

## **Mainstreaming Gender Participation as an Essential Component of a Knowledge Management System in the Integrated Water Resources Management in the 21st Century**

Dr. Khin Ni Ni Thein

Executive Director

Water, Research and Training Centre for a new Burma, WRTC. <http://wrtcburma.org>

### ***1. Introduction***

Although it is generally accepted that the supply of drinking water of an acceptable standard is essential to public health, the means for ensuring this are still disputed. The disputes often have their origins in their various costs that this supply of water entails and the way in which these costs are distributed within societies and between societies. Very commonly, those who have the most urgent need for improved drinking water are those who, it appears, can least afford the investments that are required. Correspondingly, the greatest effort has been put into providing investments directed to improving drinking water supplies. This effort corresponds to a transfer of financial resources from one part of a society to another part or from one society to another society. The crux of the argument that will be presented here is that this transfer of financial resources must be accompanied by a transfer of knowledge resources if such intra-society and inter society transfers are to be effective at all. Moreover, the transfer of knowledge resources necessitates the introduction of quite other kinds of technology than those normally associated with the transfer of financial resources; associated in turn with quite other kinds of social, including institutional, arrangements. The approach that is proposed here is thus of an essentially socio-technical nature: its technical innovations will be useless unless adequate social, including institutional, arrangements accompanying them, while the social transformation that is being sought here will not be realizable without the new technical means.

In the approach that is proposed here, knowledge is transferred in two basic forms and in two corresponding directions. The one form is that of the 'ordinary' people, travelling from these people to certain 'scientifically-minded people', and the other form is composed of these scientifically-minded persons travelling back to the 'ordinary people'. Both ways of transferring knowledge involve two couriers, namely (a) women and (b) Information and Communication technology (ICT). Thus this approach has to be seen within the context of mainstreaming gender issue in the (Vision21) 21st century. Since these two couriers have to operate hand-in-hand 'Women and Technology' is an issue that has to be highlighted. According to the *International Women's Tribune Centre* the technological choice for the female couriers itself depends upon the choices of women. The motto is 'If it is not appropriate for women, it is not appropriate'. For some, of course, this might well be too much to swallow! However, it is the only way that ICT can be used effectively in many, if not most societies. On the other hand, without ICT, there will be very little to achieve. To keep the balance between choices of women and available technology under the on going circumstances of each country in our Southeast Asian region, the above mentioned technological transfer needs two emergency surveys - (1) innovating in the technology available (this can be done by internet learning from the prominent training centres such as WEDC in United Kingdom, Intermediate Technology at <http://www.oneworld.org/itdg/publications.html>, International Water and Sanitation Centre, IRC, at <http://www.irc.nl>, and many more); and (2) screening procedure to select the appropriate technology to be used in a specific country in our region (in the present case, Southeast Asia). At the same time, parallel to these surveys, we need to start the training in two branches as follows: (a) empowering the female coordinators with selected technology, (b) training the courier/women at the grass-roots level to play an active participatory role in the water and water resources management sector.

### ***2. Background***

The purpose of this approach is to provide the people in our region (Southeast Asia), including the very poorest, with knowledge and advice about all water related risks and opportunities with which they may confront now and in the future. Within this perspective, water is seen as the great unifying agent, both within human and natural economies and, ultimately, between these economies - as has been celebrated

over the millennia in any number of myths, legends and sagas of peoples regardless of their social culture and religious beliefs. Within the frame work of this approach such autochthonic forms of knowledge, grounded in a collective wisdom, are regarded as the foundations of all other forms of knowledge of by far the greater part of the population of the Southeast Asian region. Similarly, by far the greater part of the knowledge and the means of providing advice are accordingly already implicitly present among the *ordinary* people, including, if only potentially, among the poorest. The manner in which this knowledge and corresponding advice is expressed is comprised of that combination of ordinary language and simple illustrations that we commonly call *narrative discourse*. Although apparently *simple* this language is used to transmit spiritual, as well as religious knowledge in all religions, including Buddhist, Christianity, Islam and others.

This kind of autochthonic knowledge and its practical everyday extensions, together with the *narrative discourse* that embodies it as *narrative knowledge*, is especially well suited to those societies where formal education is not available or unreachable. In other words, this approach does not necessitate reading and writing skills from the grass-root participants. At the eve of the new millennium it has been joined by another kind of knowledge, which we call *scientific knowledge*. Inseparable from this scientific knowledge is another kind of discourse, which we call *scientific discourse*. By the application of scientific knowledge through the agency of scientific discourse it has become possible to do many things that were impossible using the *traditional* forms of narrative knowledge and narrative discourse. Thus, for example, in the present context, it now becomes possible to foresee weather, flood and soil conditions considerably further forward in time, to estimate crop yields subject to various agricultural practices, and so provide advice on preferable farming operations. There are, of course, very many such examples of the possible benefits of application of modern science and technology. Just one example is the organization work of this Vision 21 meeting. The electronic mails flew across the continents with the speed of light, so to speak, Manila - Paris -Delft -Manila -Delft -Paris, etc. This *is* ICT! On the other hand, at the present time, few of these benefits are available for most of the people of our part of the world, and very few indeed are available for the poorest of these peoples.

