



The 31st STAG Board Meeting

Theme I: S&T Policy Formation and Governance

1.1 Implementation of S&T Policy and Budget Allocation, National Science Council

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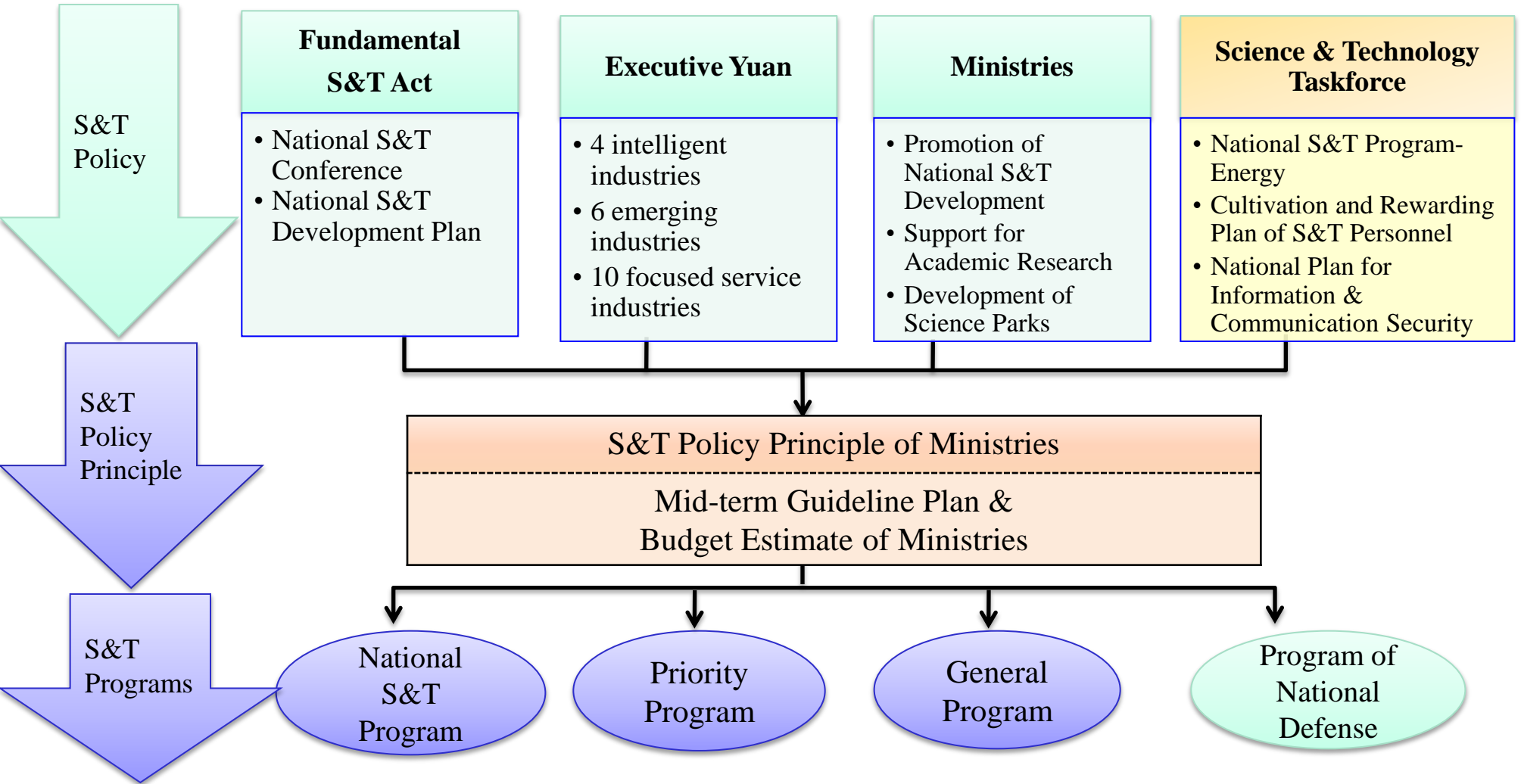
Outline

- I. S&T Policy and Government Plans**
- II. Visions and Objectives of NSC**
- III. Missions and Tasks of NSC**
- IV. Government Plans and Performance Evaluation**
- V. NSC's Policy Priorities**
- VI. NSC's Performance in Research and Development**
- VII. Issues of Policy Implementation & Performance Evaluation**



