Overview of Land Consolidation in Anhui Province and Recommendations

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Abstract The land consolidation projects in Anhui Province have brought huge economic and social benefits and made active contribution to increasing integrated grain productivity, stabilizing farmland area, increasing farmers’ income, accelerating new socialist countryside construction, and promoting integrated urban and rural development. With more than ten years of exploration and attempt, land consolidation, reclamation and development of Anhui Province has established relatively complete policy, technical and business type regulations. However, there are still some weak links and problems, leading to slow project progress, and quality up to standard, fund management not standardized, and the masses not satisfactory for few projects. It summarized experience and achievements of rural land consolidation in Anhui Province and elaborated major existing problems in management of project implementation. Finally, it came up with pertinent recommendations for project implementation in rural land consolidation.

Key words Land consolidation, Project implementation, Problems, Recommendations

1 Introduction

With rapid economic development, sharp urban expansion, and drive of economic benefits and political performance, large area of fertile farmland in suburban areas has turned to factories, municipal facilities, residential areas, and urban gardens and parks. To make up for occupation of farmland, these areas turn to remote areas where the reserve farmland resource is rich. Land consolidation and farmland balance in requisition and compensation have become major measures for keeping the 1.8 billion mu farmland red line. Land consolidation is a planned readjustment and rearrangement of land parcels and their ownership. It is usually applied to form larger and more rational land holdings. Land consolidation can be used to improve the rural infrastructure and to implement the developmental and environmental policies (improving environmental sustainability and agriculture). At present, land consolidation is an effective measure for improving rural production, living conditions and ecological environment, promoting integrated urban and rural development, realizing dynamic balance of total farmland area, promoting sustainable land use, vitalizing stock land, supplementing farmland in time, strengthening intensive land use, and increasing land productivity. However, merely pursuing equal area in occupation and compensation, it will be difficult to guarantee the dynamic balance of farmland quantity. Relatively, the quality balance, regional balance, ecological balance and time balance will have hidden trouble. The newly reclaimed farmland is usually far from residential area. The soil is barren, so the integrated agricultural productivity is much lower than fertile farmland. Besides, improper land leveling ways damage biological resource diversity, change situation and nature of water resource and water environment, seriously influence structure and function of ecosystem, and result in greater hidden ecological trouble. Therefore, strictly deepening land management has strategic significance.

2 Overview of land consolidation in Anhui Province

2.1 Natural and socio-economic conditions of Anhui Province

Anhui Province covers an area of 140 000 km², has population of 70.02 million and 88.613 million mu farmland (including 76.2 million mu) capital farmland. Anhui Province is located across the basins of the Yangtze River and the Huai River, it borders Jiangsu to the east, Zhejiang to the southeast, Jiangxi to the south, Hubei to the southwest, Henan to the northwest, and Shandong for a tiny section in the north. Major landform of Anhui Province is plain, low mountains and hills. Anhui Province is abundant in water resource. It is divided into five landform areas: Huai River Plain area, Jianghui Hilly area, Western Hilly Area, Yangtze River Side Plain area, and Southern Anhui Hilly area. Situated in the transition area of subtropical zone and temperate zone, with Huai River as the boundary, the northern area has temperate semi-humid monsoon climate, while the southern area has subtropical humid monsoon climate. Main agricultural land types are rice planting in the southern area and non-irrigated farmland in the northern area. Agriculture is mainly rice and wheat planting. Anhui Province is an important base of agricultural production, energy, raw material and processing and manufacturing base, so it takes up a strategic position in China’s economic and social development. In 2013, the planting area of grain crops reached 6.6253 million hectare, 3 300 hectare more than 2012, realizing grain yield of 32.796 million tons\(^{[1]}\).
2.2 Overview of Land Consolidation in Anhui Province

2.2.1 Land consolidation and reclamation stages. Before 2006, land consolidation of Anhui Province was mainly land reclamation. Desolate mountains and barren beaches were occupied, irrigation canals and ditches and unused land were consolidated, to realize farmland supplement and balance of occupation and compensation.

