

Empirical Research on Evaluation of Internal Control Effectiveness of Administrative Institutions

Taking “S” Water Resources Bureau as an Example

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Abstract—As a carrier of the government’s public administration and social services, an administrative institution has its management capacity level directly related to the quality of the government’s public services, wherein the internal control which directly decides the level of the institution’s management capacity is a very important component of the administrative institution. Therefore, it has much important meaning to research on the internal control of administrative institutions. Through establishing evaluation system for internal control effectiveness of water resources Bureaus and carrying out analysis on the level of internal control effectiveness by taking a certain water resources bureau as an example, this paper has put forward many constructive suggestions on water resources bureaus’ internal control effectiveness evaluation, expecting to make contributions to administrative institutions’ improvement in public service function.

Keywords—*administrative institution; internal control; evaluation of effectiveness*

I. INTRODUCTION

This An administrative institution is a governmental and non-profit organization and also a carrier of social public functions. Its income is from fiscal funds, which is a specific character. To secure the public society’s general benefits, it has much important meaning to carry out evaluation of internal control effectiveness concerning administrative institutions, as it concerns society’s economic contribution, political contribution and cultural contribution. Furthermore, internal control managerial flaws exist in China’s administrative institutions, such as disadvantages of reluctant management inside institutions, low efficiency in services, severe phenomenon of corruption and abuse of power, etc. Therefore, the State’s Ministry of Finance issued Specifications for Internal Control of Administrative Institutions (Trial) in 2012 [1], and had it implemented officially in the nation since January 1, 2014 [2]. The issuance and implementation of the Specifications have provided base for the construction, management and supervision of and over the internal control system for administrative institutions, primarily established the basic framework of the internal control system for China’s public departments and guided relevant units in setting up and

carrying out the internal control system. However, further effort should made on the improvement and effectiveness of institutions’ internal control.

Compared to researches on enterprises’ internal control systems, the research on the internal control of administrative institutions has a relatively late beginning. The internal control system features a low grade of maturity in construction, and researches on evaluation of its effectiveness are rather weaker.

LU Huan (2012) took the Charity Federation of a certain city as the research object, had a profound analysis on the current status and related causes about internal control of the Charity Federation by the way of interviews and field researches, tentatively built an internal control framework for the city’s Charity Federation and put forward corresponding measures to ensure the implementation of the internal control system, hoping to provide suggestions on internal control construction for similar charity institutions in the nation[3]. CHEN Wenchuan (2015) constructed an internal control framework system with governmental departments’ internal control targets, evaluation agencies and evaluation elements as its core by adopting COSO (2013) new framework, based on which adopting ANP (Analytic Network Process) to determine governmental departments’ internal control index weight and comprehensive scores of effectiveness, hoping to provide a self-evaluation operation system of decision science for governmental departments [4]. Based on Basic Specifications for Internal Control of Administrative Institutions (Trial), SONG Liangrong (2013) constructed a self-evaluation system for the internal control of administrative institutions and put forward quantitative evaluation algorithm for internal control indexes [5]. On the basis of basic theories concerning the internal control of administrative institutions, CHEN Yan (2015) employed Analytic Hierarchy Process to carry out framework design for the evaluation index system for the internal control of administrative institutions in China, and further constructed evaluation model combining quality and quantity by the way of fuzzy comprehensive evaluation, hoping to provide suggestions on evaluation of internal control effectiveness for administrative institutions of different levels [6]. Researches concerning the evaluation of internal control

effectiveness of administrative institutions are quite deficient, as researches have merely begun in the past years. This paper takes water resources bureaus as its research object and constructs an effectiveness evaluation system for water resources bureaus' internal control based on their features. Further, it takes S Water Resources Bureau as an example for case analysis, hoping to provide suggestions and references about evaluation of internal control effectiveness of administrative institutions.

II. ESTABLISHMENT OF INTERNAL CONTROL EFFECTIVENESS EVALUATION SYSTEM FOR WATER RESOURCES BUREAU

The effective operation of internal control requires constant and powerful evaluation of internal control effectiveness. Supervising the internal control through evaluation can effectively find out the flaws and weaknesses of the internal control, and remedies may be executed with the help of information collected by the evaluation so as to further improve the internal control system. Therefore, it's quite necessary to establish perfect effectiveness evaluation.

