural Systematic Initiative has given the following list of topics that could be included when discussing indigenous knowledge systems (Burgess 1999:11):

<i>Animal behaviour</i>	<i>Observation skills</i>
<i>Building design/materials</i>	<i>Pattern recognition</i>
<i>Clothing design/insulation</i>	<i>Rules of survival/safety</i>
<i>Counting/measurements/estimation</i>	<i>Seasonal changes/cycles</i>
<i>Edible plants/diet/nutrition</i>	<i>Star knowledge/constellations</i>
<i>Fire/heating/cooking</i>	<i>Tools/Technology</i>
<i>Food preservation/preparation</i>	<i>Transportation</i>
<i>Genealogy</i>	<i>Waste disposal</i>
<i>Hunting/fishing/trapping</i>	<i>Weapons</i>
<i>Language/terminology/concepts</i>	<i>Weather forecasting</i>
<i>Medicinal plants/medical knowledge</i>	

Today there are many programmes that have been initiated on both national and international level. UNESCO created The Local and Indigenous Knowledge System (LINKS) in 2002. It works with knowledge holders to promote recognition of their expertise about local environment and reinforce their role in biodiversity governance. It also recognises the importance of keeping indigenous knowledge alive within local communities by reinforcing its transmission from elders to youth (Hviding 2005:VII).

Little by little this kind of knowledge has been taken more and more seriously by researchers and people working with development aid. Many “modern” ways of improving peoples

conditions have failed. On the UNESCOs website, there is a list of “Best Practices of Indigenous Knowledge” (see appendix). I randomly looked at two examples:

***Improving nutrition with Moringa ‘miracle’ trees in Senegal***

“Seed kernels of the tree possess natural flocculents and are used by people in the Sudan to purify the turbid waters of the Nile.”

**Participatory Animal Health Programme and Ethnoveterinary Development Programme, Tanzania**

“Ethnoveterinary knowledge is used to treat livestock and prevent disease. It can sometimes be more effective than orthodox drugs and is a useful stopgap when drugs are not available.” ([http://www.unesco.org/most/bpindigenous\\_knowledge10-2.htm](http://www.unesco.org/most/bpindigenous_knowledge10-2.htm))

But these are still exceptions. The nearly two decades of work of the Norwegian Saami Rights Commission has so far taken Saami oral testimony regarding land use, traditions, ecological knowledge, renewable resource management into account in a very limited way. The reindeer herders in Norway have been complaining that the Ministry of food and agriculture does not include the traditional knowledge of reindeer herders in the management of reindeer herding, in spite of a direct request to do so from the Norwegian Parliament. Indigenous peoples are knocking on the doors everywhere with their knowledge, but few doors open up.

Indigenous knowledge is disappearing everywhere as a consequence of the many centuries long cultural war against indigenous cultures and lack of recognition. Introduction of indigenous knowledge is to challenge the hegemony of western science, which can be seen as a challenge to the very concept of modern society (Burgess 1999:8). This explains the scepticism and opposition against this kind of thinking. It is therefore, of course, very much a question of power relations. A dispute is won by the party whose facts are accepted. Statements from the indigenous side are seldom taken seriously when decisions are made.

The ambitions of the indigenous peoples globally is probably best expressed in the *Draft United Nations declaration on the rights of indigenous peoples*, art. 29:

*Indigenous peoples are entitled to the recognition of the full ownership, control and protection of their cultural and intellectual property.  
They have the right to special measures to control, develop and protect their sciences, technologies and cultural manifestations, including human and other genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs and visual and performing arts.*

Indigenous knowledge is poorly protected by national Intellectual Property regimes. This is also the case in Norway. WIPO (World Intellectual Property Organisation) has been quite active in mapping the needs for protection of indigenous knowledge. For Indigenous peoples, it is the knowledge of the interconnectedness of all that was, that is and that will be, the vast mosaic of life and spirit and land/water forms, of which are an intricate part. It is the knowledge of all this, the accumulation of cultural heritage since time immemorial, that is the indigenous knowledge and the intellectual property of indigenous peoples. Legislation traditions have difficulties in capturing all these aspects.

## **5. Indigenous knowledge as the true roots of humanism?**

Why is this kind of knowledge the true roots of humanism? The first reason is that it has been obtained through generations of daily experience and testing over a very, very long time -

much longer than any of the western ways of establishing and testing knowledge has existed. Historically, it is the root to all knowledge.

The other reason is that it is truly human-oriented in a broad sense: it takes into consideration the role and position of human beings in a wider whole. What is more humanistic: Seeing the whole and not losing it out of scope and going into details and risking to lose the whole? A machine can measure exactly every detail like the frequency of light, but when it comes to organise all these data to a whole, the human mind is superior to any machine - partly because it uses its intuitive potential.

It is a fact that profound knowledge has been established by indigenous knowledge-systems through time. In Navajo astronomy, it is told that the universe first was dark and needed light. This is in fact in accordance with the hypothesis of Big Bang which includes a dark universe for a long period. In the beginning there was no order, direction or sense of time or measurement (Cajete 221, from Zolbrod 1984). Again, this is wholly in accordance with the scientific facts that time itself and the dimensions were established by at the beginning of the universe. How could Navajos know this? Nobody knows. The important thing is that they have in fact have known this long before Einstein and theory of relativity. In Chinese Tao philosophy we find a profound understanding of such concepts as particles and emptiness that is amazingly similar to theories of modern quantum physics. The Brahman, shunyata or Tao concept of emptiness is a kind of vacuum with unlimited potential. This is wholly in line with the concept of vacuum in modern quantum theory. These are some of the amazing parallels that Fritjof Capra has demonstrated exist between ancient mystical traditions and the discoveries of 20th century physics in his international best-seller from 1975 *The Tao of Physics*. (Capra 1975, 1983). There are many examples of this kind.

The most important thing is that knowledge is established. The second most important thing is to know how knowledge has been established.

I admit that for the second part, western scientific ways of recording are very useful and superior to indigenous ways.

In a traditional sense, the humanistic disciplines of science are those that deal with human beings in a cultural context. But humanism is not a fixed concept. 'The good of man' could be said to be the ultimate aim of all good humanistic work. When we discussed the goals of development within the WCCD, we had to limit ourselves to this: "development is seen as a process that enhances the effective freedom of the people involved to pursue whatever they have reason to value" (WCCD 1995:22). There are no absolutely definable goals for development. Even in a globalised world, different peoples should still have their freedom to pursue what "they have reason to value".

We need both ways of thinking: analytic and intuitive. They are not entirely mutually exclusive. We could therefore argue that it would be an act of gross negligence if one of these possibilities were excluded.

Western scientific thinking and development models have, at least for some time, seen nature as an enemy. So far, there are very few ecological systems that have been successfully controlled or improved by western scientific methods. The latest proof of this is the development in the Arctic where global warming is becoming a threat in the near future to many people, not only to us who live there.

yes, there is a development. In many international documents we find reference to indigenous knowledge, like the Bruntland-commission, Agenda 21 and the Convention on Biological Diversity:

*“Each Contracting Party shall, as far as possible, and as appropriate ...*

*“(j) Subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge...”*

But there is a long way between rhetorics and reality. In the academia, publications in indigenous languages are still not considered of much value.

Norway has supported the Norwegian majority language in academia all from the time of independence from Denmark. But they are not willing to support research in our language in the same way. This is a general problem and the increased domination by English nowadays is a threat everywhere to linguistic and scientific diversity.

Libraries and information systems are wonderful things. But it makes a difference what kind of information is recorded and disseminated.

I hope you will remember this in your work.