I. S&T Policy and Government Plans

(I) S&T Policy Structure of Taiwan





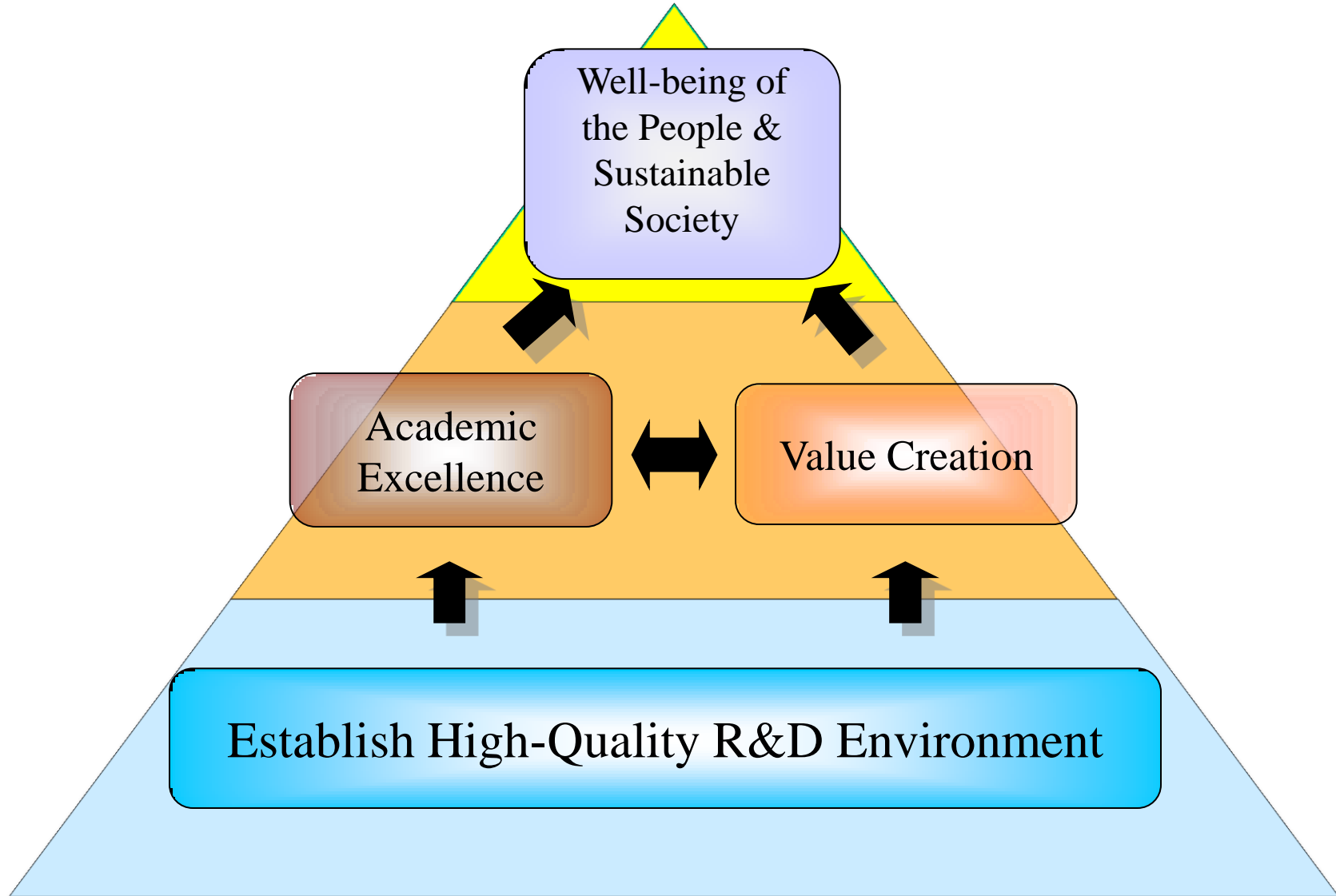
(II) Implementation Mechanism of S&T Development in Taiwan

| Types of Research | Government Funding Agencies In R&D | Implementation | | |
|------------------------|---|---|---|-------------|
| | | Universities & Research Institutes | NPOs | Industries |
| Fundamental Research | NSC MOE DOH | Universities, Academia Sinica, etc. | | |
| Applied Research | MOEA MOTC MOD COA DOH EPA... etc. | <ul style="list-style-type: none"> ● Chung-Shan Institute of S&T ● INER ● IOSH... etc. | ITRI, NHRI, NARL, INER, CSIST... etc. | Enterprises |
| Technology Development | | | | |





II. Visions and Objectives of NSC





III. Missions and Tasks of NSC

Improve National Competitiveness

NSC Missions & Tasks

Promotion of National S&T Development

1. Planning and coordination of national S&T affairs
2. Implement national S&T development plan
3. Review, control and evaluation of government S&T plan and budget
4. Impetus inter-ministerial national S&T integrated program

Support for Academic Research

1. Funding for research projects to enhance research quality
2. Provide R&D resource support for industrial specialties
3. Enhance cultivation and recruitment of S&T personnel
4. Promotion of international S&T cooperation
5. Strengthen domestic R&D environment

