

# **Indigenous knowledge exploitation for rural regional development**

**-----by case of Baixinglin in Guizhou China**

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**ABSTRACT:** In nowadays knowledge-based society, the local embedded knowledge and innovation are considered as the core-competence of the regions. In rural areas, maybe it is not suitable to adopt the high-tech or other industrial cluster development strategy as in urban areas because of the barrier of “organizational thinness”. However, the rural areas always have their special local resources, especially the intangible asset, such as cultural resources and local knowledge embedded in the long history. Besides absorbing the external knowledge, exploiting the local knowledge will also enrich the knowledge network of the local areas. Moreover, because indigenous knowledge was generated from the local wisdom and culture, it fits to the local situation natively, and also it is very hard for others to imitate.

This paper examines the case of Baixianglin in Guizhou, China. Due to over-disafforestation in 1950s’ steel-making and the Great Leap Forward in 1960s, the ecological environment was destroyed severely. According to the appraisal of forestry experts its recovery would cost 50 years and a huge economic investment. However, during the last 20 years, under the leadership of Mr. Yang Mingshen, local people have succeeded in forestation by using the local knowledge. Due to the environment improvement, the regional economy has developed and the poverty has been alleviated.

Based on this case study, this paper searches first a sustainable development approach to exploit the local knowledge to enrich the local knowledge pool, and then a practical utilization or interaction with the external knowledge. Some specific knowledge exploitation approaches are examined. The determinant factors for indigenous knowledge exploitation are analyzed, including the leadership function, autonomy of agents and self organization of the community.

**KEYWORD:** indigenous knowledge, rural regional development

## **1 INTRODUCTION**

In the emerging global knowledge economy a country’s ability to build and mobilize knowledge capital, is equally essential for sustainable development as the availability of physical and financial capital (World Bank, 1997). By studying the success of high technology cluster in Silicon Valley, Porter pointed out: the enduring competitive advantages in a global economy lie increasingly in local things knowledge, relationships, and motivation that distant rivals cannot match. The knowledge in the local areas is considered not only

as the high quality competitive power for the developed areas, but also as the social capital of the rural poor, their main asset to invest in the struggle for survival, to produce food, to provide for shelter or to achieve control of their own lives. The rural poor’s livelihood depends almost entirely on specific skills and knowledge essential for their survival.

However, today, many indigenous knowledge systems are at risk of becoming extinct because of rapidly changing natural environments and fast pacing economic, political, and cultural changes on a global scale. Practices vanish, as they become

inappropriate for new challenges or because they adapt too slowly. However, many practices disappear only because of the intrusion of foreign technologies or development concepts that promise short-term gains or solutions to problems without being capable of sustaining them. The tragedy of the impending disappearance of indigenous knowledge is most obvious to those who have developed it and make a living through it. At the same time, Indigenous knowledge is not yet fully utilized in the development process. Conventional approaches imply that development processes always require technology transfers from locations that are perceived as more advanced. This has led often to overlooking the potential in local experiences and practices (World Bank homepage).

We argued that indigenous knowledge might be significant for the rural regional development because besides absorbing the external knowledge, exploiting or re-discovering indigenous knowledge will also enrich the knowledge network of the local areas, moreover, because this kind of indigenous knowledge was generated from the local wisdom and culture, it fits to the local situation natively, and also it is very hard for others to imitate. In this research, we examined a case of Baixianglin in Guizhou, China. Due to over-disafforestation in 1950s' steel-making and the Great Leap Forward in 1960s, the ecological environment was destroyed severely. According to the appraisal of forestry experts the recovery would require 50 years and a huge economic investment. However, during the last 20 years, under the leadership of Mr. Yang Mingshen, local people have succeeded in forestation by using the indigenous knowledge, including re-discovering some extinct traditional knowledge, exploiting knowledge which is embedded in the local culture and creating new knowledge by connecting the external knowledge and local reality. Due to the successful application

of the indigenous knowledge in the forestation, the ecological environment recovered and the poverty has been alleviated in Baixianglin.