2.2.2 Reclamation replacement stage of construction land. With acceleration of industrialization and urbanization of Anhui Province, the supply-demand conflict of urban construction land is increasingly outstanding. At the same time, rural construction land, especially village construction land, has high stock land and is not fully used, and much land lies idle. To alleviate pressure of urban construction land, explore stock of rural construction land, and keep the 1.8 billion mu farmland red line, Anhui Province reclaimed rural idle or unused construction land to farmland and replace the newly reclaimed farmland for the construction land target. Since 2006, on the precondition of ensuring no reduction in total farmland area and no increase in construction land, Anhui Province concurrently launched land consolidation project, construction land replacement, and projects related to increase or decrease of urban-rural construction land, to solve the supply-demand conflict of urban construction land.

2.2.3 Integrated rural land consolidation stage. Since 2008, Anhui Province tried to combine land consolidation, construction land replacement, increase and decrease of urban construction land with new socialist countryside construction, and carried out village combination, new residential area construction and land circulation at the same time of land consolidation and replacement. It developed land consolidation from whole village to entire rural area land consolidation, and from mainly for realizing balance of occupation and compensation to gradually integrating urban and rural development and promoting new socialist countryside construction. In 2010, Anhui Province was listed into Model Construction Provinces of Comprehensively Promoting Rural Land Construction. Taking advantage of this opportunity, Anhui Province put forth effort in promoting orderly implementation of rural land consolidation project and model construction, so as to give impetus to new socialist countryside construction and promote benign interaction of urbanization and new socialist countryside construction.

2.2.4 High standard capital farmland construction stage. According to Overall Land Use Planning and Land Consolidation Planning, Anhui Province took high standard capital farmland construction as major project, made overall arrangement, actively promoted land consolidation, and included major areas, major works, capital farmland protection zone, capital farmland consolidation area, and capital farmland formed through centralizing and connecting, facility completing, high and stable yield, excellent ecological and anti-disaster capability and suitable for modern agriculture and operating mode into high standard capital farmland. With in-depth implementation of land consolidation, Anhui Province has realized the objective of balance in farmland occupation and compensation for consecutive 13 years, effectively alleviated supply-demand conflict of construction land, and energetically promoted new socialist countryside construction and integrated urban-rural development. In addition, Anhui Province takes revitalizing industry and enriching people, ecological living and civilization and harmony as objectives, to jointly promote rural land consolidation and high standard capital farmland construction of the whole province and guarantee national grain security.

2.3 Achievements of Land Consolidation in Anhui Province

In 2001 – 2012, Anhui Province implemented a total of 329 national and provincial investment land consolidation and reclamation development projects. The construction scale reached 4 million mu and the farmland increased 0.26 million mu. In 2007 – 2010, Anhui Province reclaimed 0.56 million rural construction land through construction land replacement. Since 2008, Anhui Province reclaimed 0.25 million mu area and guaranteed land use turnover of 0.24 million mu. In 2010 – 2012, Anhui Province launched Huai River Basin and City Belt along the Yangtze River in Anhui Province, consolidated 3.05 million mu area, built 2.43 million capital farmland, increased 0.1 million mu farmland, increased grain 150 million kg, and invested 5.6 billion yuan (including 2.8 billion yuan from central government and 2.8 billion yuan from Anhui Province).

2.4 Land Consolidation of Anhui Province and Socio-economic Development

Rural land consolidation of Anhui Province has changed from single objective to multiple objectives, from merely increasing farmland area to both quality and quantity, from consolidation of farmland, water, road and forest to comprehensive consolidation of farmland, water, road, forest, and village. It closely combines new socialist countryside construction and evolves to more extensive land consolidation. Increase in quantity and improvement in quality of farmland will be favorable for agricultural industrialization, large-scale operation and mechanization. Separate villages gradually combine together. Rural concentration degree is gradually increasing, and rural infrastructure construction becomes more complete. It has become an important platform for building beautiful countryside of centralized living, industrial development, living improvement, and beautiful environment. Combining increase and decrease of urban and rural construction land with new socialist countryside construction and integrated urban-rural development is an effective approach for properly solving conflict of land supply and demand, tackling land use problem, and expanding land use space, and accelerating overall and scientific socio-economic development, and the social and economic benefits are preliminarily manifested.

