

Research Audit Helps Rural Residential Environment Improvement

-- A Case Study of Y City

Yan Meng

School of Engineering Audit, Nanjing Audit University, Nanjing 211815, China

Abstract

Socialism with Chinese characteristics has entered a new era, and the main social contradictions in China have been transformed into the contradiction between the people's growing needs for a better life and unbalanced and inadequate development. For the vast rural areas, with the continuous increase of rural residents' income, The rural living environment with clear water, clean village and beautiful scenery has gradually become an important part of the growing needs of rural residents for a better life, and this demand is becoming increasingly urgent. In this sense, the improvement of rural residential environment is an effective way to solve the main social contradictions in the new era, and is the inevitable requirement of socialism with Chinese characteristics in the new era. However, the traditional audit mode has shortcomings in dealing with the complex system engineering of rural human settlement environment audit, so it is necessary to construct the research-oriented Audit Paradigm of rural human settlement environment remediation.

Keywords

Research Audit; Renovation of Rural Residential Environment; Pre Audit; Audit Rectification.

1. Introduction

Improving the rural living environment is a major strategic and overall plan made by the CPC Central Committee with Comrade Xi Jinping as the core from a strategic and overall perspective. It is a key task to implement the strategy of Rural Revitalization. It is related to the fundamental well-being of farmers, the health of farmers and the construction of beautiful China. For this reason, the general office of the CPC Central Committee and the general office of the State Council issued the five-year action plan for Rural Human Settlements (2021-2025), The No.1 document of the Central Committee of the CPC on February 22, 2022 and the implementation plan for carrying out rural residential environment improvement and Solidly Promoting the construction of ecologically livable and beautiful countryside during the 14th Five Year Plan period issued by the general office of Jiangsu Provincial Committee of the Communist Party of China on February 22, 2022 clearly pointed out that "remarkable improvement of rural living environment and new progress in ecological livable and beautiful rural construction" should be achieved by 2025, Specifically, it includes the following aspects: the popularization rate of rural sanitary latrines has been steadily improved, and the toilet manure has been basically effectively treated; the treatment rate of rural domestic sewage has been continuously improved, and the disorderly dumping and discharging have been controlled; reduce the amount of garbage from the source and improve the living standard of rural areas. The level of rural human settlements has improved significantly. Long term management and protection mechanism has been basically established. It can be seen that the improvement of rural

residential environment is a major practical problem faced by governments at all levels, and its remediation performance is the focus of current social attention.

At present, 720 villages and towns in 95 counties (cities and districts) in Jiangsu Province are comprehensively promoting the rural human settlement environment improvement project (Jiangsu provincial government portal, 2021). However, some problems seriously restrict and affect the performance of rural human settlements. For example, rural planning and construction are divorced from reality, related tasks and objectives are divorced from reality, engineering construction decision-making errors, project construction is slow, project quality is not up to standard, management and protection mechanism is not established, as well as false report and arbitrage, embezzlement and misappropriation, loss and waste of financial funds, low investment efficiency and poor comprehensive efficiency, and even serious corruption. This makes the audit work of rural human settlement environment improvement become particularly important.

The audit of rural human settlement environment renovation is a series of audit activities, such as inspection, supervision, service, consultation and so on, carried out by audit institutions on the overall improvement project of rural residential environment undertaken by government departments at all levels. It mainly includes objectively and accurately reflecting the situation and effect of rural human settlement environment improvement. We should promote the solution of the problems of system and mechanism that affect the effectiveness of rural construction, plug management loopholes, improve the comprehensive budget performance management of agricultural funds, ensure the safety and effectiveness of project funds, improve the efficiency of fund use and management efficiency, and further evaluate the final effect of remediation and the impact of remediation on ecological environment and social environment. Therefore, from the scope of audit work, the audit of rural residential environment improvement is not only an overall planning of agricultural audit force, but also an important aspect of ecological civilization audit; From the aspect of audit promoting high-quality development of the country, the rural human settlement environment improvement audit is to comprehensively and solidly promote the rural human settlement environment improvement. To enhance the fundamental well-being of the vast number of rural people, to achieve rural revitalization and rural social development of high-quality protection.