The organization of this paper is as follows. In the next section, we discuss some basic concepts, and precursor's work related with indigenous knowledge exploitation, then we continue with the case study as an empirical study, in the final section, some concluding remarks are made and a number of suggestions are given that may help rural development related policy makers or researchers to design strategies for encouraging economic and cultural development in rural regions.

## **2 THE PERCEPTION AND APPLICATION OF INDIGENOUS KNOWLEDGE**

Regarding the knowledge in the local areas, there are various terms, such as traditional knowledge (TK), indigenous knowledge (IK), traditional environmental knowledge (TEK) and local knowledge, which generally refer to the matured long-standing traditions and practices of certain regional, indigenous, or local communities. Traditional knowledge encompasses the wisdom, knowledge, and teachings of these communities. It also encompasses the skills, experiences and insights of people, applied to maintain or improve their livelihood. In many cases, traditional knowledge has been orally passed for generations from person to person. Some forms of traditional knowledge are expressed through stories, legends, folklore, rituals, songs, and even laws. Here, when we are concerned with rural development, we adopt the term "indigenous knowledge" and our interest focus on subjective knowledge of the environment and the social and economic structure, religious beliefs, needs, expectation, and all types of knowledge that existed or created by the local people themselves.

Indigenous knowledge is developed and adapted

continuously to gradually changing environments and passed down from generation to generation and closely interwoven with people's cultural values.

However, the increasing attention received by academia and the development institutions has not yet led to a unanimous perception of the concept of indigenous knowledge. None of the definitions is essentially contradictory; they overlap in many aspects.

Brokensha, Warren and Werner defined that Indigenous knowledge is the "accumulate knowledge and traditional skills and technology" of a people, culture, or subculture. It encompasses both technical and nontechnical knowledge, including world view, social and religious customs and taboos, vegetation, climate, ecology, communication patterns, and music. It may be scientific or nonscientific-----that is, objective or subjective,

Warren (1991) and Flavier (1995) present typical definitions by suggesting:

Indigenous knowledge (IK) is the local knowledge – knowledge that is unique to a given culture or society. IK contrasts with the international knowledge system generated by universities, research institutions and private firms. It is the basis for local-level decision making in agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in rural communities. (Warren 1991)

Indigenous Knowledge is (...) the information base for a society, which facilitates communication and decision-making. Indigenous information systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems. (Flavier et al. 1995: 479)

Ellen and Harris (1996) provide ten characteristics of indigenous knowledge that are comprehensive and conclusive. Accordingly, for the

development process, indigenous knowledge is of particular relevance for diversity sectors and strategies: agriculture, animal husbandry and ethnic veterinary medicine, use and management of natural resources, primary health care (PHC), preventive medicine and psychosocial care, saving and lending, community development, poverty alleviation.

Some scholars even fractionalize the concept of IK and specialize in the rural people's knowledge (RPK). Thompson summarized three contrasting ways by which observes presented RPK in the scientific literature:

1) RPK is "primitive", "unscientific", "wrong", etc. Formal research and extension must "educate", "direct", and "transform" rural people's production and livelihood strategies in order to "develop" (i.e., modernize) them.

2) RPK is a "valuable and underutilized resource" and needs to be intensively and extensively studied, and "incorporated" into formal research and extension practice in order to make agriculture and rural development strategies more "sustainable."

3) Neither RPK nor formal Western science can be regarded as unitary "bodies" or "stocks" of knowledge. Instead, they represent contrasting multiple epistemologies produced within particular agroecological, sociocultural, and political economic settings. The interaction of RPK with current research and extension practice must address fundamental issues of power and need in development.

In the first instance, development is seen as a modernizing force or process, one that acts to transform traditional practices. This remains the conventional thinking that rational science and external technology through hierarchical, technically-oriented, extension services is the driven power of the development of the rural areas,

while farmers are seen as either "adopters" or "rejectors" of technologies, but not as originators of either technical knowledge or improved practice. This is generally known as the "transfer of technology" (TOT) model or approach (Chambers and Ghildyal, 1985; Sachs, 1992).