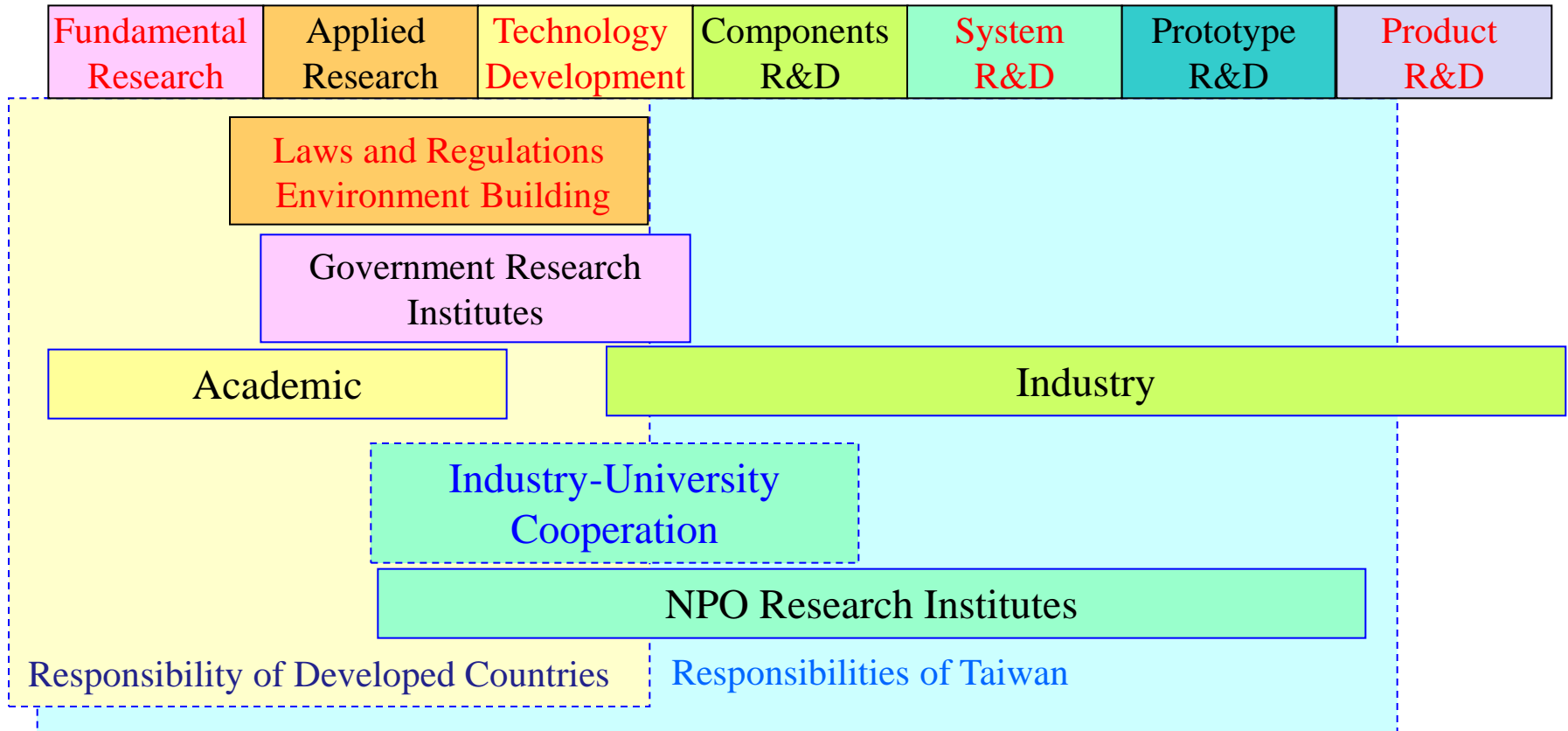
Development of Science Park

1. development environment of science parks
2. Introduce high-tech talents and technologies to boost domestic industrial technology development
3. Construct 3 core science parks located in the northern, central and southern areas to improve regional economic prosperity program



IV. Government Plans and Performance Evaluation

(I) Stages of R&D in Science & Technology



- A. The indicators of performance evaluation vary in different stages.
- B. Performance evaluations are conducted annually when project is executed completely.



(II) Indicators of Performance Review in Different Stages of S&T Plans

| | | | | | | |
|----------------------|------------------|------------------------|----------------|------------|---------------|-------------|
| Fundamental Research | Applied Research | Technology Development | Components R&D | System R&D | Prototype R&D | Product R&D |
|----------------------|------------------|------------------------|----------------|------------|---------------|-------------|

| | | | | | | | |
|---------------------------------------|----------------------|----------------------|---------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Primary Performance Indicators | Dissertations | Patent | Patent | Patent | Patent | Patent | Patent |
| | Manpower Cultivation | Dissertations | Critical Technology | Critical Technology | Critical Technology | Critical Technology | Critical Technology |
| | | Manpower Cultivation | Industry-University Cooperation | Self Manufacture | Fund for Technology Transfer | Fund for Technology Transfer | Fund for Technology Transfer |
| | | | Technology Transfer | Fund for Technology Transfer | System Effectives | Technology Transfer | Value of Merchandising |
| Responsibility of Developed Countries | | | Industry-University Cooperation | Responsibilities of Taiwan | | | |



(IV) Ministry of S&T: Tasks and Performance Evaluation (Tentative)

| Tasks | Items for Performance Evaluation |
|---|--|
| 1. The Planning of National S&T Policy | Policy implementations and effectiveness |
| 2. General planning, coordination, review and evaluation of S&T plans | Outcome evaluation of each mission |
| 3. Accelerate fundamental research and research of applied technology | Standard evaluation of fundamental & applied R&D |
| 4. Impetus significant S&T plans of Research and Development | Performance of significant plans |
| 5. Support for academic research and R&D of foresight technology | Foresight of academic standard and industrial technology |
| 6. Development of science parks | Effectiveness of high-tech industrial clusters |



(V) Resource Distribution of S&T Policy Making for NSC

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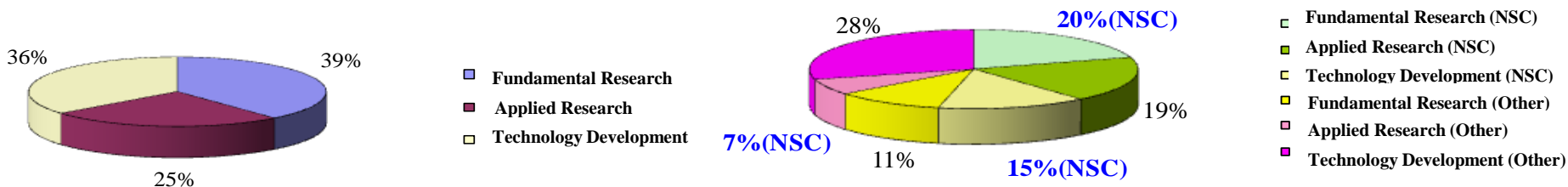
■ Emphasizing on supporting academic research

| NSC Resource Distribution Plan | | Unit: Million USD |
|--|---------------------|---|
| Policy Focus | Budget of 2011-2014 | Strategies |
| Promotion of National S&T Development | 1,027.85 | <ol style="list-style-type: none"> 1. Cultivate talents in S&T policies 2. Continue stimulating “National S&T Development Plan” 3. Enhance the review mechanism of government development plan 4. Develop 6 National S&T Programs |
| Support for Academic Research | 4,645.83 | <ol style="list-style-type: none"> 1. Nurture outstanding research team 2. Cultivation, Recruitment, and Rewarding of S&T Personnel 3. Strengthen the research of humanities and science education 4. Promotion of cross-straight S&T interchange and cooperation 5. Establish the incentives to promote the outcome effectiveness of R&D 6. Establish core research facilities |
| Development of Science Parks | 315.80 | <ol style="list-style-type: none"> 1. Improve the environment for investment in Hsinchu Science Park 2. The development of Southern Taiwan Science Park 3. The development of Central Taiwan Science Park |
| 4-year Total | 5,989.47 | |