One of the objectives of the present proposed approach is to make scientific knowledge available for all the people of the Southeast Asian region, including the poorest, by couching this knowledge in narrative forms that these peoples can assimilate. By itself, however, the value of this service will still be quite limited. This is because the nature of the knowledge required as well as its mode of presentation will often vary greatly according to the situation of the recipients of knowledge: the state of their assets, their obligations, capacities, intentions and every other factor of this kind. The value of scientific knowledge, no matter how appropriately this is presented, will be limited unless the full nature of the recipient *on the ground* can be identified. And this identification and the means of such identification must be translated from its existing narrative form into a scientific form that can interact with other scientific knowledge. However, this is at the beginning of a one big loop!

The other principal objective of the proposed approach is then to direct the attention of all available scientific knowledge to the real-world constraints, opportunities and aspirations of the recipients of that knowledge. From this point of view there is no such thing as a *paddy farmer* per se, but a great variety of different individuals, families and communities who cultivate one or more different varieties of paddy and exhibit a very wide range of physical situations, social limitations and levels of ambition. This is to say, to introduce the technically precise term, that the repositories of science and technology will have to be provided with *intentions* that mirror the needs of the recipients of their knowledge if this knowledge is to be truly relevant. These repositories of scientific knowledge have thus to seek out rather precisely the scientific knowledge that is most relevant to the recipients of this knowledge, as well as providing the means to formulate this knowledge in an appropriate narrative form. Please let me repeat our message here, in the context of mainstreaming gender issue in the Vision 21; 'if it is not appropriate for women, it is *not* appropriate'. By the same token, these repositories of scientific knowledge have to be provided in appropriate scientific form with knowledge about the various situations of the individual families and communities that are the recipients of the narratively-presented scientific knowledge.

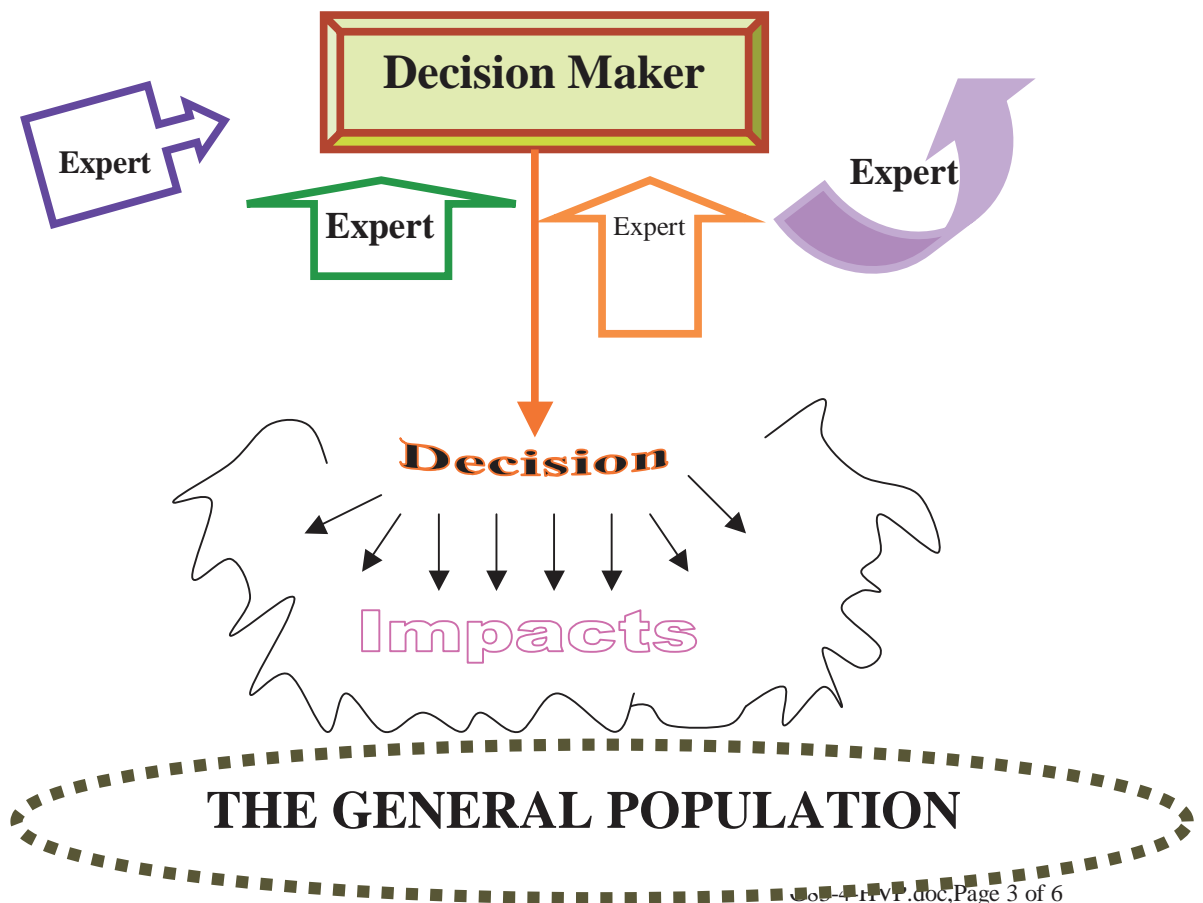
We thus have to do here with a two-way flow of knowledge, with one way proceeding from the *ordinary people* to the *scientific people* and the other way proceeding from the *scientific people* to the *ordinary*