However, the traditional audit mode has some prominent problems in dealing with the complex system engineering of rural human settlements audit and remediation: first, due to the single dimension thinking of data, content and method, it can not "drill down" and "Penetrate" the panoramic deep-seated problems of rural human settlements environment improvement; Second, it is, due to the wide coverage, large population, many details and long implementation period of rural residential environment renovation project, to a certain extent, it increases the difficulty of rural human settlement environment improvement audit; Third, due to the lack of rural informatization and other reasons, the phenomenon of scattered data and isolated data island in rural residential environment renovation is extremely prominent. As it turns out, the conventional audit paradigm, which only focuses on exposing problems and simply puts forward suggestions, can not give full play to the supporting effect of rural residential environment improvement audit on rural construction, and thus can not effectively play the role of audit construction.

Due to the exploratory audit thinking in the audit concept, audit ideas, audit methods and the application of audit results, the rural residential environment improvement audit has become its natural practice and application field. However, there is a lack of research-based audit paradigm, which greatly limits the practical application of research-based audit. For this reason, This paper will focus on the research-based audit of rural environment and explore the boundary of research-based audit, This paper constructs the paradigm shift and path of research-based audit of rural human settlements improvement, and forms policy suggestions

on the application of research-oriented audit results with typical rural residential environment remediation research audit projects. Although the final research results of this project are based on the field of rural human settlement environment improvement, they will also have reference and guidance value for research-oriented audit in other fields, It can also be smoothly transplanted to research-based auditing in general fields.

2. Literature Review

Audit plays an important role in various fields. For example, in the medical field, auditing can help improve the situation of children with asthma [1]. Auditing is part of an extensive quality improvement process by rigorously evaluating existing care based on existing knowledge and best practices, and then implementing evidence-based changes. It can improve the nursing and treatment results of patients [2]. The United Kingdom attaches great importance to the development of clinical audit projects in medical practice. When the existing evidence is insufficient, audit can be used as the basis for promoting health care policies, and the audit process as a driving force for quality improvement has been warmly welcomed in the UK [3]. National audit is also the only practical method to study the rare but related complications, and can make reasonable suggestions based on a large number of confirmed cases [4]. In addition, audit plays a significant role in preventing and detecting corruption [5], realizing sustainable development of agriculture [6], protecting investors [7], ensuring food safety [8], promoting the development of construction industry and the country [9], and improving the efficiency and effectiveness of public sector organizations [10].

At present, China's audit institutions are actively promoting research-oriented audit, which is the exploration and innovation of audit ideas and methods in the new era [11]. With the development of research-oriented audit practice, related research literature also began to appear. There are three aspects about research-oriented audit: first, the connotation of research-oriented audit. At present, there is no systematic academic view on "what is research audit". The most direct cognitive way is "research audit is research + audit" [12], and some scholars think that research-based audit is an exploratory audit organization mode [13]. On this basis, Zhang believes that research-based audit is not only an organizational way, but also an audit strategy and audit work method [14]. In addition, a small number of scholars start from the characteristics of audit and conclude that research-based audit is carried out in the way of research [15]. Second, the application conditions of research-based audit. Some literatures emphasize that auditors who carry out research-oriented audit must have certain professional quality [16]. For example, Yan thinks that audit institutions should comprehensively enhance the understanding of the importance of data, emphasize data first, and use data analysis to carry out trial audit [17]. Wen expressed a similar view that, in addition to professional competence, social security auditors need to build a big data research platform to provide professional support for organizational innovation [18]. It can be seen that big data is an important technical support for research [19]. Third, the development path of research-oriented audit. At present, there are few literatures on how to implement research-based audit. Some literatures summarize the development path of research-oriented audit from the perspective of suggestions, such as promoting policy improvement, forming Supervision joint force with other institutions, and improving the transparency of audit results [20]. As a complex system engineering, rural residential environment improvement audit is faced with complex audit problems and prominent data island phenomenon [21]. Focusing on the two main lines of "policy" and "capital", Cai has put forward a series of policy suggestions for improving the policies and fund audit of rural human settlement environment improvement [22], but this has not fundamentally solved the fundamental problems existing in rural residential environment improvement audit.