(VI) NSC's Budget Allocation for S&T Programs

■ Emphasizing on fundamental and applied research



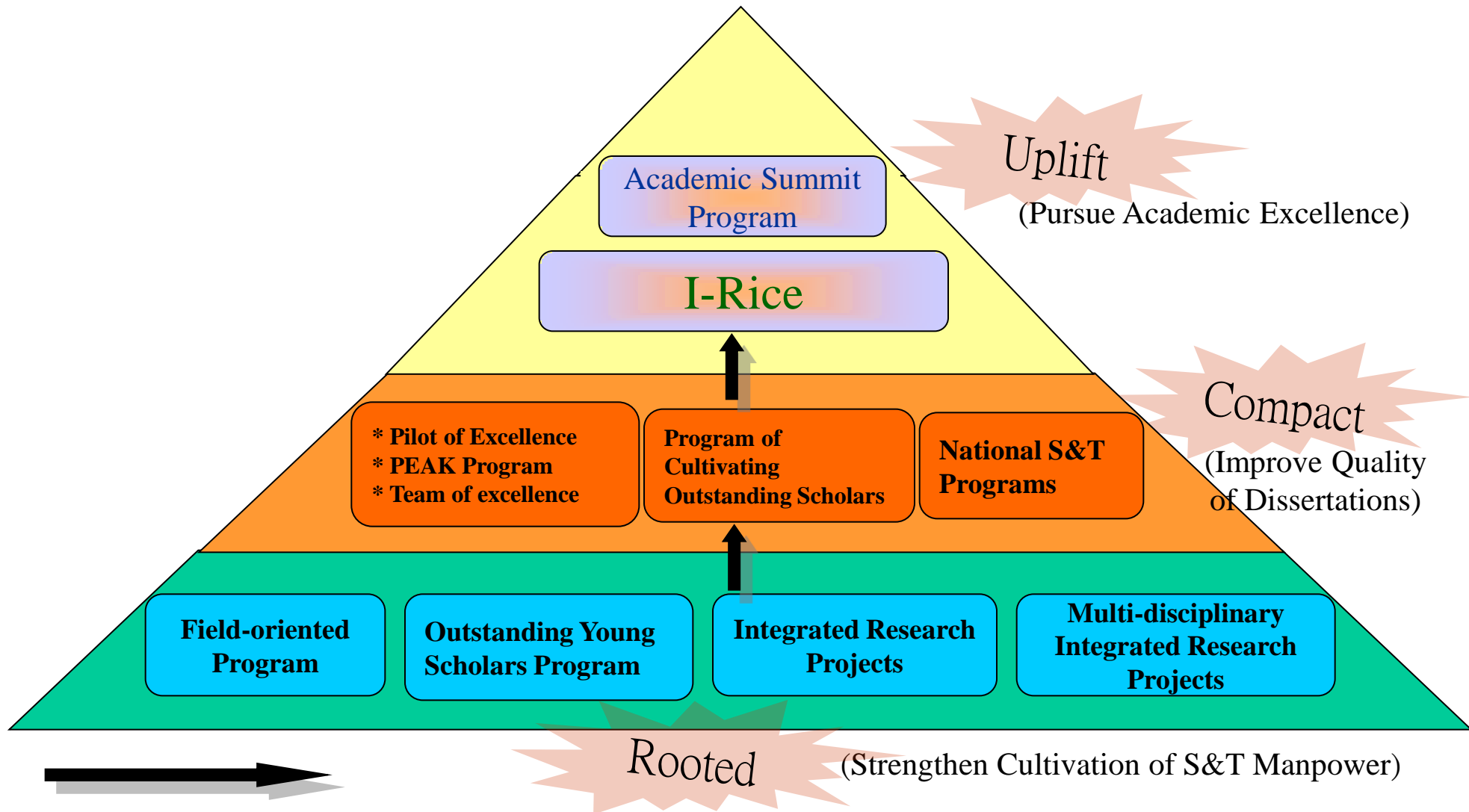
Budget Year: 2009 Unit: Thousand USD

| Authority | Fundamental Research | Applied Research | Technology Development | Total |
|------------------------|----------------------|-------------------|------------------------|---------------------|
| MOEA | 11,391.99 | 119,005.60 | 597,838.24 | 728,235.83 |
| NSC | 480,849.25 | 350,288.48 | 156,526.94 | 987,664.68 |
| COA | 8,018.09 | 90,611.73 | 27,297.04 | 125,926.87 |
| DOH | 83,262.67 | 35,208.27 | 10,881.99 | 129,352.93 |
| AEC | 5,494.42 | 950.59 | 25,860.57 | 32,305.58 |
| MOTC | 2,328.33 | 4,408.73 | 19,346.64 | 26,083.69 |
| MOE | 31,118.64 | 191.23 | 8.56 | 31,318.44 |
| MOI | 518.11 | 1,666.01 | 9,040.15 | 11,224.27 |
| EPA | 330.12 | 459.41 | 853.10 | 1,642.62 |
| CLA | 864.38 | 1,695.79 | 3,952.46 | 6,512.63 |
| PCC | 0.00 | 0.00 | 605.16 | 605.16 |
| MOJ | 0.00 | 2,275.29 | 303.46 | 2,578.75 |
| CHA | 811.52 | 0.00 | -160.97 | 650.55 |
| Academia Sinica | 298,284.37 | 0.00 | 0.00 | 298,284.37 |
| Total | 923,271.90 | 606,761.11 | 852,353.35 | 2,382,386.37 |
| Percentage | 38.80% | 25.50% | 35.80% | 100.00% |