2.4.1 Increasing farmland quantity and improving farmland quality, and guaranteeing national grain security. Through energetically implementing rural land consolidation, Anhui Province has effectively increased farmland area, improved farmland quality, improved agricultural production conditions. The land consolidation plays an irreplaceable role in increasing integrated grain productivity of farmland, ensuring national grain security, and
2.4.2 Optimizing land use structural distribution and promoting integrated urban and rural development. Rural land consolidation opens passage of integrated urban and rural construction land, breaks bottleneck of urban and rural construction land, and opens new space of economic development. The implementation of increase and decrease of urban and rural construction land combination policy greatly alleviates land use conflict of urban development. In addition, it realized reasonable development and use of land in the project area, transformed old villages and consolidated hollow villages, and guided farmers to concentrate in central villages. On the precondition of ensuring no reduction in farmland area and constant expansion of farmland area, it consolidated and reclaimed the separate, waste and idle rural construction land, reduced rural idle land, increased rural land utilization ratio, increased mechanized farming rate of farmland, effectively liberated rural labor, and realized net increase of farmland on the basis of ensuring balance in occupation and compensation. For farmers involved in construction land replacement in the whole province, the average homestead area reduced more than 50% on average. Through benefits brought about by projects of combining increase and decrease of farmland area, it firstly satisfied land demand of rural areas, adjusted saved land target to urban construction, optimized distribution of construction land use, enhanced conserved and intensive land use, expanded construction space for rapid development of industrialization and urbanization, and promoted integrated urban and rural development.

2.4.3 Improving rural production and living conditions to constantly benefit farmers. The Third Plenum of the Seventeenth CPC Central Committee set forth target and task of increasing farmers' income, increasing agricultural efficiency and improving rural development. Through rural land consolidation, it realized concentration of farmland and infrastructure complementation, improved conditions for land circulation, large-scale agricultural operation, promoted transformation of traditional agricultural production mode, reduced agricultural production cost, and promoted increase of farmers' income. Besides, farmers are liberated from traditional agriculture, realizing change of farmers to agricultural industrial workers and increasing wage income. Since 2001, through land consolidation, Anhui Province consolidated 0.255 million hectares land, built 0.1947 million km irrigation and drainage ditches, built 0.2237 million km field road, and increased per capita net income of farmers about 670 yuan, benefiting about 800,000 farmers, and solved livelihood problem of 340,000 people. Furthermore, hollow villages and separate villages are gradually dismantled, relocated and combined together; concentration degree of farmers becomes higher; rural infrastructure construction is more complete; land use is more reasonable for rural residential areas, public welfare, and industrial development; farmers’ living environment and conditions are greatly improved. Land consolidation and new socialist countryside construction bring out the best in each other, letting farmers become owners and fully enjoy real benefit and appreciation income of land consolidation policy.

2.4.4 Improving agricultural ecological environment and promoting ecological civilization construction. Through raising land carrying capacity, it is expected to provide larger space for ecological construction, realize sustainable development of resources and human beings. This is the fundamental purpose of land consolidation. In the process of land consolidation, Anhui Province has made outstanding achievements in improving ecological environment, rehabilitation and improving ecological function of land through taking engineering and biological measures. Since 2000, through land consolidation, it has established excellent shelterbelt network, increased vegetation coverage, improved farmland micro-climate, effectively improved regional biological and chemical environment of soil, controlled land degradation, and improved farmland quality, improved ecological protection and rehabilitation of ecological vulnerable region, protected biological diversity, improved pattern of ecological security, and created high quality of natural living environment.