To sum up, scholars have made some achievements in the research-based audit theory and rural residential environment improvement audit, but there are the following problems: first, the lack of research-based audit application research. Second, the Audit Paradigm of rural residential environment improvement has not been achieved. Based on this, this paper will put forward the scientific cognition research audit. Through the application of big data technology, this paper constructs the general paradigm of research-oriented audit of rural residential environment improvement driven by big data, and puts forward policies and suggestions for giving full play to the role of audit construction.

3. Methods

3.1. Research Methods

The paradigm of research-oriented audit determines the basic visual threshold of the research-oriented audit, as well as the theoretical norms, conceptual system, value orientation, methods and paths to be followed. This paper adopts the following research methods:

- ①Bibliometrics. Through the computer network and the existing domestic and international academic connection channels, sort out various theories related to the theme, and lay the most basic theoretical foundation for this project.
- ②Case study method. Extensive search of rural human settlements environmental remediation audit cases, and Y City rural human settlements as an example, analysis of the new era of rural human settlements audit difficulties.
- ③Integrated method. Based on the comprehensive integration thinking of "synchronous qualitative asynchronous quantitative qualitative and quantitative integration", this paper constructs a research-oriented integrated audit prototype system for rural residential environment improvement.

3.2. Research Ideas

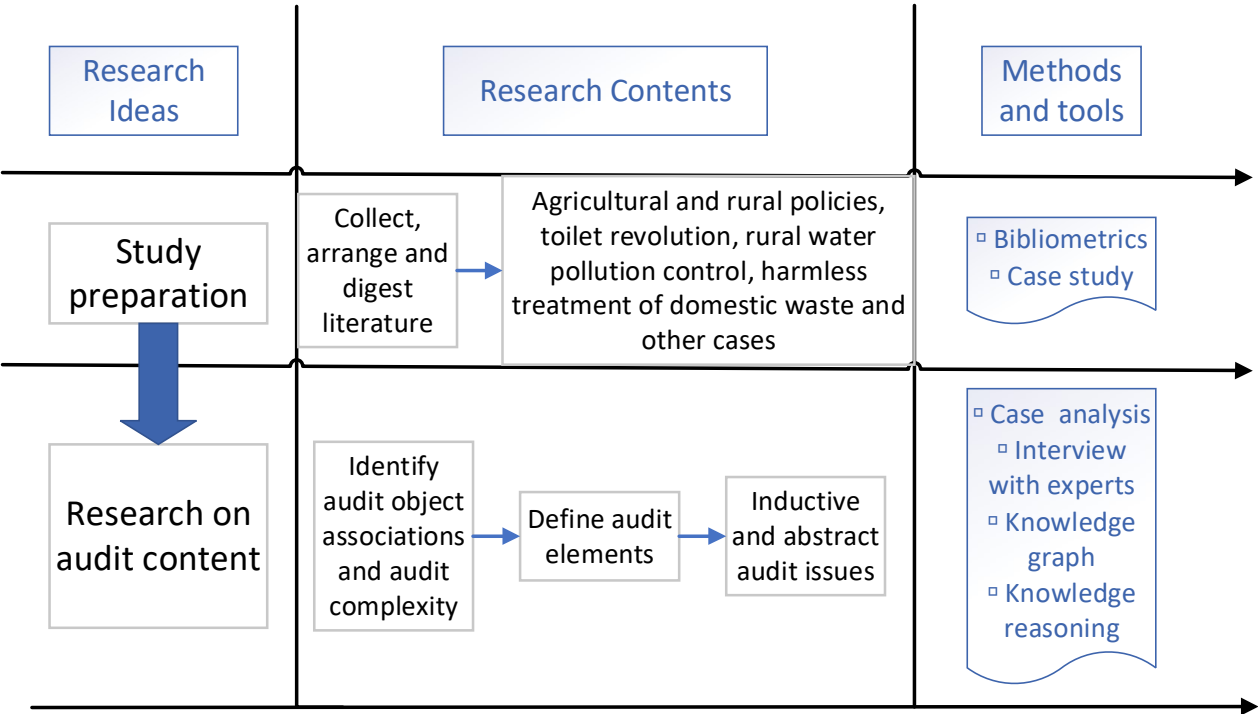


Figure 1. Study flow chart

4. Results and Discussion

4.1. Pre Audit Work

4.1.1. Strengthen the Research of Data Acquisition and Analysis Methods.

Fully understand the data type, type and scope of audit objects in fund project management. In particular, the scope of data collection and cross validation is used to determine the type and scope of data collection. Formulate data acquisition plan, define the object, method and time requirements of data acquisition, and determine the specific responsible person. Prepare guidelines for data analysis methods, The specific ideas, methods and steps of data comparison and analysis, result application and verification problems are clarified.

4.1.2. Research the Opinions of Experts and Scholars and Collect Public Opinions.

The key content of pre-trial investigation is to listen to the opinions of experts and scholars. The opinions of relevant experts on audit matters and audit objects are carefully studied by means of holding forum and telephone survey. Systematic collection of television, Internet, newspaper and other media reports on the improvement of rural human settlements, For positive reports, we should understand the relevant materials and data sources; For negative reports, we should sort out the main types of problems, the causes of problems and the completion of rectification.

4.1.3. Strengthen the Research and Evaluation of Rural Human Settlement Environment Improvement Audit in Previous Years.