people. Both directions of flow have to pass through a *translation layer*, in the one case corresponding to a translation from narrative discourse into scientific discourse and in the other case corresponding to a translation from scientific discourse into narrative discourse. This translation is performed in the head and heart of the *agents*. An agent is used as a *transformer*. These we call *trainers-to-be* in the 21st century. For genuine capacity building we need capable, right-minded professionals. The *trainers-to-be* should be, put most directly, *right-minded persons* where by right-minded we mean well balanced *social-minded and scientific-minded* persons. Women are, so to say, *naturally socially minded* and capable of caring through all hardships. Women are born to be mothers! Nature equips them with boundless affection, great tolerance, quick wit and enormous compassion. The nature gifted *mothering* or *art of mothering* is the basic element we are granted if we engender the *trainers-to-be*. However, it does not mean that there will be no space left for *male trainers-to-be*. We will have to ensure space for everybody while we are mainstreaming gender issue in the 21st century.

There is a further objective of the proposed approach that is by no means so immediately and explicitly expressible, which is to maintain, and indeed in many cases to re-establish, a more sustainable balance between the needs of human and natural economies. We should observe, on the one side, that many of the traditional myths, legends and sagas in all civilizations are concerned with just this balance, while many traditional agricultural and other practices provide means to maintain the balance. On the other side, the joining together of narrative knowledge and scientific knowledge in the way that is now being proposed provides new and powerful means to overcome the increasingly common situation whereby the more that mankind encroaches upon the needs of nature, the more nature responds by releasing *natural catastrophes* upon mankind.