However, since the late 1970s, some failed practices all-over the world of TOT has caught great attention of researchers. The indigenous knowledge and participation of the local people were advocated based on the second perspective which regards development as an active and equitable partnership between rural people, researchers and extensionists (cf., Chambers, 1983; Farrington and Martin, 1988; Reijntjes et al., 1992). Experts, technicians or managers from outside are viewed primarily as catalysts or facilitators of the open exchange of ideas and information between various interested groups (e.g., farmers, local leaders, researchers, extensionists, etc.). (Thompson, 1991)

Factually, over the past decade, a good deal of the work in rural development approach and examines emerged based on the viewpoint that indigenous knowledge is a useful resource. Since the mid-1980s, the "farmer first" workshop launched a movement to encourage farmer participation in agricultural research and development (R&D), responding to farmers' needs in complex, diverse, risk-prone environments, and promoting sustainable livelihoods and agriculture. The focus has been on bridging gaps between development professionals and local people, pointing to the inadequate understanding of insider's knowledge, practices and processes by outsider (cf., Chambers et al., 1989). A number of centers of the Consultative Group for International Agriculture Research have adopted elements of Farmer First approach in their work. The same applies to some national agricultural research and

extension programs, NGO. The World Bank made clear the strategy to help achieve the Millennium Development Goals by relying on the traditional knowledge system. They try to help development practitioners to mainstream indigenous/traditional knowledge into the activities of development partners and to optimize the benefits of development assistance, especially to the poor.

This paper aims to searching a sustainable development approach to exploit the indigenous knowledge to enrich the local knowledge pool. Some specific knowledge exploitation approaches are examined. The determinant factors for indigenous knowledge exploitation will be analyzed by concrete case study.

### **3 CASE INTRODUCTION**

#### **3.1 Background introduction**

Guizhou is the province with the highest number of minority groups on the eastern section of the Yunnan-Guizhou Plateau in southwestern China. It is a relatively poor and undeveloped province, with a nominal GDP for 2007 of 254.3 billion RMB, ranking the last 6<sup>th</sup>. The GDP per capita was 6,742 RMB, rendering it the lowest in the PRC<sup>1</sup>. As shown in the Fig 1, Baixianglin, in the northwest of Guizhou, is the headstream of Chishui and two branches of Wujiang River and also the converging point of Dalou and Wumeng cordillera. Baixianglin is typical karstic topography. According to the statistic in 1984, due to over-disafforestation in the steel-making 1950s and the Great Leap Forward in 1960s, Baixianglin's ecological environment was severely damaged. As a result of the soil erosion and desertification, the grain production per capita decreased to less than 100 Kilograms and the per capita income was less than 100 RMB. In order to

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<sup>1</sup> At the same year, Shanghai with the 65473 RMB of per capita GDP ranked in the first of PRC.

survive, people had to continue destroying the forests for land reclamation, falling into a vicious circle “Poorer, more reclamation; More reclamation, poorer”. The local government made some efforts to organize a forestation plan to rehabilitate the



Fig1 location of Baixianglin

ecology, but this effort did not produce any significant result. The reasons may be as follows:

(1) At that time, the forestation activity organized by local government was a passive reaction to some national policies. The purpose was only completing some mandatory targets. It was very difficult to bring into play the initiative of the villagers.

(2) For various reasons, as well as historical policies, the villagers lacked trust on the local administrative organizations, sometimes, serious conflict between the villagers and local government happened. Villagers did not actively join the project organized by the local government.

(3) The local governmental organizations lacked understanding on the significance of forestation. Without supervisory measures, the planted seedlings were not taken good care. The scale of forestation could not even outweigh the deforestation activities.

(4) The socio-cultural landscape of Baixianglin was an immigrant community, with people from all around the province. Members belong to different nations, with their own special national characteristics. The complexity of the community caused additional difficulties to the community management, resource protection or solidarity of the villagers.

Under such background, the forestation organized by local government was unable to effectively relieve the crisis of desertification. In 1980s, an expert from Beijing examined the ecology around Baixianglin, estimating that millions of RMB and at least half a century would be indispensable to restore the ecological status quo ante.