Learn from other local audit institutions about the audit of rural residential environment improvement in previous years, including the implementation time, scope and key points of the audit, and the main problems reflected.

4.1.4. Do a Good Job of Trial Examination with High Quality.

For the first time, the units that carry out the audit work of rural human settlement environment renovation should organize trial examination. Before the trial review, the trial work plan shall be prepared, and the task objectives, key work, methods and measures shall be defined. The trial review shall be conducted in the whole process, chain and all-round way from policy formulation, fund allocation, project arrangement, fund allocation and use, project implementation, operation and maintenance, etc. Carefully sort out the risk points and weak links of each link to ensure the depth and quality of the trial.

4.2. Audit Project Organization and Implementation

4.2.1. Prepare Audit Work Plan with High Quality.

The audit objectives should be specific and clear, and the audit objects and scope should be adapted to the audit objectives. Focus on the key content of audit, while compiling the audit work plan, plan the audit report framework and design the audit standard parts "template". It is necessary to prevent the overall audit schedule from being too scientific, At the same time, it is necessary to prevent excessive content from increasing the workload of the audit team. Policies, regulations, methods and guidelines related to audit matters shall be issued along with the audit work plan.

4.2.2. Expand Audit Ideas, Flexible Use of a Variety of Audit Methods.

One is the combination of audit and audit investigation. According to the instructions of the county leaders, the audit work was carried out on rural toilet improvement, rural domestic waste treatment, rural domestic sewage treatment, livestock and poultry manure treatment, village planning, village appearance, etc. the auditors went to all units, departments and farms involved to verify the use of funds, It is found that there are significant risk problems in the use of rural residential environment improvement funds. The second is the combination of audit

and field observation. In addition to checking the accounts and related information, the audit team also made on-the-spot observations in several fields. Through field visit and field observation, it was found that the fermentation tank of a centralized treatment center of livestock and poultry manure in Y town was not in normal operation (only three days in 2020). Third, make full use of big data analysis ideas. Including: SQL model; Python model; Data mining model; Probability statistical model; Natural language processing model; Deep learning / reinforcement learning model; ArcGIS system; Sparse PCA; GIS + data. For example, Secondly, it analyzes the reasons of rural toilet relocation by using SQL tools; According to google satellite remote sensing images, sewage treatment station images and accounts, ArcGIS system is used to analyze the layout of sewage stations; Sparse PCA is used for outlier mining of wastewater related data. It is found that there is no change in the output of sewage treatment point in a certain period of time; A GIS + data audit system for rural human settlement environment improvement was developed to examine whether the farms that should be closed within the scope of no farming areas have been closed.