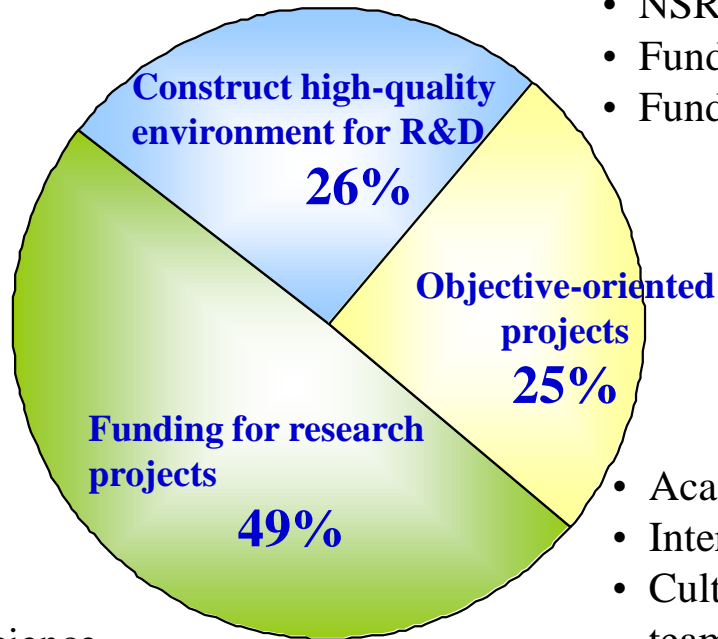
V. Policy Priorities of NSC

(I) Strategy to Pursue Academic Excellence





Creativity and Care for Society



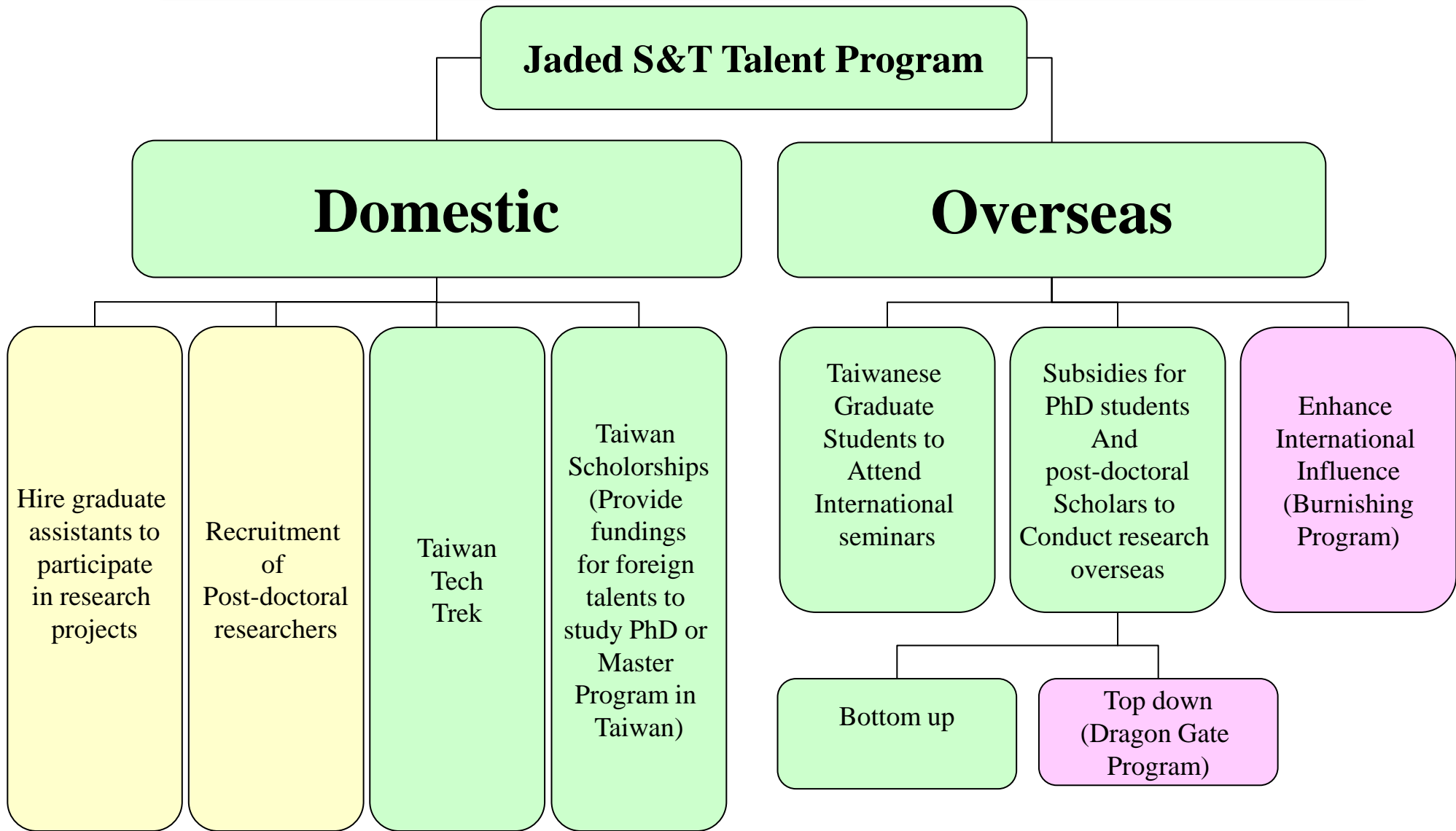
- National Science
- Engineering & Applied Technology
- Biology, Medicine & Agriculture
- Humanities & Social Science
- Science Education

- NARL
- NSRRC
- Funding for S&T personnel recruitment
- Funding for universities to reward outstanding professionals

- Academic Summit Program
- Interdisciplinary integrated projects
- Cultivation programs for outstanding scholars and research teams
- Develop specialized R&D projects for private universities
- National S&T programs
- Industry-university cooperative research projects
- Industry-university cooperative projects of Science Parks
- Program of international cooperation