### 3.2 Status quo

After 20 years of efforts; in Baixianglin, the grain production per capita achieved 300 Kilograms, three times as much as in 1984, and income per capita reached 2,300 RMB, 20 times as much as in 1984. The collective organization Highlands Afforestation Cooperation (HAC), which was initiated by 27 households of 124 villagers, has now 314 households with 1319 villagers over 6 villages, including Han, Miao and Yi nations. During the last 20 years, HAC has converted 4090 Mu of cropland to forests and afforested other 8,000 Mu. The forest cover rate of Baixianglin area has increased from 17.7% to 75 %. The volume of living trees reached 14,160,000 cubic meters and the total output value reached more than 80 million RMB.

Thanks to the forest, ecological environment has been improved and the local climate has changed, water resources improved and soil erosion alleviated effectively. Since 1994, there have never been floods; the mouth of the spring, which had been dried up began to produce water again. Many villagers can now obtain spring water by using a pipe to their house, while before they had to walk several Km to find drinking water. Rare animals, such as the white tail pheasant, the Chinese Leopard and the clouded leopard have re-settled in the forest.

People's eco-behavior has gradually improved. For more than 20 years, no forest fires or illegal tree felling has occurred. Villagers do not use the humus

from the forest on the farmland as fertilizer any more because it will break the ecological balance of the forest. Miao people, who used to enjoy hunting, stop doing even when the wild animals attack the livestock. The director of the women's unit, and wife of the local leader, was awarded the Earth Award<sup>2</sup> in 2003.

### **3.3 Indigenous knowledge exploitation in Baixianglin**

Forestation in partially devastated mountains is an acknowledged difficult problem. Due to its specialty and complication of the ecological conditions, using the external knowledge may not attain the expected results. In the successful forestation of Baixianglin, besides external knowledge learning, indigenous knowledge exploitation played a determinant role. The local leader, Mr. Yang Mingsheng, who is also the knowledge leader, organized the community members together and formed an autonomous decentralized organization-----HAC. HAC is also a

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<sup>2</sup> The Earth Award, Established in 1997, was sanctified by State Environmental Policy Act (SEPA) and Hong Kong and Macao Affairs Office of the State Council, jointly organized by China Federation of Environmental Journalists and the Hong Kong-based charity Friends of the Earth, presented its awards on the eve of International Earth Day in the hopes of inspiring the public to better protect the environment annually. This great award is to honor domestic reporters, teaching staff, community and youth group who make outstanding contribution in the field of environment. Ten people each received awards of 40,000 Yuan (US\$5,000) and ten nominees were given 10,000 yuan (US\$1,250) each. The Earth Award is the highest environmental prize in the country. Among the 39 winner of the 7th Earth Award, over 80% of them come from grass roots and 30% of them come from West China.

knowledge sharing, transferring and creation organization. In this network, the joint vision acknowledged by all the members facilitates the knowledge interaction among them.

#### **1) Local leadership-----knowledge leader**

1984 was the sixth year of Yan Mingsheng's term as a Party Secretary of Pingba town (Higher administrative authority of Baixianglin). After long-term observation, he believed he had found the root of local poverty: A large number of mountain resources were not fully in the development and rational use. He thought that if the farmers were motivated, the poverty could be alleviated. He applied for a leave without pay and returned to Baixianglin to afforest the mountains along with the villagers. Coincidentally, there were some special policies for supporting poverty mitigation. The higher government approved his application with "leave with paying"(means he is allowed to leave the position but still get salary from government). He made the promise of foresting 6000 Mu in five years. As mentioned before, experts had made pessimistic evaluations regarding forestation in Baixianglin. However, Yan Mingsheng believed it was absolutely possible to afforest the stone mountains because trees can grow even on a cliff.

In order to convince and mobilize villagers, he visited them door-to-door, mountain to mountain. His wife also helped him to do the education and motivation among female villagers.

Since 1985, Yang Mingsheng and his family worked from dawn to dusk on the mountain, sometimes even sleeping there. His hardworking set a good example for all the villagers. Every time, when he got some supportive agricultural resource from top government or cultivated some high-quality nursery stocks, he always provided them to other villagers. During these 20 years, he has afforded millions of high-quality seedling to the villagers. When villagers had any trouble, Yang

Mingsheng always did his best to help them. By the influence of Yang Mingsheng, villagers started to help each other on their own initiative.

