

Indigenous Knowledge in agriculture

Esmael Ghorbani, Maryam Khodamoradi, Mehran Bozorgmanesh* and Abbas Emami

Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

*Corresponding author: mehran11070@yahoo.com

Abstract: Indigenous knowledge owners of world in current age (which known as information age) have valuable experiences from industry age and from inappropriate exploitation of their natural sources. These countries have learned that exporting produced goods is better than selling petroleum. enforcing indigenous productive system at villages and also encouraging youths and teens to learn indigenous knowledge at on hand, and preparing suitable research condition for applied-sciences scholars in order to identify better and increasing applied aptitude of indigenous knowledge at the other hand, is equal to protection and sustainable use of natural resources.

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Introduction:

Imbalance population growth, non-sustainable efficiency of natural sources and unequal distribution of resources, goods and services made involved societies in confusing issues and impasses. In these countries, inappropriate sampling of abroad countries and inordinate imports (e.g. heterogeneous and non-indigenous technology) devastated independent collection of micro local systems, and instead has established heterogeneous and dependent system to global economy system, that obviously couldn't supply people's needs. Since, this development process is formed without considering social, cultural and environmental consequents so isn't continuing and human have to find strategies which can make development sustainable and humane (Popzan, 2002).

Indigenous knowledge owners of world in current age (which known as information age) have valuable experiences from industry age and from inappropriate exploitation of their natural sources. These countries have learned that exporting produced goods is better than selling petroleum. enforcing indigenous productive system at villages and also encouraging youths and teens to learn indigenous knowledge at on hand, and preparing suitable research condition for applied-sciences scholars in order to identify better and increasing applied aptitude of indigenous knowledge at the other hand, is equal to protection and sustainable use of natural resources (Zare, H and Yaghoubi, 2003).

From Robert Chambers' view, power and wealth are at industry and at cities, and poverty and deprivation are part of villager's life. Power and wealth of cities of world has absorbed experts, sources and needed research facilities for producing and disseminating.

knowledge. Knowledge of these modern centers is considered scientific, advanced, and valid and enjoys premium technology. He labeled this group as "first" and in contrast "last" for deprived villagers. Because, preferences and values of these two groups are different.

Their knowledge and attitudes are also different. he believes that since "first" development remedies and their attitudes have led to fault, irregular and deprivation, so deprived villager's attitudes and knowledge should be considered serious in order to reach to improve conditions for this part of human society as they need and demand (Azkia, M and Imani, 2008).

Features of indigenous knowledge

Some of these features are as follow:

Indigenous knowledge is holistic: indigenous knowledge is gained by sense and inspiration force and leads information unity. In spite of formal knowledge that is aural, visual and analytic.

Indigenous knowledge is verbal: writing and documenting indigenous knowledge would make it out of reach of villagers who can add to it, if it would not follow applied activities.

Indigenous knowledge is practical: it is possible to write about indigenous knowledge but it is impossible to educate and learn it through books and articles. Only way to learn it is close view and follow professor.

Indigenous knowledge isn't explanatory: it isn't possible to expect one master (e.g. mason, apothecary, farmer) to explain his method efficiency in a way that is apprehensible to us (literate people).

Indigenous knowledge is local: villager's knowledge has formed in itself environmental and climate framework. Effective indigenous knowledge

at one geographical area isn't necessarily effective at other area (Nowroozi, A and Alagha, 2000).

Indigenous knowledge is general: while, formal knowledge emphasis is on saving time and removing ideas and also monopoly of knowledge at universities and research institutes, but indigenous knowledge is, receptive, incentive and needs to more people's participation at learning, developing and add to it. Furthermore, in verbal cultures, it is impossible to separate science from world and even include it to computer and book. Every human are important in indigenous knowledge.

Indigenous knowledge is deteriorating quickly: by every death of old indigenous people, great knowledge resources would be lost also, so every action toward gathering indigenous knowledge is necessary.