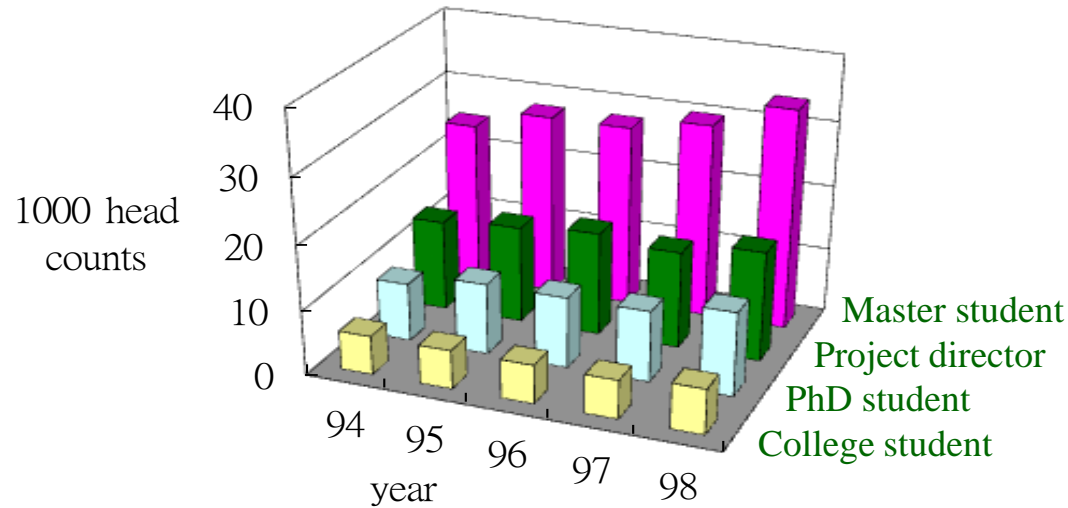
(II) Cultivation, Recruitment, and Rewarding of S&T Personnel





VI. NSC's Performance in R&D

(I) Funding for Research Projects & Cultivating S&T Manpower

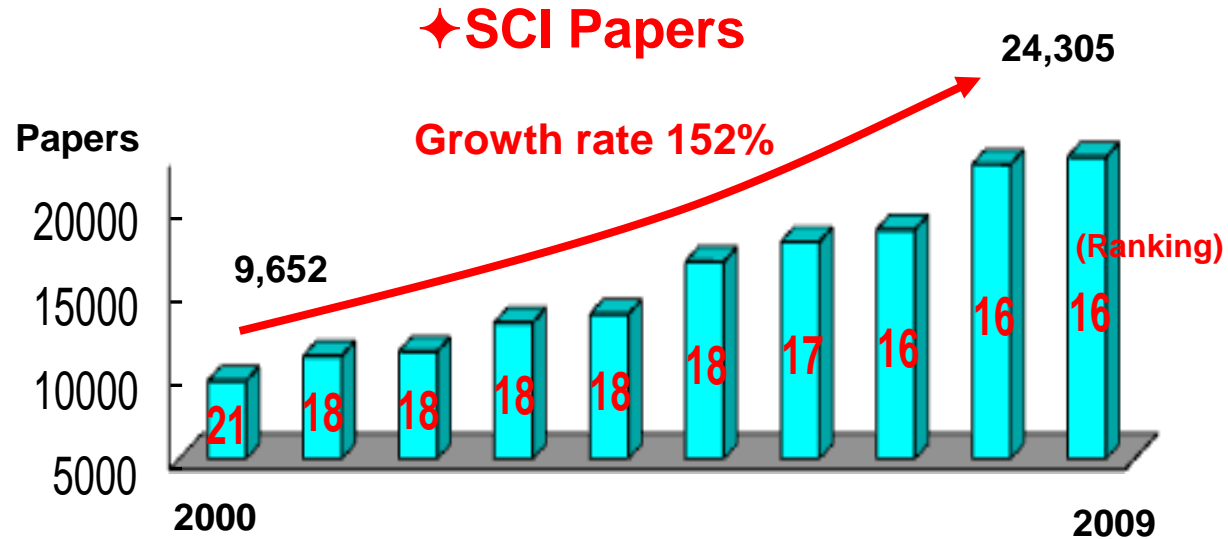


| Number of Year | 2005 | 2006 | 2007 | 2008 | 2009 |
|------------------|--------|--------|--------|--------|--------|
| Project Director | 14,031 | 14,325 | 14,590 | 15,487 | 16,518 |
| PhD Student | 9,536 | 10,539 | 11,009 | 11,340 | 12,894 |
| Master Student | 26,342 | 27,953 | 28,349 | 29,907 | 33,604 |
| College Student | 6,226 | 6,052 | 5,662 | 6,024 | 6,633 |