Yang Mingsheng is not only the community leader, but also the knowledge leader. He studied at the College of Agriculture, and his father, who used to be a folk healer in the village, mastered a lot of knowledge about climate and plants and transferred this knowledge to him. Therefore, compared with other villagers, Yang Mingsheng had more knowledge about the local climate, condition of soil and plants. Theory plus experience, Yang Mingsheng gradually found some effective forestation methods adapted to the area. At the same time, he subscribed to 18 publications about forestry and agriculture at his own expense for the whole community. In addition, he went to Sichuan province by his own means to learn gallnut cultivation techniques. He taught to the villagers all the knowledge he mastered without any reservation.

## 2) Self organization HAC-----knowledge learning and sharing organization

After Yang Mingsheng returned to Baixianglin, he persuaded all his relatives and friends to cooperate and buildup the HAC. The expression "Four civilizations"<sup>3</sup> was put forward by Yang Mingsheng as the common vision of the HAC, and it condensed the villagers' wishes for the future. Based on the "Four civilizations", after deep discussion and negotiation, HAC instituted the

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<sup>3</sup> Ecological civilization is first and foremost, every household participates in tree planting to improve the ecological environment. The production civilization means abandoning the deforestation style production methods, adopting sound agricultural practices to increase agricultural production efficiency. Birth civilization means advocating healthy pregnancy and scientific nurture and education. Living civilization means building the harmonious families, and community where people love and help each other.

"Four unifications, one separation" management system. The attractive vision and the rational system attracted more and more villagers to join the organization. This is the solid foundation that allowed the sustainable development of HAC during the past 20 years. "Four civilizations" refers to the ecological civilization, production civilization, living civilization and procreation civilization. To form the joint vision, it is a prerequisite for leaders to share experiences with the villagers which will produce an empathic effect. At the same time, long-term and assiduous propaganda and education are also necessary. "Four unifications, one separation" means "Unified leadership, unified planning, unified service, unified supervision, but separate management and individual responsibility for their profits or losses." "Four unifications" integrated the resources and afforded the complete service, "One separation" made clear property and responsibility, mobilized public participation and enthusiasm, while at the same time ensured the flexibility of independent operation.

- Unified leadership. The leading group of HAC has one director and four deputy directors, most of them are Party members or league members. A number of forestation groups belong to HAC. Each group has a manager. The director and the group heads, democratically elected by the members, instruct and coordinate the activities during their tour of duty.
- Unified planning. Forestry industry has slow effects due to its long production cycle. HAC adopted a long, medium and short term project combination strategy which implemented an unified planning and harmonic arrangement of all the food crops, cash crops and timber trees to achieve the balance between the main and sideline production. The short-term strategy

was to expand grain production and breeding to speedup the cash circle, to foster reforestation seedlings and to pay close attention to the plants which can produce economic benefit within one year, such as the honeysuckle, mushrooms or veiled lady. The medium-term strategy was to foster the economic forest which can produce profit relatively fast, such as enutgall, eucommia, phellodendron, raw lacquer, and paulownia. The long-term strategy was to foster areas of timber trees, such as pine, fir, and metasequoia trees.

- Unified service. HAC provided 6 series of services for all the members. First, HAC takes charge of the purchase and transportation of all nursery stock, green manure, seeds, plastic film, pesticide and so on, to ensure good quality and low cost; Second, HAC provides a variety of science and technology training for villagers; Third, HAC is in charge of pest prevention and eradication; Fourth, HAC made the mutual aid-for-work system to solve the lack of labor force; Fifth, HAC is in charge of the financing; Sixth, HAC seeks sale channels and opens up market for the agriculture and forestry products of the villagers.
- Unified supervision. In order to maintain the sustainable development of the forest, HAC members instituted the "Forest supervision Convention", which prohibited the destruction of nursery stock, deforestation, land reclamation and depasturing in the young forest.
- Separate management and sole responsibility for their profits or losses. The basic principle is "Who plants, who owns, who gets the benefit". The management ownership of the forests is allowed to be inherited or transferred. Members have the management right of all the

cash crops and any other native products in their forests. They are exclusively responsible for their profits or losses. HAC takes no profit from them.

