

Research Funding Management Reform to Support Scientific and Technological Innovation Development (Postprint)

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Abstract

The Strategic Pilot Science and Technology Special Project (abbreviated as “Pilot Special Project”) is a key initiative and strategic instrument for the Chinese Academy of Sciences (CAS) to implement the “Innovation 2020” agenda and achieve the “Four Firsts” objectives. As a major science and technology program deployed by CAS, it targets national strategic needs and frontier areas of international scientific development. To date, the Pilot Special Project has produced numerous landmark achievements, significantly enhanced core competitiveness across several key priority domains, and established multiple innovation highlands that occupy internationally leading positions; it has assembled cohorts of outstanding backbone talent and science and technology leading talents in relevant fields, thereby advancing the construction of high-level innovation teams; and it has initially established a series of platforms and mechanisms for collaborative innovation that facilitate cross-institute, cross-disciplinary, and intra- and extra-academia cooperation.

Full Text

Preamble

The Strategic Priority Research Program (hereinafter referred to as “the Program”) is a crucial initiative and vehicle for the Chinese Academy of Sciences (CAS) to implement “Innovation 2020” and achieve the “Four Firsts” objective. It represents major scientific and technological programs that CAS has deployed and launched, targeting national needs and international disciplinary frontiers. The Program has already yielded a number of landmark achievements, significantly enhancing core competitiveness in several key areas and forming innovative highlands that lead internationally. It has also assembled

outstanding talents and scientific leaders in relevant fields, promoting the construction of high-level innovation teams, and has initially established platforms and mechanisms for collaborative innovation that facilitate cross-institute, cross-disciplinary, and cross-sector cooperation.

Currently, the state attaches great importance to the role of scientific and technological innovation in transforming economic development patterns, continuously increasing investment in science and technology, which has drawn intense public attention to research funding management. In line with its new-era guidelines, CAS has comprehensively advanced five key aspects: improving the institutional system, creating a favorable research environment, strengthening management of research performance output, coordinating management of existing funds, and enhancing supervision of research funds. These efforts aim to effectively improve the efficiency of research fund utilization, ensure the smooth implementation of the Program, and support the “Pioneering Action” plan.

1. Innovating Institutional System Construction and Standardizing Research Project and Fund Management

Research fund management is a long-term and arduous task. The key to managing and using research funds effectively lies in a sound and effectively enforced institutional system. As the national science and technology system reform advances, CAS has seized this opportune moment to systematically design and improve its management institutional system, comprehensively standardizing research project and fund management in close connection with key work and emerging issues in research fund management.

In 2014, in response to the State Council’s “Several Opinions on Improving and Strengthening the Management of Central Government Research Projects and Funds” (Guofa [2014] No. 11) and actual circumstances, CAS formulated the “Guiding Opinions of the Chinese Academy of Sciences on Strengthening the Management of Research Projects and Funds (Trial),” implementing systematic and coordinated reforms in research project and fund management. The reforms introduced measures to optimize resource allocation, establish performance and credit systems, and strengthen legal entity responsibilities, aiming to address weak links and problems in research fund management and fully leverage the important supporting role of research funds in achieving the “Four Firsts.”

In 2016, to implement the spirit of the “Three Science and Technology Conferences” and the “Several Opinions of the General Office of the CPC Central Committee and the General Office of the State Council on Further Improving the Management Policies of Central Government Research Project Funds” (Zhongbanfa [2016] No. 50), CAS formulated and issued the “Measures for the Management of Travel Expenses of the Chinese Academy of Sciences (Trial),” “Measures for the Management of Conference Expenses of the Chinese Academy of Sciences (Trial),” and “Notice on Strengthening the Management and Accounting of ‘Horizontal Funds.’” Addressing issues such as cumbersome procedures

and low standards that researchers encountered when implementing national regulations, CAS followed the principles of “delegating power, combining deregulation with effective oversight, and optimizing services,” adhered to the laws of research management, and proposed a series of “deregulation + incentive” measures that have actively promoted researchers’ enthusiasm and innovation vitality. At the same time, CAS strengthened management and supervision to ensure that “deregulation is accompanied by effective control.”