4.3. Post Audit Evaluation Summary

4.3.1. Summarize and Evaluate the Project Organization.

After the implementation of the project, the whole process of the audit project is summarized and evaluated in the aspects of scheme preparation, personnel arrangement, on-site organization and implementation, application of big data model, review and application of results. The adoption of audit recommendations by the government is regarded as an important basis to measure the audit effect.

4.3.2. Innovating the Way and Content of Rectification to Promote the Best Effect of Rectification.

First, reform while trying. During the implementation of the project, if the problems found can be rectified, the auditee shall be required to rectify immediately. Second, timely report and promote rectification. The major events shall be reported to the county government in a timely manner. The audit team shall immediately report to the county Party committee and county government in the form of "audit essentials" and the government shall order rectification. Third, deepen the content of rectification. For the problems found in the audit, the audit team strictly carries out the responsibility of supervision and inspection, puts forward rectification requirements according to the classification of legislation and reform, phased rectification and continuous rectification, studies the audit rectification standards, and excavates the maximum rectification potential of the audited unit; For example, the operation efficiency of rural domestic sewage treatment stations is low. In addition to the requirements of improving the operation efficiency of sewage pumping station, it is also suggested that the audited units should establish regulations and systems to further regulate and restrict from the system level. Fourth, establish the rectification list system. For the problems found in the audit, a list shall be established and the account management shall be carried out. The rectification measures, responsible person and schedule shall be specified. The auditee shall timely feed back the rectification results to the audit institution. The audit institution will verify and confirm the statement and cancel the account number.

4.3.3. The Audit Methods are Summarized and Improved Systematically.

Organize the members of the audit team to summarize and demonstrate the audit methods involved in the audit matters, and construct the basic paradigm of research-oriented audit driven by big data. For the more mature audit experience and methods, timely organize the preparation of audit cases and method guidance; For the immature audit methods, we should carefully analyze the reasons, find out the deficiencies, and constantly make dynamic adjustment and improvement.

5. Conclusion

For the audit work of rural human settlements, this paper puts forward the following suggestions.

5.1. Adhere to Planning First and Strengthen Planning Guidance.

It is an important task for Rural Revitalization to strengthen the renovation of rural living environment. It is necessary to establish a systematic concept, strengthen planning and guidance, and promote environmental remediation work as a whole.

First, it is necessary to strengthen the compilation of village practical planning, which should be connected with the town level land space planning and town and village layout planning, optimize the functional layout of the village, give full play to the main role of the village committee and the villagers, make public timely, and incorporate the contents of the village planning into the village rules and regulations. Second, we should strengthen the compilation of rural domestic waste treatment planning. We should consider the treatment and utilization of rural domestic waste, establish and improve the garbage collection, transfer and disposal system, reasonably plan the domestic waste delivery point, and provide adequate facilities and equipment, so as to promote the collection and treatment of kitchen waste in rural residential areas. Third, strengthen the compilation of village sewage treatment planning. Adhere to the principle of planning before construction. According to the location conditions, population concentration and sewage production scale of different villages, the sewage treatment planning is compiled to make the planning and design adapt to the actual needs. Fourth, we should strengthen the planning of livestock and poultry manure treatment, and further increase investment, capacity and capacity for harmless treatment and resource utilization facilities of livestock and poultry manure centralized treatment center in the town; We will speed up the construction of rural sanitary household toilets and public toilets, so that the transformation scheme of household toilets can effectively connect with the domestic sewage treatment planning.

