

# International Expert Diagnostic Assessment for CAS Institutes

DAI Tao, ZHOU Jianzhong, LI Xiaoxuan

Institute of Policy and Management, Chinese Academy of Sciences  
Research Center for Management Innovation and Evaluation, Chinese Academy of Sciences

Since 2011, the Chinese Academy of Sciences (CAS) has entered the new development stage of “Innovation 2020”. The management of CAS towards its affiliated research institutes has also diverted to major outcome-oriented strategy, focusing on their un-substitutability in a research field. CAS requires its research institutes to pinpoint their “One Positioning, Three Major Breakthroughs, Five Key Potential Directions”, making it their “One-Three-Five” strategic planning. To promote and guarantee the accomplishment of the “One-Three-Five” planning, in 2012, CAS proposed to reform the S&T evaluation standards and establish a major R&D outcome-oriented evaluation system, one key point of which is inviting high-level experts from home and abroad to conduct diagnostic assessment towards research institutes. In 2012 and 2013, CAS conducted experts diagnostic assessment of its 19 research institutes, of which 16 institutes of basic research received international Expert Diagnostic Assessment. This article introduces the method and results of the assessment of these 16 research institutes.

## I. Purpose of the Diagnostic Assessment

International expert diagnostic assessment is an important approach for CAS to administrate its affiliated institutes. Through inviting high-level experts in the world, CAS strives to utilize their international perspectives to diagnostically assess the accomplishment of its research institutes’ “One-Three-Five” planning. On the one hand, the assessment could help the CAS headquarters better understand the research institutes’ strengths, development situations and existing problems so as to avoid homogenization. On the other hand, it can help these institutes clarify their core strengths, improve and perfect

their “One-Three-Five” planning, thus promoting and guaranteeing their major outcomes.

## II. Content of Assessment

According to the purpose of the assessment and the characteristics of fundamental research, international experts conduct diagnostic assessment mainly in the following two aspects:

(1) Overall development of research institutes. Experts are expected to assess the institutes’ domestic and international status, core competitiveness, development strategies and S&T layouts. In addition, experts are asked to provide suggestions on their team building, postgraduate education, and management systems, etc.

(2) Development situation in key research areas (“Three” and “Five” in “One-Three-Five” planning). Experts are invited to assess the significance of each key research area and the research quality, as well as talents cultivation, resources and technical platforms building, etc.

A total of 105 key research areas of the 16 research institutes were subject to the assessment. The academic leader of each key research area delivered a field report, and three to five principal investigators (PIs) or young scientists made presentations about the highlights of their work. A total of 327 scientists, including 281 research fellows, 23 associate research fellows, and 7 assistant research fellows, made on-site reports.

## III. Selection Mechanism for Experts

Experts’ selection holds the key to international expert diagnostic assessment, including the structure of an expert panel, selection standards, and recommendation of candidates, etc. An expert panel, usually made up of

around 10 members, is established in each institute to take charge of the institute's assessment. Each research area to be assessed has one or two peer experts or user experts, and each research institute has one or two additional experts who are familiar with most of the institute's research areas.

The standards for experts' selection include their academic level, management and assessment experiences, the most important condition of which is academic level. Assessment experts should have high reputation and influence in their own field, be at the forefront of international science and technology, and have profound insight into the development trend of the field. With expert candidates recommended by research institutes, CAS will check their qualification through bibliometrics and screening their interest relevance with the institutes.

A total of 162 domestic and international experts were invited to assess the 16 research institutes, among whom 84% are international experts from 18 countries with the United States taking the highest proportion of 54%, 29% of which are entitled as academician or equivalent titles, 61% have ever assumed administrative jobs. 59 experts are chief editors or associate editors for international journals and 54 are chairman or vice chairman of international societies or associations.

#### **IV. Assessment Procedure**

This diagnostic assessment adopts the method of 2-3 days of on-site assessment. A preparatory meeting at which the academy's leaders introduced the purpose and content of the assessment, is held at the beginning of the assessment. Then, the expert panel listens to institute director's briefing and scientists' reports about key research fields, visits its laboratories and talks with its leaders, researchers, young scientists and postgraduates. During the assessment, the expert panel also holds several internal discussions to reach a consensus. On the last day of the assessment, the expert panel presents the initial results to leading bodies of the CAS headquarters and research institutes. Finally, based on information gained from on-site assessment, the expert panel completes the final assessment report within one month.

#### **V. Results and Application of Assessment**

Assessment reports show that, "One-Three-Five" Planning at the 16 research institutes have been affirmed by the experts, and most of the research institutes have been

considered unique with comprehensive strengths. CAS has a series of first-class research areas and scientists, in such fields as materials and mechanisms of superconductivity, climate dynamics of Asian and Australian Monsoon System, and organofluorine chemistry. However, most of the assessed research areas are still following international cutting-edge and are in national leading position.

Meanwhile, experts also pointed out the present prominent problems of these institutes. For instance, some research institutes and key research areas lack a clear roadmap for future development, have yet to give full play to their comprehensive strengths, and have yet to take full advantage of the Advisory Committee which includes international experts. Besides, the panels offered constructive suggestions for refining the post employment and incentives system, resource allocation mechanism, young talents cultivation system and postgraduate education, etc.

As this assessment emphasized diagnosis, and its verdicts were irrelevant to resource distribution in assessed research institutes, a feedback mechanism is needed to guarantee the effectiveness of the assessment. To this end, CAS has established a multi-channel communication and feedback mechanism, including: first, panelists exchange ideas with researchers and postgraduates through report hearing, laboratories visiting and discussions in on-site assessment; second, panelists make on-site communications with CAS and institutes' leaders on the preliminary assessment results; third, after giving feedback to research institutes with experts assessment reports, CAS requires each institute compile respective feedback reports, in which institutes make responses to experts' opinions and suggestions. Institutes, for those opinions they disagree with, should give reasonable explanations; for those they show approve of, should show measures for implementation, including measures already carried out and new moves to be taken.

To sum up, the international experts diagnostic assessment has achieved expected results. It further clarifies CAS research institutes' strengths and weaknesses, raises the awareness of "excellence pursuit" of research institutes, promotes scientific culture development, provides a platform for international displays, and facilitates international exchanges. This assessment explores a new way for national S&T evaluation system reform, accumulates rich experiences in assessment methods, thus promoting China's S&T evaluation to be one big step forward to follow international standards.