A. Target Setting for the Internal Control of Water Resources Bureaus

The The effectiveness of the internal control of administrative institutions depend on the level of realizing the internal control targets. With water resources bureaus' own features and requirements of Specifications for Internal Control of Administrative Institutions, targets concerning a water resources bureau's internal control mainly include: (1) target of compliance: properly ensure that economic activities comply with laws and specifications; (2) target of service: improve the work efficiency of relevant staffers who are to provide the masses with the most and best services within the shortest time, hence improving the public service function; (3) target of funds: maintain fund security, well fulfilled and implemented, and make relevant assets utilized safely and effectively; as most funds of a water resources bureau are from the State's financial allocation, how to safely and effectively utilize the funds is extremely important for making due contributions to citizens and society practically; (4) target of anti-abuse: prevent corruption and avoid fraud effectively; carry out internal control system, restrict leaders' power, adopt standardized processes for official business and implement principles of equity and fairness to effectively prevent the phenomenon of corruption and fraud. The realization of all targets will meet certain difficulty, wherein the target of compliance belongs to the basic targets of a water resources bureau's internal control, hence enjoying a relatively low degree of realization while

the target of service, the target of funds and the target of anti-abuse enjoy a relatively high degree of realization.

B. Definition of Evaluation Subject and Object

The The subject of internal control evaluation is the organization to carry out effectiveness evaluation. An organization especially established inside an institution for internal control effectiveness and the internal discipline inspection and supervision department of an institution or the internal auditing department can play the role of the subject for internal control evaluation. A water resources bureau may set up an internal control committee for which the bureau chief is responsible under the control of the Party Committee. The organization consists of the institution's leaders and the main persons-in-charge of the personnel department, the financial department, the auditing department, the trade union and departments alike to provide evaluation of the institution's internal control effectiveness and feed back existing problems in time. It should be made clear that the institution's leaders should be responsible for the authenticity of reports on internal control evaluation and bear the final liability for the internal control evaluation. The internal discipline inspection and supervision department should inspect the reports on internal control evaluation and supervise the establishment and implementation of the institution's internal control as well as the evaluation of its effectiveness. The object of the evaluation is the effectiveness of the internal control, namely, the degree that an administrative institution achieves in establishing and implementing internal control to provide proper assurance for realizing the targets of control.

III. CONSTRUCTION OF EVALUATION MODEL FOR INTERNAL CONTROL EFFECTIVENESS OF WATER RESOURCES BUREAUS

A. Construction of Evaluation Index System for Water Resources Bureaus

Internal control evaluation indexes are the basis of evaluation of internal control effectiveness, that is, what aspects and what content to be evaluated specifically. The selection of evaluation indexes mainly includes Delphi Method, Analytic Hierarchy Process, Neural Network Method, etc. [7] This paper adopts Analytic Hierarchy Process. The outline of this paper is to determine the index system and index weight mainly by Analytic Hierarchy Process supplemented with Delphi Method and finally construct fuzzy evaluation model for the execution of effectiveness evaluation. Based on it, the index system for the evaluation of internal control effectiveness of water resources bureaus, as shown in "Fig. 1".