5.2. Strict Bidding, Strengthen Contract Management.

First, the bidding work of household toilets, public toilets and other projects should be strictly carried out, and the qualification examination of bidders should be strengthened; It is strictly forbidden to borrow qualification and illegally affiliated; It is strictly forbidden to collude with others and to subcontract or subcontract illegally; It is strictly forbidden to violate the detailed rules of bid evaluation; It is strictly forbidden to define the construction quality standard in the bidding documents; It is strictly forbidden to act independently, change index parameters at will and reduce construction standards. The content of the construction contract shall be consistent with that of the bidding document. The second is to strictly invite bids for rural domestic waste collection, transfer, treatment and other facilities and equipment (including garbage cans, bins, pools, etc.), adhere to the principle of openness, transparency and standardized operation, and shall not violate the bid evaluation. It is necessary to establish a negative list of bidders and a admittance system. Those responsible for fraud should be dealt with seriously. The third is to strengthen the public bidding of village cleaning, public toilets and sewage pump station management and protection projects, standardize the bidding content and signing of agreements, optimize the cleaning and management personnel, strictly prohibit violating the procedures and operating in a dark box, and reduce the management and protection standards.

5.3. Strengthen Quality Management and On-site Supervision.

First, the construction and transformation projects of household toilets and public toilets should complete the annual tasks with quality and quantity guaranteed. The construction should be carried out according to the requirements of the septic tank volume, tank wall and

tank bottom thickness specified in the scheme, and the on-site supervision should be strengthened. It is not allowed to reduce the material and change the parameters at will, strengthen the publicity of the project, strengthen the supervision of the masses, and strictly enforce the acceptance standards to ensure the acceptance of each household. Second, the village sewage treatment project, For the pump station, main pipe network and branch pipe network projects, the construction shall be carried out in strict accordance with the requirements and technical standards. The supervision of the whole construction process shall be strengthened to ensure that the facilities and equipment meet the standards and the construction and construction are in compliance with the requirements. Meanwhile, the access rate of domestic sewage of farmers shall be improved. Those who do not construct according to the specified standards shall not pass the completion acceptance. Third, during the construction of leachate treatment center, It is necessary to standardize the installation of leachate treatment capacity, power consumption and other metering instruments, and complete the project on schedule and with good quality according to the requirements of the construction contract. It is necessary to strengthen the construction supervision of the septic tank in the centralized treatment center of livestock and poultry manure to ensure that the upper part is covered and the lower part is not leaking, so as to ensure that the environment is not polluted.

5.4. Strict Financial Management, Standardize Project Payment.

First, we should strengthen the supervision of the whole process of funds, establish and improve the system and strictly implement it. Ensure that the special funds are used for special purposes, and it is strictly prohibited to delay the allocation, detention and retention. Second, it is necessary to strengthen the management of project payment, pay project funds in strict accordance with the project construction contract, construction progress, supervision procedures, audit conclusions, etc., and it is strictly prohibited to pay project funds in advance in violation of regulations. Third, strengthen the supervision of management and protection funds. For Village Road and river cleaning, garbage collection and transportation, sewage pump station and toilet management and maintenance funds, we should strengthen supervision, strengthen assessment, do not pay repeatedly, do not use illegally. Fourth, all towns, districts and departments have purchased and built garbage transport vehicles, rural public toilets and rural domestic sewage treatment facilities, Fixed assets should be added in time.

5.5. Establish and Improve the System and Build a Long-term Mechanism.

First, we should adhere to the principle of reducing the amount of rural domestic waste at the source and placing it at a fixed point, establish a waste classification collection system, strengthen the investigation of environmental problems in villages, establish and improve the system, and strengthen the implementation of the responsibilities of urban management departments, towns, villages and environmental cleaning personnel. Second, for the operation of livestock and poultry manure treatment facilities and the return of manure to the field, the county agricultural and rural bureau should urge all towns and districts to establish standing books, We will improve the operation supervision and testing system. Third, for the utilization and performance of sewage treatment facilities, the county housing and construction department should strengthen the assessment and inspection, establish and improve the system, and urge relevant units to strengthen the detection of sewage treatment results. Fourth, for the management and protection of household toilets and public toilets, the county agricultural and rural bureau should improve the management and protection system, timely carry out problem investigation, and implement the management and protection responsibility.

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