2. Creating a Favorable Research Environment and Proactively Managing and Using Research Funds

In recent years, China has gradually formed a research funding model based on stable support with competitive funding as the dominant component, which has played a positive role in enhancing researchers’ creativity and improving the efficiency of science and technology investment. CAS has actively adopted various reform measures to increase support for research work, creating a favorable research environment through improved funding management models that better conform to the laws of research, alleviating researchers’ concerns, stimulating their enthusiasm, and encouraging them to proactively manage and use research funds effectively, thereby promoting their dedication to research.

In recent years, to address prominent contradictions in research fund management and use, CAS has issued multiple management measures tailored to the actual characteristics of research work. For instance, the “Measures for the Management of Special Research Activity Expenses for Field Scientific Expeditions and Other Special Activities” standardized the reimbursement of expenses for special research activities and safeguarded the needs of field scientific expedition research. The “Interim Provisions of the Chinese Academy of Sciences on Strengthening the Management of Related-Party Transactions in Research Projects” standardized related-party transaction management. CAS also revised the “Implementation Measures for Performance Evaluation of Fiscal Fund Projects of the Chinese Academy of Sciences,” conducting multi-level performance evaluation management, optimizing performance evaluation indicator systems, and strengthening the application of evaluation results. Simultaneously, CAS has consistently conducted practical and effective research fund management training through various methods such as animated propaganda, training courses, and knowledge competitions, further improving the comprehensive qualities of researchers and management personnel and ensuring the implementation of various policy measures.

Specific measures have been implemented to protect researchers and improve fund utilization. CAS allows the purchase of personal accident insurance or commercial medical insurance for expedition team members during field work to protect their health and ensure the needs of field scientific expedition research. The budget allocation for personnel funds has been increased to vigorously alleviate structural contradictions in funding. By allocating personnel funds for specially appointed researchers and young and middle-aged backbone

talents, the time input of outstanding researchers in managerial work has been reduced to a certain extent, ensuring their research time. Following the principle of “strict control, combining preservation with reduction, ensuring key points, and serving development,” CAS implements classified management for some temporary overseas missions on official business, excluding them from the annual batch limit management scope for temporary overseas missions of the unit and individual, better meeting the needs of the Program and ensuring the implementation of the “Pioneering Action” plan and the internationalization advancement strategy.

In 2015, focusing on the “One-Three-Five” work objectives of CAS and based on further refining major outputs, personnel, operation, and research funds were arranged for more than 30 major output projects to ensure research needs and promote major outputs.

3. Improving Whole-Process Budget Management and Enhancing Fund Use Efficiency

Through comprehensive analysis and summary, CAS has actively formulated policies to continuously improve the long-term mechanisms for budget management and carry-over/remaining fund management, focusing on budget compilation, budget execution, digestion of carry-over and remaining funds, and project completion acceptance.

Implementing source control, CAS has established a mechanism linking carry-over funds with budget arrangements. To implement the requirements of medium-term fiscal planning and three-year rolling budget management, CAS has refined departmental budget compilation to improve its scientific accuracy and established a mechanism linking carry-over funds with budget arrangements. To integrate resources and avoid fragmented management, project integration was carried out during the departmental budget compilation process, significantly reducing the number of Program projects in the project pool and laying the foundation for units to coordinate funds and expand management authority. Additionally, project budget compilation has been strengthened through review. Budgets for Category A programs are reviewed by intermediary agencies, while budgets for Category B programs are reviewed by in-house financial experts. Experts fully leverage their professional expertise and rich practical experience to provide comprehensive opinions on the compliance, relevance, economy, and executability of project budgets, guiding program undertaking units to make good use of management policies and ensuring that budget compilation is reasonable, compliant, and executable.

Budget execution has always been a key focus of constant attention. Based on trying various reform measures, 2015 focused on promoting institutional and mechanism reforms in budget execution management. Through source control, scientific budget compilation, delegating project budget adjustment authority, strengthening execution supervision, improving execution quality, and linking

budget allocation with execution, CAS has continuously improved budget execution rates and quality through full-chain, all-round management. Business and finance are linked, with business advancement driving budget execution. Through the joint efforts of the entire academy, the budget execution rate of the Program has remained above 95% in recent years, ensuring the efficient use of special funds.