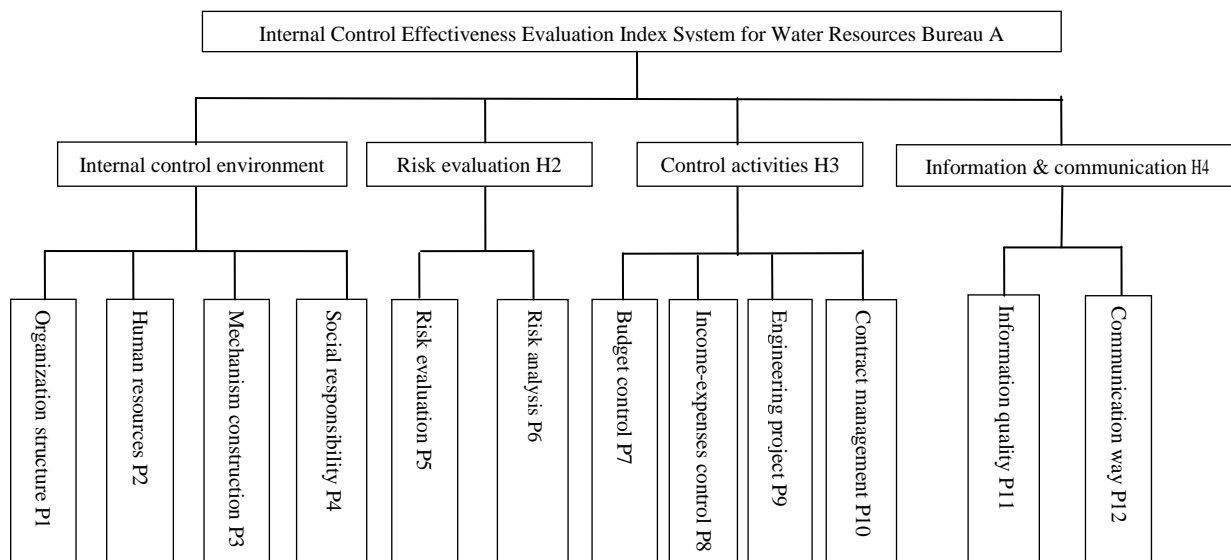


Fig. 1. Internal Control Effectiveness Evaluation Index System for Water Resources Bureau

In the index system, A refers to the index for target layer (index of level 1), which is intended to analyze the internal control effectiveness of a water resources bureau. H refers to the index of criterion (index of level 2), including the four evaluation factors H1, H2, H3 and H4. Indexes affecting H1 include P1, P2, P3, P4, indexes affecting H2 include P5 and P6, those affecting H3 are the four indexes P7, P8, P9 and P10, and indexes affecting H4 are P11 and P12.

B. Establishing Comment Set for Internal Control Effectiveness of Water Resources Bureaus

Analytic Hierarchy Process is adopted to determine the weight of each index with the supplementary of Delphi Method. Experts of administrative institutions' internal control and professor specialists from colleges have been invited to make up a specialist team to score the importance of indexes for internal control effectiveness. Through releasing e-questionnaires, the corresponding data determined by specialists are completed to determine the judgment matrix and calculate the corresponding index weight. 20 questionnaires in total were released with 16 effective questionnaires therein recovered. As the judgment matrix construction manners for the four level-2 indexes H1, H2, H3 and H4, the way to construct judgment matrix for H1 internal control environment is presented here as an instance. The following "Table I" relates to the judgment matrix for each index weight in internal control environment.

TABLE I. SCORES OF IMPORTANCE OF INTERNAL CONTROL ENVIRONMENT INDEX

Index	Organization structure	Human resources	Mechanism construction	Social responsibility
Organization structure	1	-	-	-
Human resources		1	-	-
Mechanism construction			1	-
Social responsibility				1

Derived from this, the weight judgment matrix for constructing internal control effectiveness evaluation indexes is as shown in "Table II".

TABLE II. SCORES OF IMPORTANCE OF INTERNAL CONTROL EFFECTIVENESS EVALUATION INDEX

Index	Internal control environment	Risk evaluation	Control activities	Information and communication
Internal control environment	1	-	-	-
Risk evaluation		1	-	-
Control activities			1	-
Information and communication				1

A secondary factor index set $W = \{WH_1, WH_2, WH_3, WH_4\}$ is built, wherein WH_i ($i=1,2,3,4$) is the weight of the secondary index layer (H) corresponding to the first index layer (A), $\sum WH_i=1(i=1,2,3,4)$.

A third factor index set $W = \{WH_{11}, WH_{12}, WH_{13}, WH_{14}, WH_{21}, WH_{22}, WH_{31}, WH_{32}, WH_{33}, WH_{34}, WH_{41}, WH_{42}\}$ is built, wherein WH_{ij} ($i=1,2,3,4$, j refers to the number of the third indexes under the corresponding secondary indexes) is the weight of the third index layer (P) corresponding to the second index layer (H), $\sum SW_{ij}=1$ ($i=1,2,3,4$, j refers to the number of the third indexes under the corresponding secondary indexes).

The weight of each index can be derived by calculating weights via scoring: P1, P2, P3, P4, the weights of which are (0.25, 0.35, 0.10, 0.30) respectively; P5, P6, the weights of which are (0.55, 0.45) respectively; the four indexes P7, P8, P9, P10, the weights of which are (0.35, 0.30, 0.15, 0.20) respectively; P11, P12, the weights of which are (0.65, 0.35) respectively.

C. Constructing Fuzzy Evaluation Matrix for Evaluation

The fuzzy evaluation matrix of factor set H to comment set V is R, of which the matrix structure expression is as follows:

$$\begin{bmatrix} r_{11} & r_{12} & \dots & r_{15} \\ r_{21} & r_{22} & \dots & r_{25} \\ \dots & \dots & \dots & \dots \\ r_{i1} & r_{i2} & \dots & r_{i5} \end{bmatrix}$$

Wherein r_{ij} is the j th comment of evaluation factor H_i , and the formula for fuzzy transformation is as follows:

$$F = W * R \quad (1)$$

Wherein F is the maximum membership vector of the third level indexes, and W represents the weight group of the third level evaluation indexes. Based on this formula, fuzzy comprehensive evaluation results can be acquired.