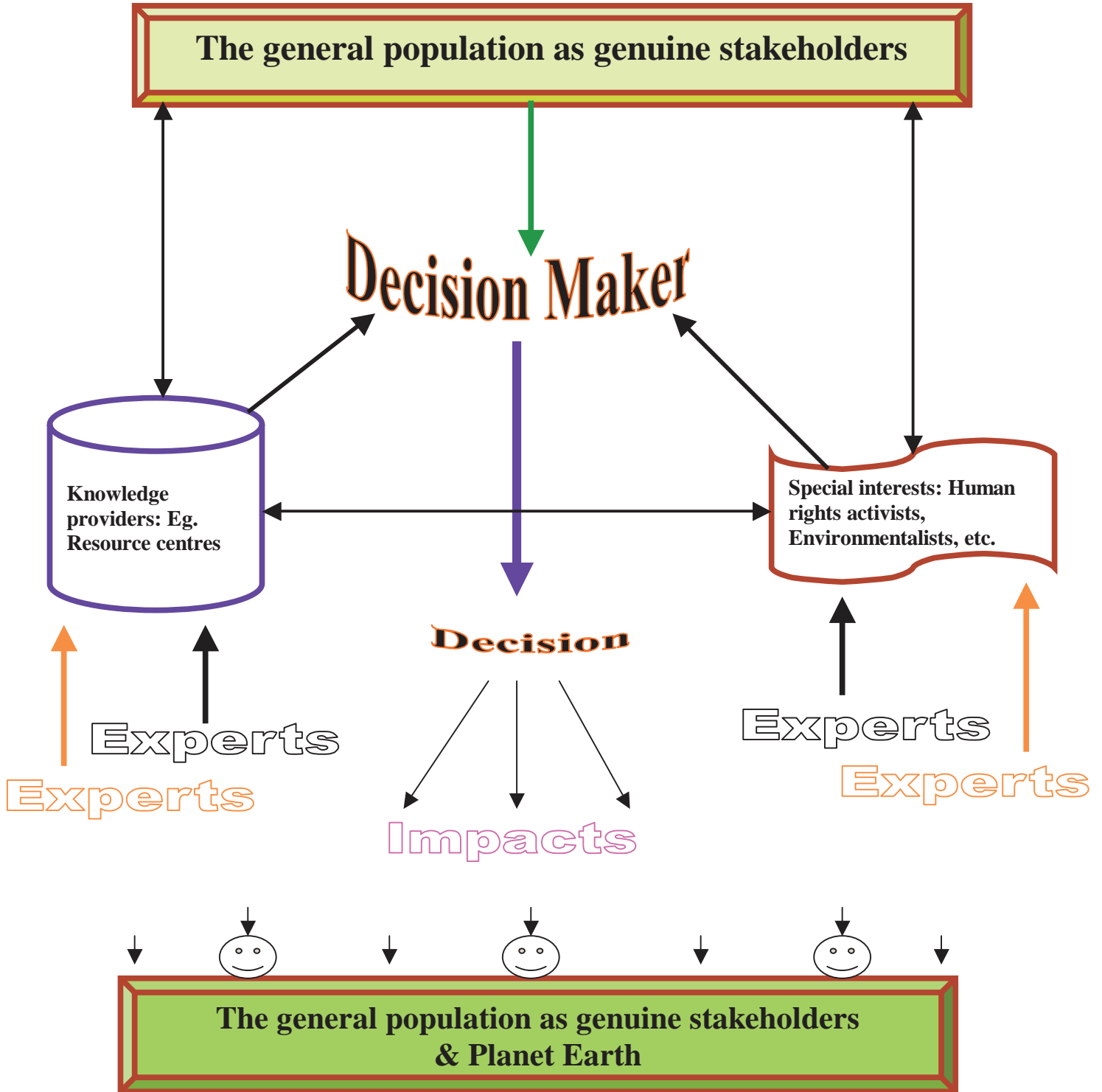
### 3. The basic structure of the system

At present the structure of the decision making process that has been established and exercised so far is very rigid and exclusive. It can be depicted as shown in Fig.1.



- It is commonly observed that the general population becomes alienated and effectively disempowered through this process. Empowering this population as genuine stakeholders in water resources management of the new system as depicted in Fig.2.