2.5 Problems in land consolidation of Anhui Province

2.5.1 The development is unbalanced. (i) The distribution of resources that can be consolidated in the whole province is not balanced. The potential of northern Anhui and Jianghuai hilly area is high. In some villages, each household has farmland up to 4 to 5 mu, while the potential of area along the Yangtze River basin and southern Anhui mountain area is relatively lower. (ii) The progress level is unbalanced. Some areas still implement land consolidation and construction land increase and decrease connecting projects, not make overall progress in the entire village, and the overall effect is not significant. (iii) The effort of areas is not balanced. Rural land consolidation involves a wide range of fields, so the difficulty is high. Some areas have fear of difficulty and have the tendency of valuing connecting increase and decrease of construction land but neglecting farmland consolidation.

2.5.2 Fundamental work is relatively weak. (i) Accountability unit of projects is not clear. (ii) Propaganda work is not in place. (iii) It is difficult to adjust land ownership and some masses do not support project construction. (iv) The planning lags behind and it is difficult to realize well connection. Rural villages lack unified planning, most original overall land use plans become not suitable for actual demand, it is difficult to select new village construction site, and the distribution is not reasonable. Besides, various special planning of rural areas fails to realize effective connection, leading to low implementation effect and influencing overall advance of comprehensive rural land consolidation.

2.5.3 The project bidding management is not standardized. (i)
Problems of construction unit; hasty bidding and bidding documents are not reasonable; the process of bidding assessment has defect; some individual projects are not included in the bidding project and free from the supervision of bidding. (ii) Problems of the bidder; participating in bidding with the aid of others' qualification; colluded or collusive bidding; malicious acceptance of bidding at lower price. (iii) Problems of bidding agency; some agencies are low in professional quality; some agencies collude with bidding units.

2.5.4 The project supervision is not in place. (i) Supervision team is mixed with high and low quality personnel and some supervision companies do not have supervision qualification. (ii) Supervision personnel do not have uniform quality. Some supervision personnel are graduates of colleges and universities, and lack professional practical working ability and site coordination ability. (iii) The supervision charges are relatively low. Since land consolidation projects cover large area, the construction period is long, projects are far from cities, the cost is relatively high, but the supervision charges are not high, so some supervision companies are not willing to do.

2.5.5 The management of project construction is not strict. (i) Project construction; material quality is low; using inferior materials and turning out sub-standard products; the construction of concealed project is not in place; quality of works is increased randomly, and unit price is increased at will, to increase investment; project management is chaotic. (ii) Supervision; the control is not strict; the control ability is low before and after the event; the supervision work is not in compliance with supervision rules and supervision log is not complete; supervision procedure is not clear. (iii) Engineering design; planning and design are not standardized; later stage is not in place; qualification is not up to standard. (iv) The owner; the owner unit takes inadequate management over construction unit, supervision unit, and design unit.

2.5.6 Data archiving is not standardized.

2.5.7 The management and control at later stage are not in place. After land consolidation, acceptance of completed projects and handover of facilities are not in time, and management of newly increased farmland and new villages lacks effective mechanism.

3 Recommendations for land consolidation of Anhui Province based on practice

3.1 Strengthening fundamental work

3.1.1 It is recommended to establish improve land consolidation laws and technical specifications, to ensure orderly implementation of land consolidation in compliance with laws and regulations.

3.1.2 Land consolidation mode should suit various land consolidation resources. According to regions, natural and geographical conditions, technical and economic conditions for ecological recovery and environmental control, on the principle of "recovery of overall ecological functions" and "landscape similarity", it is recommended to implement land consolidation according to actual situations and attach great importance to actual effect.