IV. EXAMPLE OF EVALUATION OF INTERNAL CONTROL EFFECTIVENESS OF S WATER RESOURCES BUREAU

A. Introduction to S Water Resources Bureau

The institution S is the administrative department in charge of water conservancy of the people's government of the city. It centralizes the management of the whole city's water resources, channels, reservoirs and lakes, and is responsible for the whole city's affairs concerning flood and draught control and water and soil conservation as well as for the management of the whole city's water conservancy industry. It mainly consists of seven departments, which are Office, Water Administration and Water Resources Section, Rural Conservancy Section, Engineering Management Section, Organization and Personnel Section, Financial Certification

Section and Flood and Draught Office respectively. Director-responsible system is followed with one director, two deputy directors, one secretary of Commission for

Discipline Inspection and seven group-level position leaders, who are in charge of different issues respectively, having basically realized well-defined power and responsibility.

Financial Certification Section is responsible for formulating the overall budget of the institution S, liable for the supervision and management over S's fiscal funds, proposes comments and suggestions on prices and fees concerning relevant water services to guide the whole bureau in managing water charge collection, and is in charge of financial management and internal auditing within S Water Resources Bureau system.

B. Introduction to S Water Resources Bureau

1) Establishment of fuzzy judgment matrix concerning evaluation of internal control effectiveness of S Water Resources Bureau: A questionnaire was designed and formulated by using the effectiveness evaluation index system set above. The questionnaire was issued to the managers of the bureau and staffers from departments of auditing and finance. 20 questionnaires in total were released with 18 therein recovered. See "Table III" for the results.

TABLE III. EVALUATION JUDGMENT MATRIX

	Quite satisfied	Satisfied	So-so	Dissatisfied	Quite dissatisfied
Organization structure	2	5	8	3	0
Human resources	1	6	7	3	0
Mechanism construction	0	4	11	2	0
Social responsibility	0	6	12	0	0
Risk evaluation	0	2	8	6	2
Risk analysis	0	3	9	5	1
Budget control	1	3	10	4	0
Income-expenses control	2	6	9	1	0
Engineering project	3	6	9	0	0
Contract management	1	7	10	0	0
Information quality	0	6	8	2	2
Communication way	0	5	8	2	3

$$R1 = \begin{bmatrix} 0.110.280.0.440.170 \\ 0.060.33 \ 0.39 \ 0.170 \\ 0 \ 0.22 \ 0.61 \ 0.110 \\ 0 \ 0.33 \ 0.67 \ 0 \ 0 \end{bmatrix} \quad R2 = \begin{bmatrix} 0.0.110.440.330.11 \\ 0.0.17 \ 0.5 \ 0.280.06 \end{bmatrix}$$

$$R3 = \begin{bmatrix} 0.060.170.560.220 \\ 0.110.33 \ 0.5 \ 0.060 \\ 0.170.33 \ 0.5 \ 0 \ 0 \\ 0.060.390.56 \ 0 \ 0 \end{bmatrix} \quad R4 = \begin{bmatrix} 0.0.330.440.110.11 \\ 0.0.280.440.110.17 \end{bmatrix}$$

2) Analysis on fuzzy comprehensive evaluation of S Water Resources Bureau's internal control

a) Evaluation of internal control environment

$$F1 = W1 * R1 = (0.25, 0.35, 0.10, 0.30)$$

$$\begin{aligned}
 & * \begin{bmatrix} 0.110 & 0.280 & 0.440 & 0.170 \\ 0.060 & 0.33 & 0.39 & 0.170 \\ 0 & 0.22 & 0.61 & 0.110 \\ 0 & 0.33 & 0.67 & 0 & 0 \end{bmatrix} \\
 & = (0.0485, 0.3065, 0.5085, 0.113, 0)
 \end{aligned}$$