Learning by doing: repeating action in order to sustain and enforce indigenous knowledge through "learning by doing" is one of features of indigenous knowledge in real operation environment (Emadi and Abbasi, 2001)

Villager's knowledge and especially indigenous knowledge systems have various dimensions that is include linguistic knowledge, zoology, ecology, climate, agriculture, ranching and professional skills. Range and value of this knowledge hasn't been considered. Four aspects of various dimensions of rural knowledge were selected and were analyzed, In order to change attitudes and reformer's behavior of rural development. These dimensions are: agriculture operations, rural knowledge about nature, rural people's aptitudes and abilities and their experiences (Razavi, 2002).

In Chambers' opinion, indigenous knowledge or rural knowledge has various dimensions that he classified them to four parts in order to explain more and better about diversity of indigenous knowledge that are as follow: A: farming activity; B: knowledge in relation to nature; C: indigenous people's aptitude and ability; D: indigenous people's test. indigenous people's knowledge originated from exact viewing of environment; since indigenous villagers have direct contact with phenomenon and also see all different processes at nature so have especial aptitude and ability compared to outside people. Maybe least known aspect of indigenous villager's knowledge is essence of tests that they do which maybe these tests are available to choose "bests" and some other for "minimizing risks" (Dewes, 1998).

Advantage of indigenous agriculture

It is more than one hundred century that is passed from anthropologist studies in farming societies and production systems and during the last thirty years, comprehensive reports were obtained of

subsistence practices. These reports consist of important information about social relations of production, operational practices and environmental protection that includes indigenous methods for using of earth and rural people's encounter with their environment (Smita, 2003).

These studies have given new dimension to agriculture research. Now, in many countries the managers of agriculture resources are the people who are trained in western countries. So if the manager become familiar with the culture and environment roots of indigenous system of resource management, they won't do mistake. Indigenous agriculture is based on cooperation of farmer with nature. Recently researchers of ecological agriculture have more attention to these systems. The result of these studies is important from two sides:

1- At the first, in the process of agriculture renovation in the third world that is indeed unavoidable, the indigenous agriculture knowledge and local methods in management of agriculture resources is to be destroyed and simultaneity environmental regions are on the verge of destruction. Modern agriculture prefers huge profit from resources and didn't pay attention to environmental, cultural, social and economic varieties of traditional agriculture. So incongruities of agriculture development plans are not compatible with rural needs and talents and also rural conditions. By recognizing indigenous agriculture features such as traditional classification for identifying plant and animal species and using of indigenous practices like simultaneous cultivation of compatible crops, we can get useful information about suitable ways for agriculture. Surely these guidelines will be more compatible with rural needs and agriculture and environmental features of each region and won't be reckless to social, economic and environmental complex issues (Appleton and Jeans, 1995).

2- Second, with studying indigenous agriculture we can get points that will help us to design the same systems in industrial countries. Sustainable agriculture which is taken from indigenous systems will remedy the shortcoming of modern agriculture. In a single-product of modern farm, life circles of nature has changed by using chemical poison that give no chance for using principles of ecological agriculture. But completeness (evolution) of culture and environment is the result of local agricultural systems (Ahmed, 2000). In indigenous agriculture, variety and alternation of cultivation make minimize the possibility of farming products destruction. Although these systems have resources limitation, but they use of learning advantage and intellectual ways for use of animals, soil and compatible farm species. For this reason, researchers of ecological agriculture know

these systems as unexampled kinds to specify constant static scales for agriculture activities. In industrial countries they use of these scales for designing and managing ecological production systems (Emadi and Amiri Ardekani, 2004).

With all the advantage we account for native knowledge we should contemplate that for reaching a balanced understanding of this knowledge, we shouldn't indicate it very important or not very unmeaning as Chambers say. Also we shouldn't consider rural people an intellectual people. Because they can make mistake like any other people or group. And also this knowledge is not reliable forever. In some places this knowledge is combined with some superstition believes and we should not forget its spiritual and mental aspect (Warren, 1999).

Reaching to sustainable development through native knowledge:

Dictated pattern's failure through western development countries to third world countries show that native knowledge is necessary to reach development.