**Fig. 1 The established order in decision making**

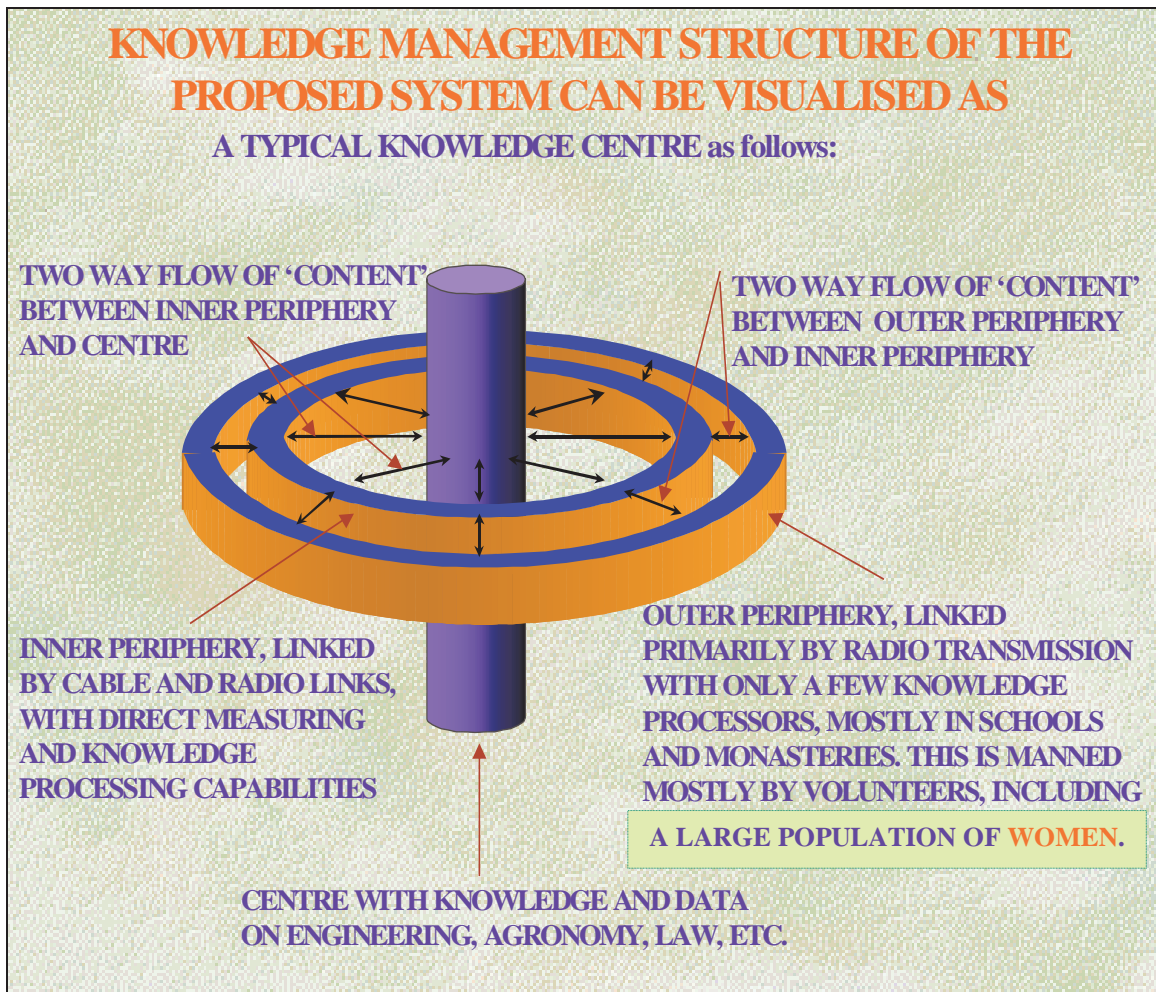


**Fig. 2 The proposed order in decision making** ... mainstreaming gender issue in a new basic structure of the knowledge management system and (b) re-adjusting the power relation between stakeholders and the decision makers - empowering general population at large as genuine stakeholders.

In fact, knowledge is produced not only by the educated people, professionals and experts but also by ordinary people. If we were to utilize *knowledge* for the sake of *people and environment*, the new decision making system has to be introduced as shown in Fig. 2. What is being proposed here thus corresponds to a reconstruction of the so-far established order. It corresponds to the new order of power relation that is realized by an inversion as well as an addition in knowledge relations. The kind of system that is proposed here as a means of realizing this inversion and addition, which is essentially a knowledge management system, comprises as its principal components:

- A knowledge centre (core) connecting to (other) knowledge providers;
- An inner knowledge periphery that receives, processes and transmits knowledge passing between the centre (core) and an outer knowledge periphery
- An outer knowledge periphery situated primarily at the village level.

The corresponding structure can be visualized as shown in Fig. 3.



**Fig. 3 Knowledge management structure of the proposed system.**

This is what is nowadays commonly called a *hydroinformatics system*. It is correspondingly within the present context a socio-technical system. Its technical components cannot function effectively without appropriate social and institutional arrangements and the social changes that it should release cannot be catalyzed without the provision of appropriate technical means. These socio-institutional components are related as shown in Fig.3.

In basic outline, the system will be composed of:

1. A core group of professionals initially responsible for the design/analysis of the system and specifically of its centre, its inner periphery and its outer periphery;
2. The resulting knowledge centre;
3. The inner periphery (with other kinds of *professionals*) and
4. The outer periphery (with a very few *professionals*, and mainly run by *lay persons*, and especially *women* on a part-time basis).

It is most appropriate to present this paper to the Vision 21 meeting where mainstreaming gender issue is the centre of the attention. As is clearly shown in Fig. 3, women are the most active participants at the outer knowledge periphery. This gives the impression that without the outer periphery, (a) the knowledge centre has no reason for existing and (b) the knowledge management system is paralyzed, and indeed useless.

#### **4. Conclusion remark**

The scientific, social, technical and financial benefits that can be expected to yield from the proposed approach are very obvious and straightforward. However, an extraordinarily added benefit should be mentioned here as a conclusion remark. It is this class segregation can become less by putting proposed approach into practice. The notion that the first kind of knowledge (produced by ordinary people) is as important as the scientific knowledge (produced by educated people) will highlight the *21st century attitude* towards knowledge. Further to this is the notion that knowledge is for all people and can be produced for a large part *by the people for the people*. Knowledge management indeed should adopt the way of *mainstreaming gender* in its entire domain thus delivering benefits to morale.

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