It is known from this result that 0.5085 is the maximum, of which the corresponding level is the effectiveness evaluation result of internal control environment. However, the comment set for effectiveness evaluation is $V = \{V_1, V_2, V_3, V_4, V_5\} = V = \{\text{Quite satisfied, Satisfied, So-so, Dissatisfied, Quite dissatisfied}\}$. Therefore, its corresponding level is So-so, which indicates that the level of internal control environment of S Water Resources Bureau is so-so. For its nature of administrative institution, the bureau impresses people with its image of "a secure job". Further with the poor fulfillment of daily supervision, management and punishment measures concerning human resources, it results in a widespread phenomenon of staffers being undisciplined, the working atmosphere being idle, shopping on line during work time and even going to the market to buy food. Proper personnel selection mechanism and good system of rewards and penalties should be established so as to ensure the correct and efficient operation of public services and improve the internal supervision.

b) Evaluation of risk evaluation effectiveness

$$\begin{aligned}
 F2 = W2 * R2 &= (0.55, 0.45) * \begin{bmatrix} 0.0110 & 0.440 & 0.33 & 0.11 \\ 0.017 & 0.5 & 0.280 & 0.06 \end{bmatrix} \\
 &= (0, 0.137, 0.467, 0.3075, 0.0875)
 \end{aligned}$$

It is known from this result that 0.5085 is the maximum, of which the corresponding level is the effectiveness level of risk evaluation. Its level is So-so. As the Water Resources Bureau is of administrative institutions, its construction in risk evaluation is relatively weak. All of its control follows the division-leader-responsible system, which lacks corresponding internal supervision mechanism. Its risk evaluation system should be established and improved with corresponding evaluation standards to be formulated.

c) Evaluation of control activities' effectiveness

$$F3 = W3 * R3 = (0.35, 0.30, 0.15, 0.20)$$

$$* \begin{bmatrix} 0.060 & 0.170 & 0.560 & 0.220 \\ 0.110 & 0.33 & 0.5 & 0.060 \\ 0.170 & 0.33 & 0.5 & 0 & 0 \\ 0.060 & 0.390 & 0.56 & 0 & 0 \end{bmatrix}$$

$$= (0.084, 0.286, 0.533, 0.096, 0)$$

It is known from this result that 0.5085 is the maximum, of which the corresponding level is So-so, namely, the effectiveness level of risk evaluation is so-so. For S Water Resources Bureau, internal control mainly include control of its budget, control of water charge collection, control of expenses and control of project construction. As is only a tiny branch of Financial Certification Section, its auditing department enjoys no authority and its internal auditing has

thus become superficial, not able to well execute internal control. The project construction funds of S Water Resources Bureau, which are of huge amount, are from the State's fiscal allocation. Whether this amount is properly utilized has a lot to do with taxpayers' benefits, and more with many issues concerning peasants' land irrigation, water use of enterprises in industrial parks and urban public water use facilities of the city. Without corresponding proper internal control system, problems like degeneration and corruption will come up easily, hence having negative influence on the image of departments providing public services.

d) Evaluation of information and communication effectiveness

$$\begin{aligned}
 F4 = W4 * R4 &= (0.65, 0.35) * \begin{bmatrix} 0.0330 & 0.440 & 0.110 & 0.11 \\ 0.0280 & 0.440 & 0.110 & 0.17 \end{bmatrix} \\
 &= (0, 0.3125, 0.44, 0.11, 0.131)
 \end{aligned}$$

It is known from this result that 0.5085 is the maximum, of which the corresponding level is So-so, that is the evaluation of information and communication effectiveness is So-so. S Water Resources Bureau has no corresponding information transmission mechanism. The public can't smoothly transmit requirements and demands to the Bureau while the Bureau also can't properly transmit policies and rules to the public. Although S Water Resources Bureau has its corresponding website, it's hard for common people to find out corresponding information as the website's content is sparse. Still, its website administrator isn't a technician with corresponding professional knowledge in computers, and it can't achieve the expected purposes.

V. CONCLUSION

It's quite necessary to establish evaluation system for internal control effectiveness in the new situation. The implementation of *Specifications for Internal Control of Administrative Institutions* has provided guidelines and directions for the internal control of administrative institutions. To improve the effect and efficiency of internal control, an evaluation system for the internal control should be set up to carry out evaluation of its internal control's effectiveness level and then analyze problems existing in the internal control according to the evaluation results, hence making up for the deficiency and establishing and improving internal control.

Through carrying out research on the evaluation system for the internal control effectiveness of water resources bureaus with S Water Resources Bureau as an example for the analysis on its internal control's effectiveness level, this paper has not only provided constructive suggestions for the establishment of evaluation system for the internal control effectiveness of water resources bureaus, but has also provided advisory comments and suggestions for the internal control research concerning all administrative institutions, hence having realistic meaning of importance.

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