In the past three years, by conducting comprehensive cleaning and revitalizing fiscal stock funds, CAS has explored new resource allocation mechanisms and established long-term mechanisms such as linking stock funds with budgets, project cleaning, and temporary payment cleaning reward systems. A series of measures including “ex-post subsidies” management have been implemented to strengthen the management awareness of stock funds throughout the academy, mobilize the enthusiasm of affiliated units in revitalizing stock funds, effectively reduce the amount of fiscal stock funds, further improve the efficiency of stock fund utilization, and enhance fund coordination and regulation capabilities.

Starting in 2016, the Program will gradually complete and enter the project completion acceptance stage. To ensure the smooth implementation of financial acceptance for the Program, CAS issued the “Acceptance Procedures for Strategic Priority Research Programs of the Chinese Academy of Sciences” and a Q&A document, further standardizing and clarifying the organizational management, forms and content, specific procedures, results, and related responsibilities of financial acceptance. The “Stem Cell and Regenerative Medicine Research” and “Carbon Budget Certification and Related Issues for Climate Change Response” programs successfully passed financial acceptance, setting benchmarks and accumulating valuable experience for future Program acceptance.

4. Strengthening Research Performance Output Management and Deepening Budget Performance Management

Research output performance is the most direct manifestation of research fund utilization results and the most effective indicator for measuring research input. CAS has always attached great importance to research performance management. On the one hand, it continuously explores how to make research performance and resource allocation complement each other in combination with research innovation activities. On the other hand, it deeply promotes performance evaluation according to the requirements of the Ministry of Finance, enhances performance concepts, deepens budget performance reform, and strives to improve the efficiency of research fund utilization.

To implement the concept of performance management throughout the entire process of budget compilation, execution, and supervision proposed by the Ministry of Finance, CAS has achieved organic integration of performance management and budget management. By combining budget performance management with the departmental budget review process, CAS has strengthened performance target setting and pre-budget compilation management, exploring

the establishment of a whole-process performance management model that runs through “before, during, and after” project expenditures. CAS has actively expanded the coverage of budget performance management, continuously increased the scope of performance evaluation, and explored the establishment of performance evaluation indicator systems for different evaluation objects, greatly promoting the efficiency of fiscal fund utilization.

As one of the first pilot units to carry out performance evaluation, CAS has conducted fiscal expenditure performance evaluations on more than 40 projects since 2004, with a total amount of 6.4 billion yuan. In 2015, CAS conducted performance evaluations on the Program, which were closely linked to 2016 budget arrangements. The funds included in budget performance management reached 6.563 billion yuan, accounting for 42.92% of total departmental project expenditures, continuously enhancing performance concepts and promoting performance budget reform. In the 2015 key performance evaluation organized by the Ministry of Finance, the “Stem Cell and Regenerative Medicine Research” Category A program ranked first and was submitted to the Standing Committee of the National People’s Congress as a typical performance evaluation case. Meanwhile, in the 2015 budget performance management assessment of more than 100 central departments organized by the Ministry of Finance, CAS achieved excellent results and received commendation from the Ministry of Finance for three consecutive years.

5. Strengthening Research Fund Supervision to Ensure Fund Use Safety

Problems in research fund utilization stem from both institutional imperfections and weak personal legal awareness. Strengthening supervision, inspection, and institutional construction to further promote standardized management is the fundamental solution. CAS has continuously strengthened supervision of research funds, employing various methods such as special inspections, daily supervision, and key re-examinations to gain in-depth understanding of problems in research fund utilization at institutes, seek reasonable and compliant solutions, and use institutional construction as the starting point to standardize research fund use and ensure efficient utilization.