HAC had three main approaches to share and transfer knowledge in the community: 1) Each group had regular discussion meetings. In the meetings, members were encouraged to openly express their ideas and opinions to each other. If one member found some effective approach, he/she always shared the experience with other members. If one member happened to some difficulty, other members would try to help. 2) HAC always held training courses to transfer the knowledge to members. The instructors were experts from outside or local people who has some special skills. Around 3,500 people attended the training courses. 3) HAC sent the members to go outside to gather new knowledge. HAC sent 7 members to Fujian, Sichuan, Zunyi, Bijie and other places to study the practical technologies, such as edible fungus cultivation. Gradually, the members mastered advanced technology such as seedlings transplanting, pests prevention and green manure. A local method or a foreign method, if it can work, it is a good method, as Yang Mingsheng always emphasized.

### **3) Community members-----indigenous knowledge exploitation individuals**

Before 1950, there was a huge virgin forest in Baixianglin. A lot of know-how related to the forest had been acquired by the villagers along history. This kind of knowledge is always embedded in the local culture. The elder generation knew the specialty of trees and also the condition of the mountains and lands. HAC found the know-how from this kind of native wisdom that came down from generation to generation. Here, we afford some examples to demonstrate the exploitation and application of the indigenous knowledge.



Take the seed selections for example, sumac seeds are enclosed inside an oily shell, and the germination rate is very low. However, the local people knew that after burning or kneading the seeds in water, the germination rate can reach over 90%. Also, villagers knew that the germination rate of the seeds egested by birds is quite high. The HAC members feed sumac seeds to the birds intentionally to promote the germination rate.

The experience on crops planting is also used in forestation. The villagers do not dig a hole for planting trees, but stack a heap of soil on the roots in order to avoid accumulation of rainwater which will canker the roots. They learned this technique from the experience of planting corn and peppers.

In addition, they used the wisdom of life and nature in forestation. In their opinion, trees also have relatives and friends. Therefore, do not burn the weed on the slope to plant trees, neither clean up large areas of weeds or shrubbery around trees. Trees can grow better if they are close to other trees, the same as people always live better in community. Thus, it is better to plant trees in large scale, rather than scattered. However, trees, as people, will suffer from if they are too close. It is better to plant trees in a well-proportioned distribution.

The local people found a technique to plant trees on the stone according to the local proverb "People danced with Lusheng (Miao Bagpipe), trees dance with the wind." The knowledge embedded in this proverb means that trees can grow well as far as it can fix their roots. The local villagers say they are not afraid to plant trees on the big stones, as long as there is a crevice on the rock. The procedure to plant trees on the stone is simple. First stack soil on the crevice of the rocks and plant the saplings, then the roots of trees will insert into the crevices for water and nutrients.

## 4 ANALYSIS AND DISCUSSION

Knowledge, especially indigenous knowledge, is always bound up with action. However, due to the tacitness of the knowledge, what people do is not necessarily what people consciously "know". Moreover, in most instances, explanations for indigenous knowledge are incompletely articulated or idealized in the form of myths or metaphors, which may be the most significant mode of transmission. Rural peoples' knowledge transmission may be hidden or muted, affected by differential access to and control over public discourse. Such knowledge may also be expressed openly, but in disguised form, through rumors, gossips, folktales, songs, gestures, or jokes. Knowledge is not evenly distributed. Different individuals are recognized as "specialists" in particular fields and are key in the transmission and interpretation of knowledge within a community or family (Winarto, 1992). Therefore, in order to exploit the indigenous knowledge in the rural areas, the agricultural extensionists and researchers should be able to engage in a meaningful dialogue with farmers. They must recognize the complexities of socially and politically differentiated nature of knowledge generation and transmission and explore methodologies that take this into account. Baixianglin case unfolded the determinant factors in the process of indigenous knowledge exploitation.

### 1) Knowledge leader

In Baixianglin, Yang Mingsheng's clear objective and strong will are the basis for the formation of HAC. As one member of HAC, he was involved in the indigenous knowledge exploitation and transferring activities enthusiastically. He served as a role model for other members. Compared with outsiders, the local leader originates from the local community. He is in sympathy with the community

history and culture. At the same time, he also has wider knowledge and closer connection to the outside than other members, which makes him the external knowledge transfer, as well as integrator of the external and indigenous knowledge.