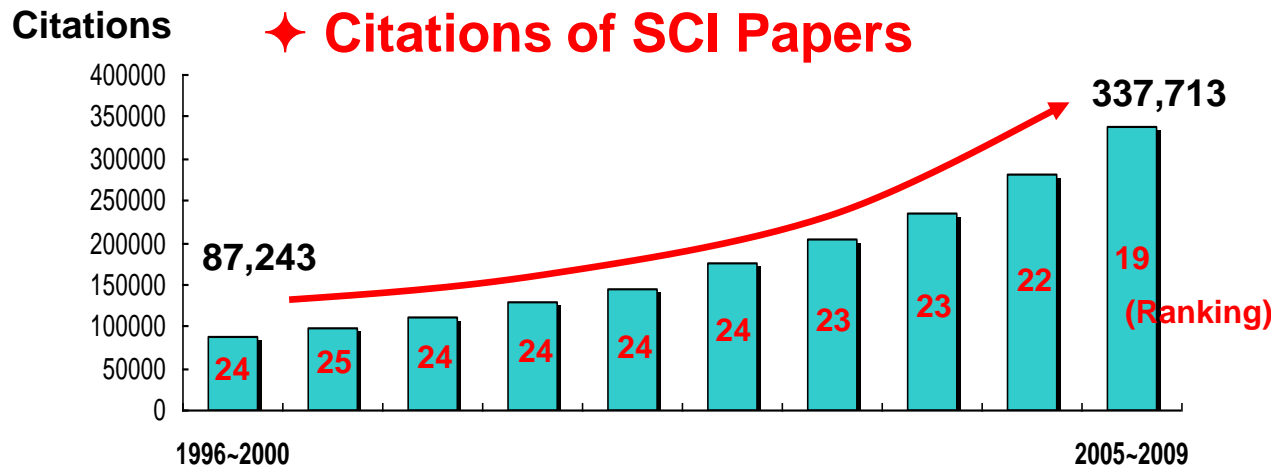


(II) SCI Rankings of Publications from Taiwan

■ Taiwan ranked **16**
among 186 countries
in 2009



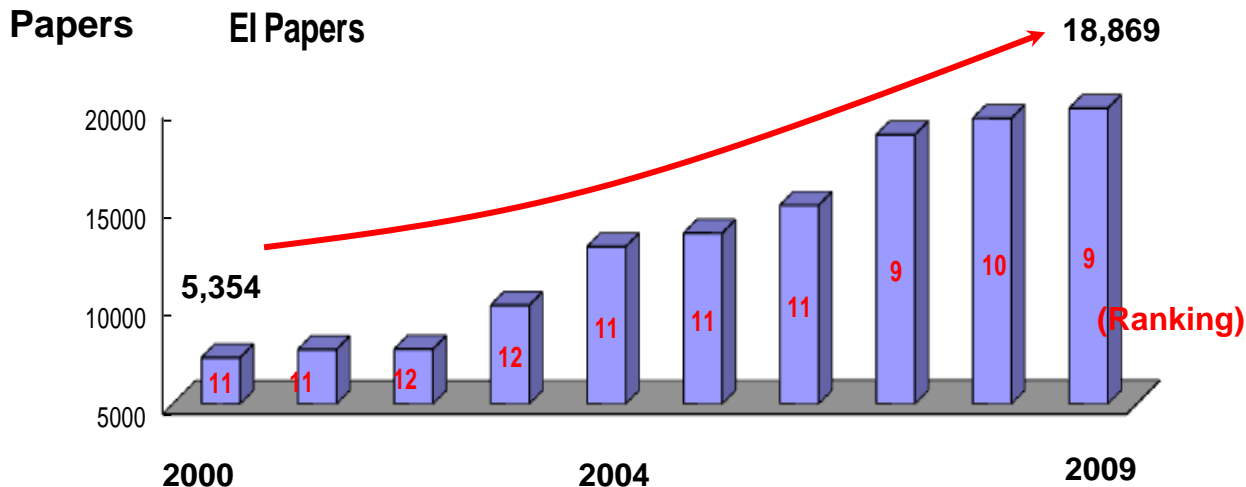
■ Taiwan ranked **19**
among 186 countries
in 2005-2009