To implement the opinions of the Central Inspection Team, CAS launched special inspections of major scientific and technological projects including the Program starting in 2015. Through these inspections, research fund management at institutes has been significantly improved, internal control management awareness has been markedly enhanced, and a deterrent effect has been achieved against violations and disciplinary offenses, forming a long-term internal supervision mechanism for research funds. To strengthen daily fund supervision, CAS has conducted mid-term financial inspections of the Program for three consecutive years, focusing on the compliance, rationality, and legality of fund use and the internal control situation of undertaking units. Through internal diagnosis, problems are identified and corrected in advance, continuously standardiz-

ing special fund management and use. Over the years, basically full coverage of fund inspections for major Program undertaking units has been achieved. Meanwhile, through special re-examinations, on-site reviews of program rectification situations are conducted to form a closed supervision loop, ensuring that problems are properly rectified and preventing resurgence.

In establishing and improving long-term supervision mechanisms, the Financial Assets Supervision Office was established in 2013 to conduct financial supervision of key projects such as the Program, information technology programs, and national major equipment development programs. A notification system has been established to give full play to warning functions and strengthen problem rectification and accountability. A joint meeting system for financial supervision, auditing, and business management has been established to run financial supervision through the entire process of research activities. Through strengthening institutional setup, optimizing work mechanisms, and improving supervision systems, a “trinity” supervision system for major projects involving the academy, institutes, and intermediary agencies has been comprehensively built.

6. Promoting Internal Control Construction to Improve Management Levels

Internal control is both an important management activity and a crucial institutional arrangement for administrative institutions, forming the cornerstone of governance. At the Second Plenary Session of the 18th Central Commission for Discipline Inspection, General Secretary Xi Jinping proposed strengthening constraints and supervision over power operation to “cage power in the institution,” forming a punishment mechanism that deters corruption, a prevention mechanism that makes corruption impossible, and a guarantee mechanism that makes corruption difficult. With the continuous increase in national science and technology investment, research fund utilization has become a focus of attention for the Party Central Committee and all sectors of society. To further improve the internal management level of administrative institutions, standardize internal control, and strengthen the construction of anti-corruption risk prevention mechanisms, the Ministry of Finance formulated the “Internal Control Standards for Administrative Institutions (Trial)” in 2012, which was fully implemented on January 1, 2014. CAS attaches great importance to internal control system construction and has carried out a series of work to promote the establishment and improvement of internal control systems in affiliated units, enhance risk prevention capabilities, and improve the management level of economic activities, escorting the implementation of scientific and technological projects such as the Program.

In strengthening internal control construction and risk prevention, CAS has comprehensively sorted out business and management processes and management systems, improving and formulating internal control implementation norms for each unit. In 2012, the “Internal Control Standards for Economic Activities of CAS Affiliated Units (Trial)” was issued to further strengthen the responsi-

bility system. Whole-process control management is implemented for project initiation, budget compilation, budget execution, and project completion and settlement. Meanwhile, CAS actively explores the “institution + technology” internal control model, expanding from “reagent and consumable procurement” to other key and high-risk areas. Information technology construction is accelerated to enhance the convenience of information systems, embedding internal control into information systems to achieve proceduralization and normalization of internal control.

To further guide and promote effective internal control establishment and implementation in each unit, under the guidance of the Ministry of Finance, CAS conducted self-evaluation of internal control basic work in 2016, with all public institutions included in this evaluation. Each unit established an evaluation team led by the principal person in charge to comprehensively evaluate various internal control basic work, identify deficiencies, analyze causes in detail, and propose improvement suggestions. Meanwhile, valuable suggestions were made for revising and improving internal control construction in response to internal control construction promotion and organization management.

The grand curtain of the 13th Five-Year Plan has been raised. Scientific and technological innovation knows no bounds, and deepening reform faces a long and arduous road. CAS will work together with concerted efforts, forge ahead, conscientiously implement the new-era guidelines, seek truth and be pragmatic, and forge ahead with determination. By initiating a new chapter of scientific and technological innovation through research fund management reform, CAS will make significant innovative contributions as a national strategic scientific and technological force to thoroughly implement the innovation-driven development strategy and build a moderately prosperous society in all respects.

Note: Figure translations are in progress. See original paper for figures.

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