## 2) Self organization

In Baixianglin, HAC played an indispensable role in the success of forestation. As mentioned before, HAC is also a knowledge sharing, transferring and creation organization. In rural areas in China, due to the deficiency of the information channel, infrastructure and insurance system, for the individual farmers, their capability to initiate a new business or take risk of the market is weak. However, the self organization may be able to overcome the disadvantage to some extent.

The two wheels of the self organization are common vision acknowledged by all the members and the suitable operation mechanism. Both of them are indispensable. The former could facilitate the open communication, knowledge interaction among members, motivate the members' enthusiasm, participation and unite the members together. The latter, such as the "Four unifications, one separation" in Baixianglin, could ensure the flexibility, efficiency and feasibility of the operation and development of the organization.

However, to form the common vision and to seek the suitable mechanism, it is prerequisite for leaders to have an in-depth on-site experience. Common experience with the villages can produce the empathy effect. At the same time, long-term and assiduous propaganda, education is also necessary.

## 3) The autonomy of the participators

Autonomy of the community members, as an essential, defining property of agent-hood, is the base and precondition for the human network and knowledge learning, creating. Autonomy increases the chances of finding valuable information and motivating organization members to create new

knowledge. Not only does self-organization increase the commitment of individuals, but it can also be a source of unexpected knowledge. Agents should have ability to self-organize their own knowledge and practice networks to facilitate solutions to new or existing problems and to generate or share knowledge. In Baixianglin case, the forestation organized by the government failed, the essential reason might be the autonomy of the villagers was neglected even deprived by the government. While in the HAC time, each villager was respected not only as the autonomous agent, but also knowledge creator. The respect and appreciation from the organization motivates them to seek for knowledge learning, exploitation and creation.

## 5 CONCLUSION AND FUTURE STUDY

The start point of our argument is significant contributions to global knowledge have originated from indigenous people, the rational nature and sophistication of rural people's knowledge and believe that knowledge can be blended with or incorporated into formal scientific knowledge systems. If local knowledge and capacities are granted legitimacy within the scientific and development communities, existing research and extension services will pay greater attention to the priorities, needs, and capacities of rural people and, in the end, achieve more effective and lasting results (Thomas-Slater et al., 1991; Thompson, 1991, 1993a). We argued indigenous knowledge could contribute to solve existing problems and achieving the intended objectives. Moreover, because indigenous knowledge was generated from the local wisdom and culture, it fits to the local situation natively, and also it is very hard for others to imitate. Therefore, exploring the dominant factors for sharing, spreading, and transformation of indigenous knowledge is a key theme of vital

importance to extension practice and theory research. This research, based on one case study of Baixianglin in China, attempts to discuss the dominant factors for facilitating the indigenous knowledge in the community. The conclusion is:

- 1) Local leadership should play a role model to exploit the indigenous knowledge for others;
- 2) Self organization, where the members could open communicate to share their knowledge and cooperate to solve their problems, is needed for indigenous knowledge exploitation. The common vision of the organization could facilitate the open communication, knowledge interaction among members, motivate the members' enthusiasm, participation and unite the members together. The operation mechanism of the organization could ensure the flexibility, efficiency and feasibility of the operation and development of the organization.
- 3) The autonomy of the members is the base and precondition for the self organization and indigenous knowledge exploitation.

However, we have to affirm we do not have any intention to deny or devalue the effectiveness of foreign knowledge and the external experts' endeavor for the rural development. On contrary, we agree the viewpoint that in most cases, a careful amalgamation of indigenous and foreign knowledge would be most promising, leaving the choice, the rate and the degree of adoption and adaptation to the clients. Foreign knowledge does not necessarily mean modern technology, it includes also indigenous practices developed and applied under similar conditions elsewhere. These techniques are then likely to be adopted faster and applied more successfully. To foster such a transfer a sound understanding of indigenous knowledge is needed. This requires means for the capture and validation, as well as for the eventual exchange, transfer and dissemination of indigenous knowledge.

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