Untrop believe that usage of local knowledge is efficient and useful in development and native knowledge's researchers believe that they achieved to an important source for innovation in agriculture methods and a good farming production to improve the rural people's life. On his idea, some of researchers call native knowledge as a good supplement and replacement for modern knowledge and they have tried to spread the usage of this knowledge all around the world. These plans as a "communion research with farmers" or "first is the first" are introduced. In this research method, private organs and local groups have the main role and unlink the current research plans, the tests are done with the farmers attendance in their farms and not in research centers and far from environment condition. The ways that farmers and rural people use for management of their living environment are the most scientific ways, although we couldn't understand it at the first sight (Chambers, 2000).

Eshraghi (2000) explained that by introducing sustainable development model or development environmental model and according to world food organization (FAO), sustainable development will create when applied technologies in rural development are in proportion with rural people's knowledge and also are acceptable by them. Also he says that one the main ways to reach sustainable development in society is that to have enough and necessary attention to the rural's native or local knowledge (Merrewij, 1998). It is also explained that attention to this knowledge needs a complete recognition of rural people and their knowledge that through assembling

of this knowledge we can find a correct way to reach a sustainable development and we should know that the movement toward sustainable development is not possible without correct using of native knowledge. Many development experts believe that the Sustainability of this concept is at the studying of this knowledge and in becoming popular in development. Indeed, native knowledge with its holist features had known the relation between nature's components better and had smoothed the way to Sustainability of development (Gigler, 2003).

We can summarize the usage of native knowledge in development as follow:

1- Protection and maintenance of natural sources. Native methods in management of natural sources are suitable pattern for managing natural sources in sustainable development.

2- The success of sustainable development plans is depended to rural people's communion at designing, schematization, performance and assessment. Use of native knowledge is necessary for rural people's communion.

3- Native and modern knowledge should be combined because according to our needs and vulnerability of remained natural sources, none of them are able to remove our needs a lonely.

4- For recognizing development needs, trouble shooting problems should be polestar from rural people's view and recognizing problems and making efficient relation with rural people are possible through native knowledge.

5- In industrial countries, native methods are forgotten completely because of using modern knowledge in production process. As native methods are the most suitable way for achieving sustainable development goals so, many efforts were done to make this knowledge alive.

As a result not only we shouldn't forget the native knowledge but also we should use of this knowledge in developmental plans. Using native knowledge in developmental projects will help to have sustainable development in villages. So developing and not developing that were using of western development patterns for many year, should use of their native and local knowledge which is the result of many years experience and by helping these plans they can reach to a sustainable development (Brouwer, 1998).

Conclusion and discussion:

In order to develop agriculture extension activities, considering indigenous knowledge is critical because, sense of self-esteem and reliance on local sources would be reinforced by citing of vast application of Iranian indigenous knowledge and others ancient culture of world at sustainable

development of industrial countries. also, necessity of considering indigenous knowledge at developing extension programs is emanated from where that is considered as principal components and sustainable human development items is emanated from same sources. At sustainable human development, people are considered as “goal” of social and economic policies that their range of their selections would be extended in order to actively participate at decision making. Therefore, people’s participation is one of tools of sustainable agriculture development. But active rural people’s participation at extension programs as a form of sustainable would not be possible unless by believing role of rural people’s knowledge, vision and skills (Brouwer 1998).

So, not only attendance of indigenous knowledge is necessary for applied researches but is important at compatibility researches and it enforced importance of attending to indigenous people and their knowledge. Therefore, applying affective strategy for transmitting technology has been among from affective fields at attending to indigenous people's knowledge and especially experts; because, development institutes realized positive their affects for doing this more than ever (Merrewij 1998).

Indigenous knowledge has been manifested at sustainable process and improving extension programs at industrial countries of world, very well. Indigenous knowledge related to agriculture, medicine, food and architecture has been widely used At European countries, USA, Canada, Australia, by new names.

