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Analysis on the Development Trend of Oasis Subject and Its Countermeasures

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Abstract The research status, development and trend of oasis subject were analyzed, and related countermeasures on developing oasis subject were put forward.

Key words Oasis subject; Subject; Development; Construction; China

Oasis is the basic support of peoples' life, activities and development in arid areas. Oasis region in China is a multi-national fusion region with complicated and various cultures and religions. Special human and natural landscape structures of hilly areas, oasis and hunger system have attracted more and more people to travel, spend holidays, adventure and scientifically research. Hence, the research scope of oasis is expanding gradually, which involves many subjects, such as agriculture, geography, ecology, environmentology, resource science, economics, literature, history and tourism science.

Oasis subject, a new subject, has established its own theoretical system preliminarily. It can be found that discipline construction of oasis subject is in initial stage based on the research status of experts and scholars. Due to the intercrossing, integrity and practicalness of the subject, discipline construction and reform of oasis subject still requires persistent efforts with the fast-updating subjects and technologies.

1 Research status and development of oasis subject

Attention on oasis in China started from 1980s, and has emerged since 1990s. The upsurge has its profound social and historical background. Based on the current data, the findings of Chinese scholars in oasis research fields ranked among the best quantitatively and qualitatively^[1-4]. ZHOU Lisan deeply researched the formation and historical changes of Hami Oasis in Xinjiang during 1940s. In order to adapt the construction of New China, various large-scale investigative activities were organized in succession from 1950s to 1980s, including investigation, evaluation and development on resources of agriculture, forestry, stockbreeding and water in arid areas. Although these activities didn't take the oasis as the keynote directly, it was involved in every aspect, which laid the foundation of further re-

search on oasis. In 1990s, the research upsurge of oasis subject was emerged vertically, with the presentation of establishing oasis subject proposed by HUANG Shengzhang and expansion of various topics on oasis^[5]. YAN Yisui *et al* started to study the project about ecological agriculture of Xinjiang oasis in 1994. The book named *Theory and Practice on Ecological Agriculture of Xinjiang Oasis* was published as well as the paper named *Structure, Function and Succession Characteristics of Xinjiang Oasis Agriculture* based on the achievements of the project in 1996^[5-6]. HAN Delin in 1999 pointed out that the oasis research in China had made progress over the past 10 years, and some significant achievements were made in the fields of oasis and its system, formation and evolution of oasis, construction of oasis, regulation and sustainable development. The Oasis research in China should be promoted to a higher level around the main content, so as to occupy the international advanced position^[7]. Research on Oasis subject rises while desertification research gradually deepens. HUANG Shengzhang discussed systematically about the research objects, methods, contents and significance of oasis subject in *Oasis Research*, he called on devoting more efforts in this field^[8]. XIE Li took natural ecological environment in Loulan areas as the background, analyzed the oasis agriculture and its influence in Loulan Kingdom and middle-upper reaches of Tarim River during Han and Tang Dynasties, and established the theoretical model of "abandoning cycle of oasis"^[9]. LI Bingcheng adopted the method of archeology and geography, investigated ancient oasis desertification areas of Kansu Corridor during Han and Tang Dynasties, and discovered some characteristics, formation course and internal mechanism of the areas^[10]. LIAO Kongtai *et al* discussed contemporary situation of oasis shelterbelts and the developing tendency in Hexi corridor^[11]. ZHANG Fenghua *et al* got the third prize of teaching achievements in Xinjiang Autonomous Region by means of the achievement named Construction and Development of Characteristic Oasis Subject in Shihezi University in 2006, which established the construction basis of oasis subject.

There are few representations of "oasis" abroad, but it is

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not because there is no study in this field. Foreign researches took river (Continental River) as the unit in arid and half-arid areas, analyzed the geology, physiognomy, vegetation and soil and groundwater in different sections of river as well as related production and ecological environment of agriculture, forestry, stockbreeding and industry. It equaled to the research on the mountain-basin geographical structure of oasis areas in China. For instance, *Conservation and Rational Use of the Agro-ecosystem Resources in the Manas River Valley of China* written by YUAN Guoying *et al.*, the research scope started from upstream forest zone in Manas River to dried-up Manas Lake. The book especially focused on farms of 147th corps in fluvial plains, and compiled remote sensing imagery. But the "oasis" appeared only 7 times in the whole book, which included 366 000 Chinese characters. And nearly all were written by YUAN Guoying, which showed the difference between Chinese and foreign descriptions, and indicated that the purpose for creating exclusive vocabulary was to study and apply conveniently and targetedly^[12].

2 Analysis on the development trend of oasis subject

There might be problems in the development of oasis subject due to its short history, such as unreasonable layout of the subject, lower development level, multi-directions and lower subject level. But as a young subject, it is inevitable to encounter many problems in the exploration. There are two obvious characteristics in the evolution and development of common subjects; one is that knowledge of various subjects interacts, interpenetrates and transforms mutually; the other is that new cross and frontier subjects are constantly emerging. The scope of oasis subject can be widely expanded, which would involve with various subjects. Oasis subject has regional characteristics and features of evolution and development.

From the researches of oasis subject, it should deepen the basic tasks of subject, contain the aggravation of desertification and develop oasis while constructs and develops oasis subject. Oasis is the essence of arid areas, so the utilization of oasis resources as well as sustainable development of economic and environmental system are still the core in future development^[13].

(1) From the perspective of understanding degree about oasis subject, it needs to further study the formation conditions, courses, structures, functions, material flow, energy flow and the relations among human activities, oasis industries and towns. The productive and social activities practiced in oasis were quite different from those in surrounding deserts and desert steppe, which demonstrates the features in the evolution process of oasis, and those features reflect the natural and social influential factors' features of oasis system and their econiche.