3.1.3 It is required to make clear project accountability unit. (i) Implementing joint responsibility mechanism. It is recommended to implement responsibilities of county and township government, to stimulate enthusiasm of villager organization. With reference to successful experience of some areas, land department as project undertaking unit, township government as implementation unit, and city and county government as responsibility entity, should cooperate with each other closely and encourage the masses to take part in. (ii) Making clear responsibilities of departments. The department of land and natural resources should be responsible for project examination and approval, inspection and guidance, and urge project progress and quality; financial department should take charge of fund procurement and supervision, and ensure special fund for special project; auditing department should be responsible for follow-up auditing of performance of fund use; agricultural, water conservancy and environmental protection department should closely cooperate with each other, to form unified charge and joint management. (iii) Rigorously enforcing rewards and punishments of examination. It is recommended to incorporate completion situation of rural land consolidation project into examination of work performance.

3.1.4 Enhancing propaganda. Before project implementation, it is recommended to launch propaganda in the project area, to make the masses in the project area know the project information, construction items and purpose. Besides, it is recommended to coordinate and unify owner, construction unit, supervision unit, design unit, local government, grass-roots organizations, and local residents.

3.2 Strictly enforcing management of project bidding

3.2.1 Making adequate preparation for bidding.

3.2.2 Reducing the process of human participation in bidding assessment; randomly determining bid section; implementing "list of quotation, setting open bid, comprehensive assessment, and fixing reasonable price"; increasing the bid bond and increasing the risk of financial responsibility.

3.2.3 Building a credit system of bidder; strengthening management of construction unit and project manager; enhancing the bidder credit management; establishing land consolidation project bidding assessment expert database system; reinforcing supervision, bringing into play leading role of supervision department; inviting discipline inspection, supervision, financial, auditing departments and procuratorate and relevant departments to participate, to realize the whole process follow-up and supervision.

3.3 Strengthening management of project implementation stage

3.3.1 Strictly enforcing management of supervision, material entry inspection, and construction stage inspection, following up project progress, alteration management, and carefully implementing supervision specifications.

3.3.2 Strictly enforcing unit project and individual project acceptance.

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other social development indicators. Some areas and departments take "development counts" as "GDP growth counts", leading to alienation of growth. Therefore, selecting proper evaluation system concerns whether the performance evaluation can be used as theoretical support and guidance in the practice of food and drug police and whether the food and drug police system can operate correctly and keep vigorous.

References

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3.3.3 Strictly enforcing management of design unit.
3.3.4 Strengthening construction of quality of owner unit.
3.3.5 Strictly enforcing management of project fund appropriation; bill of quantities declared by the construction unit should be consistent with the bill of quantities reviewed by the supervisor, and also should be consistent with bill of quantities inspected and accepted by the owner according to unit project and individual project; appropriating fund in strict accordance with fund appropriation progress specified in the contract; improving various approval procedures of fund appropriation.

3.4 Acceptance of completed projects and final accounting of projects After acceptance of unit project and individual project, the owner unit should organize acceptance of completed projects and carry out final accounting of projects if projects are acceptable. The final accounting of projects is mainly prepared on the basis of bill of quantities signed by project supervisor and documents of project inspection and acceptance.

3.5 Enhancing data and file management To a certain extent, the file management is equivalent to or even more important than quality of project construction. Previous works of projects, such as feasibility report, project establishment, and budget, data at the project bidding stage, data of project construction stage, data of acceptance of completed projects, and data of fund appropriation should be collected completely and filed in time.

3.6 Handover of projects and facilities It is required to hand over facilities of project construction to village committee and village-level collective economic organizations. Prior to handover, it is required to prepare facility handover list, sign later period management and control contract, make clear management and control responsibilities, and check and write off account of fixed assets in the financial statement.

4 Conclusions Land consolidation is the fundamental for development, foundation for overall arrangement, and base for ecology. Therefore, at the same time of promoting high standard capital farmland construction and integrated consolidation of rural land, it is required to further strengthen researches on land consolidation methods and explore new technologies for optimization of spatial pattern of national land.

References