So, effort and national commitment and multi-dimensional support is very critical for recording, valuing, extending and exchanging this rich source and also preparing mechanism and practical strategy for synthesizing this knowledge with new knowledge and agricultural development programs.

Agricultural extension was identified as one powerful IT focused area, due to role variation at knowledge system and agriculture information at one hand and at the other hand due to its dependence on various exchanges among farmers, that can has great affect on rural society and developing agriculture. So that work and productions of farmers would increase by farmer’s access and use of Internet and subsistence farmers at all over the world are at developing by gaining needed knowledge and information that during time would becoming as commercial producers. Transmitting from system-cycle source of agriculture to technology-cycle system of agriculture placed more responsibility on agricultural extension because agriculture extension system is as vital technology transfer crossing to farmers at one hand and as crossing for referring feedbacks, needs and

agriculture issues, researchers and policy makers of market.

What that is obvious is that extending and researching agriculture can help to sustainability through close relation to farmers, attending to their experiences, gaining their information and logical understanding of agriculture activities, attending to their vital needs for doing “demand-base” researches and extension education efforts for developing agriculture, at process of improving agriculture development.

In the past half century, modern knowledge has provided new and modern technologies in agriculture that has caused a main evolution in production process. Also this technology has caused problems in environment, production and social aspects and has forced thinkers and deciders to think about them carefully. One of the ways to solve these problems is that to use of our ancestor's tentative knowledge. Using of our ancestor's knowledge and experience is called native knowledge and this provide an opportunity to use of local knowledge in the process of specifying needs and designing suitable technologies and applying it. The native and modern knowledge not only are not in contrast with each other but also are each other's supplement to reach a sustainable development and we can use of them in our needed technologies. Believe of educated people to native people and their knowledge “precondition for making them close” is called combination and compilation. Making evolution in modern system for attention to tentative knowledge is the main necessity for this compilation. Another necessity for this evolution is the researcher's attention to experimental accumulated wisdom and historical exploit by using qualitative and communion methods. Also applying compilation methods and making evolution among government, educational centers, farmers and peasant is the necessity and pre condition for combination of modern and native knowledge.

On the research which was done by Bozarjomhari (2004) with this title "analyzing native knowledge position on rural sustainable development". It was specified that although there are many differences between native and modern knowledge but they are not in contrast with each other, because they are each other's supplement and we can't be success when we use them separately. According to new parameters in rural development, for solving rural problems, at the first we should use of native solutions and if it was not efficient, we can use and test external solutions.

Research findings which was done by Emadi and Amiri (2004) with this title " compilation of native and modern knowledge is necessary for reaching agriculture sustainable development" signify that The

believe of educated people to native people and their knowledge " precondition for making them close" is called combination and compilation. Making evolution in modern system for attention to tentative knowledge is the main necessity for this compilation. Another necessity for this evolution is the researcher's attention to experimental accumulated wisdom and historical exploit by using qualitative and communion methods. Also applying compilation methods and making evolution among government, educational centers, farmers and peasant is the necessity and pre condition for combination of modern and native knowledge.

Corresponding Author:

Mehran Bozorgmanesh
Marvdasht Branch, Islamic Azad University,
Marvdasht, Iran.
E-mail: mehran11070@yahoo.com

References:

1. Agrawal. A, (2002) "Dismantling the Divide between Indigenous and scientific knowledge "Development and change vol 26.No3.
2. Ahmed, M. 2000. Indigenous Knowledge for Sustainable Development in the Sudan. Khartoum, Sudan. Khartoum University Press.
3. Amiri Ardakani, M. and Shahvali, M. Principles, concepts and indigenous knowledge Agriculture "series of publications and development of villages No. 34, Second Edition 2003.
4. Appleton, H., and Jeans, A. 1995 "Technology from the People: Technology Transfer and Indigenous Knowledge". Science, Technology and Development.
5. Azkia, M and Imani A, Sustainable Rural Development - Publications Information, Tehran, 2008.
6. Bouzarjmehri, Kh. indigenous farming knowledge of gender and its role in Rural Development and Research, Centre of Quarterly Tehran University Women (Women's Research), 2005.
7. Box, L. (1999), for the fun of it, Guest Column, Indigenous knowledge and Development Monitor 792; 36.
8. Brouwer, Jan. (1998). IK, IKS and ITK. Indigenous knowledge and Development Monitor. Vol.6, Issue 3, p, 13.
9. Burger, J. (1997)(The Gaia Atlas of First Peoples: A Future for the Indigenous World, Penguin Books, and Ringwood.
10. Chambers, R - rural development, priority part to the poor (supporting vulnerable groups), translated by Mustafa Azkia, Tehran University Press, 2000.
11. Dewes, w. (1998), Introduction, p. 3in traditional knowledge and sustainable in S. H. Davis and K. Ebbe (Eds) Proceedings of a conference held at the World Bank Washington, D.C, sept. 27-28. Environmentally Sustainable proceeding series No. 4.
12. Emadi, M and Abbasi, E. indigenous knowledge and sustainable development of villages, the old view of a new zone, and development of village's No. 33, 2001.
13. Emadi, M and Amiri Ardakani, M. - combining indigenous knowledge and formal knowledge, necessary to achieve sustainable development of Agriculture - Rural Development Publication No. 54, 2004.
14. Eshraghi, G, Indigenous Knowledge and Development Planning, Journal of Forest and Rangeland, No. 40, Forest, Rangeland and Watershed country, 2004.
15. Farrokhi, S and Yaghoubi, J. technology development through indigenous knowledge systems with agricultural research - Journal of Jihad, No. 224-225, 2002.
16. Gigler, S, et al. (2003). ICT for Indigenous Development. Available at: [http:// topics.Developmentgateway.org/ ict/ sdm/ preview Document](http://topics.Developmentgateway.org/ict/sdm/previewDocument). Do ~ active Document Id 2003.
17. Karami, R and Moradi, Kh. The place of research, training and promoting the preservation of indigenous knowledge, Journal of Jihad, No. 255, 2003.
18. Kolawople, D. (2001), Local Knowledge Utilization and Sustainable rural development in the 21 St. Centuries, IK Monitor Article (9-1).
19. Louise, G (2000), Working with indigenous knowledge (A guide for researchers), published by the International Development research Centre, po Box 8500 Ottawa. On, Canada KIG 3H9.
20. Merrewij, A. v. (1998). Three definitions of indigenous knowledge. Indigenous knowledge and Development Monitor. Vol.6, Issue 3, p, 13.
21. Nowroozi, A and Alagha, E. a new category of indigenous knowledge in rural development research - Journal of jihad, No. 223-222, 2000.
22. Penny R. A (2001), Gender and Indigenous Knowledge, IK & D M, Article (9-1).
23. Popzan, A. Design and compilation of indigenous knowledge, modern media in order to achieve a partnership approach in Kermanshah province - end of period letter PhD Tehran University Faculty of Agriculture to help Azkia and Seyed Mahmoud Hosseini. 2002.
24. Razavi, M. Agriculture and natural resources, indigenous knowledge and combining it with

- modern knowledge, Jihad magazine, twenty-five years, No. 269, 2002.
25. Rajasekaran, B.D.D. M. Warren and S.C. Babu (1996), Indigenous natural-resource management system for sustainable agricultural development- a global perspective Journal of International Development 3 (4).
 26. Smita M, (2003)(Women's indigenous knowledge of forest management in Orissa, <http://www.gendermainstreamingasia.org/img/b1.PDF>
 27. Warren, D. M. (1999) 'The role of indigenous Knowledge and biotechnology in sustainable agricultural development' A Keynote Address presented at Southwestern Nigerian Regional Workshop on indigenous knowledge and Biotechnology, Obafemi Awolowo university, Ile- Ife, Osun State, Nigeria 30 July.
 28. Zare, H and Yaghoubi, J. attitude to the indigenous knowledge - Journal of jihad, No. 231-230, 2003.

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