(2) From the perspective of research direction, it should strengthen the effective development of oasis resources, benign subrogation of environmental, coordinated development of economy and environment in oasis area, researches on sustainable development of oasis and prevention of desertification. Special environmental conditions of drought and desolation showed the indivisibility of economic development and environ-

mental evolution. In order to stay on the road of sustainable development of resources and environment, questions about land deterioration, lack of water and environmental carrying capacity should be further analyzed and proved. Breakthrough and innovation of the researches on sustainable development put forward new theoretical ways for transforming value view, correctly dealing with the relationship between human and the nature in oasis area, radically solving ecological environment crisis and implementing the sustainable development strategy.

(3) From the perspective of subject's social status, oasis subject should focus on how to create new era oasis of knowledge economy with modern scientific and technical achievements in the view of creation. Efforts should be mainly devoted to research reasonable developmental scale and space of oasis, evolution process of oasis knowledge economy industrialization, industrial structure of oasis resources, security system regulation of oasis development and systematical construction of knowledge economy and PRED (Population, resources, environment and development)^[13].

(4) From the perspective of construction experience, comprehensive subjects will confront many problems and challenges under the background of cross. It is easy to analyze and find the nature of problems based on the achievements, which is also an opportunity of multi-crossed subjects, and can fully excavate and reflect the subject content with oasis characteristics. Cross subjects are apt to clear realistic significance in theoretical and practical aspects with ecological principles, and expand development's horizon of oasis subject.

The development of oasis subject should adapt to the integrative characteristics of production, economic development and environment in oasis area, integrate the superior resources, adopt modern theories and technologies comprehensively, increase the inputs and widely learn from the advanced experience. Therefore, oasis subject could be developed into a sound curricular group, which could reflect the recent research findings and theoretical system, and become an influential subject with regional characteristics.

3 Countermeasures on the development of oasis subject

Oasis subject construction is a systematical project consisting of many factors. In order to take the advantages of multi subjects, academic leaders have carried on researches into strategic fundament or regional scientific problems with multi-crossed subjects, condense characteristic research direction and construct effective base for cross subject research. Hence, talents and resources could be organized effectively to ensure a physical environment for subject cross and expedite fusion. Subject should devote to the development of economy and technology based on agricultural production^[14].

3.1 Crossing point of subject is the breakthrough of subject development The main problems of subject are concentrating on aspects of resource science, agriculture, ecology and economics, and the crossing point is the key problem. Policies, economic forms, scientific and technological level as well as cultural characteristics in the same university are similar. Cross combination is easy to be formed with different subjects, and its foundation is the correlation based on the organic inte-

gration of various subjects in many regions, which is beneficial for consolidating the position of subject group. Meanwhile, important analytical tools provided by various subjects, are apt to become the breakthrough of subject construction and could promote subject development.

3.2 Subject team is the key of subject development Based on the development of oasis subject, it should set up all-round views of science and education, keep paces with the times, effectively build a vital and united cross team, and deal with the relationships among subjects, universities and the society, which could push the development of oasis subject from various aspects. In order to make the subject vital enough, not only the subject team should update and optimize itself by inputting and outputting information, but also the members should flow to a certain extent^[15].

3.3 Scientific and technological platform is the premise of subject expansion Besides developing characteristic research direction, scientific and technological platform can also realize the sharing and complementation of resources. Thus it can provide a stable and favorable living environment for subject, which promotes the development of oasis subject as well as subject group, so the overall level of subjects can be improved with the emergence of the effect $1+1>2$ ^[16].

3.4 Pay attention to creation in subject construction Academic leaders and main staff should innovate in the aspects of notion, theory and practice, thus it could improve the subject level drastically.

3.5 Enlarge the influence of oasis subject Based on the research of entity base, team reintegrates the talents and resources of oasis subject so as to enlarge the influence of the subject, mainly by anticipating academic communication, holding academic meetings and co-operating on scientific research projects.

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绿洲学学科发展趋势分析及对策思考

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摘要 绿洲学是一门涉及农学、地理学、生态学、经济学等多个学科的新兴学科, 具有交叉性、综合性和实践性的特点, 目前, 正处于探索阶段。笔者在综述了绿洲领域及绿洲学学科研究现状的基础上, 从学科认识程度、学科研究方向、学科社会地位、学科建设经验 4 个方面分析了绿洲学学科的发展趋势, 认为绿洲学应继续深入研究绿洲的形成条件、形成过程及结构与功能, 加强绿洲可持续发展和荒漠化防治研究, 以创新的视野创建知识经济新时代绿洲, 充分挖掘和体现有绿洲特色的学科内容。最后, 提出了绿洲学学科发展的 5 点对策。绿洲学学科交叉点是学科发展的突破口, 不同学科的交叉有利于巩固整个学科群的地位, 促进学科的发展; 学科团队是学科发展的关键, 应立足自身的发展, 紧跟时代的步伐, 组建一支富有活力的优秀团队, 从多方面推动绿洲学学科建设; 学科科技平台是学科壮大的前提, 科技平台有利于资源共享及互补, 为学科发展提供了稳定的环境, 在促进自身发展的同时推动学科群的整体发展; 学科建设中注重创新发展, 从观念、理论、实践等方面不断创新; 广泛宣传, 通过参加学术交流、举办学术会议和科研项目合作等方式, 扩大绿洲学特色学科的影响力。

关键词 绿洲学; 学科; 发展; 建设