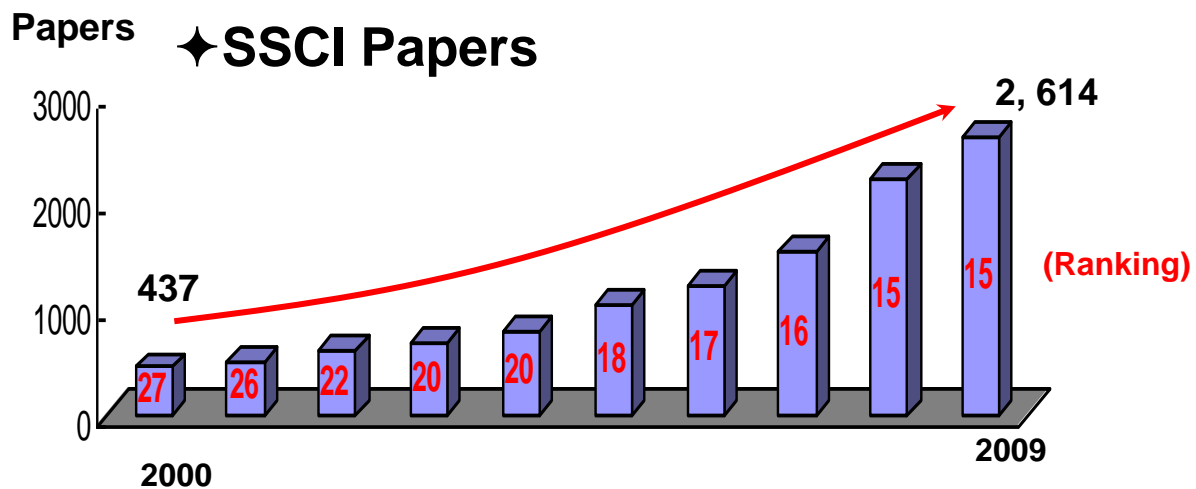


(II) EI & SSCI Rankings of Publications from Taiwan

■ Taiwan ranked **9**
in 2009



■ Taiwan ranked **15**
in 2009

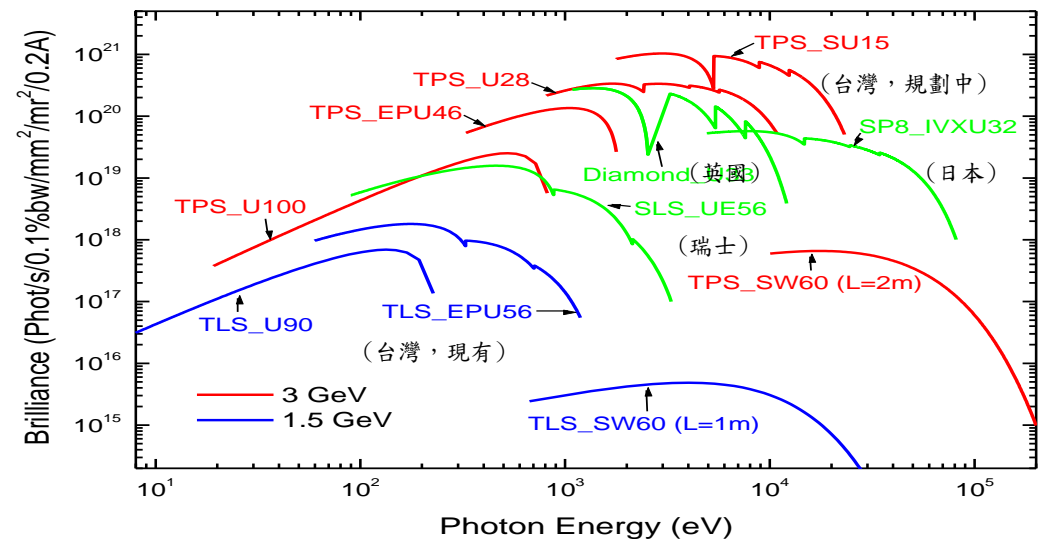




(IV) National Synchrotron Radiation Research Center

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- Taiwan Photon Source (TPS) is a new low-emittance 3 GeV synchrotron which is under construction and expected to be operated in 2013.
- Synchrotron Radiation Protein Crystallography Facility (SPXF) has been developed for high-throughput protein crystallography.
- Innovative Molecular Biomedical Nano-Imaging Core Facility

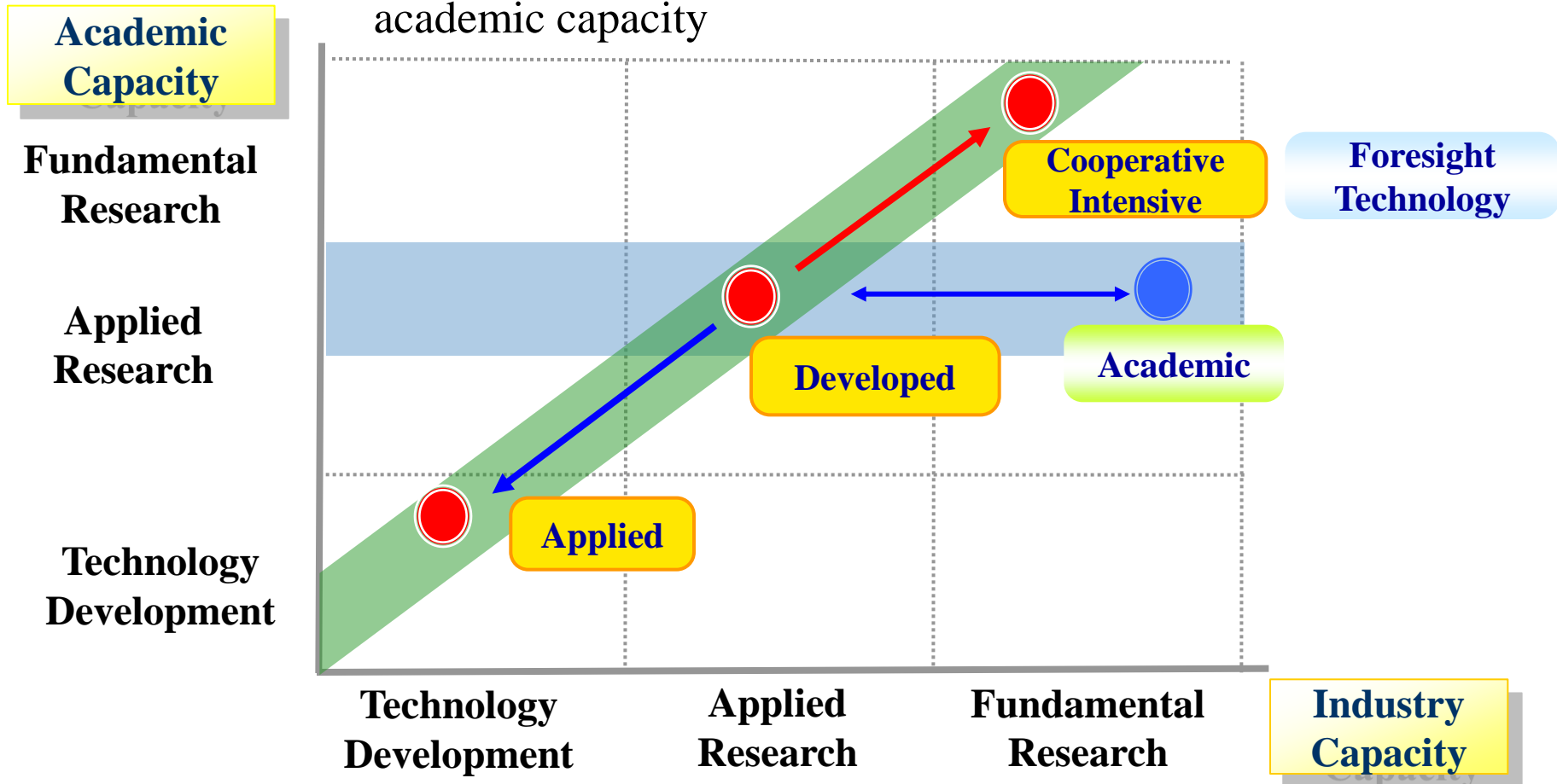




(V) Impetus Industry-University Cooperation

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- Encourage **high-risk, long-term** and **innovative** foresight programs
- Accelerate **inter-ministerial cooperative structure** to formulate professionals and research teams
- **Revise current laws & regulations** for R&D outcome to enhance academic capacity





VII. Issues of Policy Implementation & Performance Evaluation

- A. The existing layered performance control & management mechanism of our country: Program Evaluation and Review are based on (1) managed by the Executive Yuan (2) managed by the ministries and councils (3) self-management.
- Disadvantages:
1. The lack of consistency between evaluation criteria and evaluation indicators applicable to assess concepts and practices.
 2. The lack of top-down external evaluation control & management with regard to the quality, relevance and performance of the top policy goals.
- B. “Zero-Based Budget” and “Performance Budget” should be applied respectively in both new and existing projects for enhancing the effective use of S & T budget.
1. Performance Budget applied in existing projects for the purpose of implementing performance evaluation?
 2. Zero-Based Budget applied in new projects.
- C. The budget should be “increased” instead of being “included” if existing projects are required to remain unaffected by new S & T policy add-ons.



THE END