

IMPLEMENTATION OF SELF-CONTROL AND SELF-LIABILITY MECHANISM IN PUBLIC TECHNICAL SERVICE ORGANIZATIONS IN STANDARDS-METROLOGY-QUALITY FIELD

M.Sc. Nguyen Vu¹

Standards-Metrology-Quality Center No. 1
Directorate for Standards-Metrology-Quality,
Ministry of Science and Technology

Abstract:

Since 2005 to now, the organizational structure of public technical services in Standards-Metrology-Quality fields (a science and technology (S&T) organizational scheme) has shifted its activities to another model on basis of Resolution No. 115/2005/ND-CP dated 5th September 2005 (Resolution 115) by the Government which governs the self-control and self-liability (SCSL) mechanism of public S&T organizations. The shifting process was conducted with success in certain central units but was not really successful in local units. This study is to give contributions to clarify conceptual backgrounds and practical aspects of SCSL mechanisms, to analyze successes and remaining problems as well as favorable conditions and difficulties in shifting process. In addition, on basis of that, some proposals are made for mechanisms and policies to promote strongly the shifting process of public technical service organizations to SCSL mechanisms in lines with Resolution 115 by the Government.

Keywords: *Public technical services; Self-control and self-liability; S&T organizations; Standards; Metrology; Quality.*

Code: 15030101

I. CONCEPTUAL BACKGROUND AND FOREIGN EXPERIENCES ON SELF-CONTROL AND SELF-LIABILITY OF PUBLIC SCIENCE AND TECHNOLOGY ORGANIZATIONS

1. Conceptual background of self-control and self-liability

1.1. Self-control

Self-control, as interpreted by the Vietnamese Dictionary, is the practice of self-governance of works without any interventions from others.

Wikipedia defines that “autonomy” (which are equivalent to Vietnamese terms “self-control and self-liability”) originates from the Greek word

¹ The author's contact is at nguyenvuspt@gmail.com

“autonomos” where “auto” means “self-doing” and “nomos” means “laws”. Standing together, these words mean “self-doing the laws”.

Oxford Dictionary defines that the “autonomy” is the rights or conditions of self-control and freedom of decision-making without external controls or influences.

Berdahl (1990) defines two types of autonomy, namely: i) substantial autonomy, and ii) procedure autonomy.

- *Substantial autonomy* is the full autonomy power for defining by it-self research directions, activities and S&T services without interventions from administrative levels for allocations and arrangements of resources. Activities of this organization are governed only by related laws and supervising authorities. The substantial autonomy is observed in private organizations where the property rights belong to an individual or a group of individuals which have full powers to define modes of activities and management of his/their organization (private S&T organizations, enterprises). Some organizations which experience partial interventions from administrative management cannot have the full autonomy (100%) but only semi-autonomy. This type of autonomy is observed in tierce organizations including public S&T organizations;
- *Procedure autonomy* means the self-governance in larger fields, from management of action plans to financial plans, human resource and organization activities and without the self-control in decision making,

Therefore, the self-control is the scheme when we can ourselves make work related decisions without needs to ask for permission for that. The implementation of self-control mechanisms means to share power and to assign more power for lower level staffs, to reduce the centralization, administratization and intervention of the works of lower level organizations.

The self-control is to allow the required freedom, without external intervention, in arrangement of internal organization and management as well as internal allocation of financial resources, human resource recruitment and working condition arrangement, definition of tasks, self-decision of objectives and etc.

In developed countries, for public S&T organizations, the attention was paid early for their self-control since this meets well the specific environment of S&T activities (freedom, creativity). The aspects related to this matter include here the self-control in identification of duties, plans of professional activities, management of financing and human resources, and use of research results. Subject to level of capacity development of S&T organizations, market needs of products of S&T organizations as well State

policies, the power of self-control is assigned in different rates to S&T organizations (called as full or partial self-control).

1.2. Self-liability

In addition to high assignment of powers, State management authorities require organizations to bear responsibilities for the assigned power. It relates to the duties to provide arguments and explanation for effective use of State assigned technic-material facilities and human resources [1].

The open annual assessment of activities of S&T organizations is conducted in all the countries where the S&T organizations report and explain their liabilities for assigned resources as well as achieved results in lines with the assigned self-control rate.

2. Experience and practice of self-control and self-liability of public science and technology organizations

2.1. Global experiences for self-control and self-liability of public science and technology organizations

R&D organizations in Germany (FhG), Finland (TEKES), Netherlands (TNO) [6] applied since long years the autonomy scheme in S&T activities. Namely, S&T organizations have:

- Power autonomy in identification of S&T tasks and development directions. Accordingly, S&T organizations do their activities on principles of self-identification and search of S&T tasks (from different State and social finance sources, production and international cooperation) on basis of assigned functions;
- Power autonomy in financing (partial or full) of regular operation finance. In that, the State budget allocated for S&T organizations is to cover the implementation of works on basis of State orders or regular tasks as set-up by the S&T organizations and approved by State authority agencies. Regarding the part of self-control finance, the S&T organizations raise and manage them through contracts signed with other organizations such as enterprises and other social organizations;
- Power autonomy in organizational and human resource management. Accordingly, S&T organizations are permitted to apply flexible organizational mechanisms (low staff number, termed and project-based working labor contracts). They can be also pro-active in restructure, arrangement and rotation of human resources;
- Power autonomy in assessment of result, effectiveness and use of their S&T activities. On basis of that, they implement S&T contracts with business communities, development of new technology and product producing units, production scale extension in many cases, and then turn

S&T organizations to spin-outs or separate the units having new technologies and products to spin-offs [2, pp.5-15; and 7].

2.2. Experiences of some countries in implementation of self-control and self-liability by science and technology organizations

a) Experiences from Germany

In Germany [4, pp.5-11], R&D organizations are supported by Federal and State governments. Subject to natures of S&T activities (fundamental research, application research, implementation of assigned tasks, S&T services, public service research, competition serving research) the finance can be provided to cover different rates (from 100% to 30-40%) of operational costs, namely:

- Institutes doing researches in fundamental fields, platform technologies, public service research (health care service, agriculture, environment, labor safety), and social science-humanity fields are secured fully (100%) by State budget for regular operation finance. They are those research institutes which produce out-puts having no commercial purpose or only pre-commercial nature, no markets or used to serve State defined public purposes;
- Institutes of application research and industrial technology research are supported by the State in provision of 30-40% of regular operation finance for implementation of self-selected R&D researches and preparation steps to produce inputs for contracts to be signed afterward with enterprises. The remaining part of finance (60-70%) of these institutes would be covered “by themselves” through R&D contracts and technical services. According to S&T managers of Germany, if the State supported volume of finance is reduced to the 20% rate then the R&D organizations would become simply an office of engineers but not R&D organizations;
- Public S&T service organizations, subject to market needs, get supports from the State at rate of 75% and the remaining 25% would be covered themselves through fund raising activities [5].

b) Experiences from Thailand

In Thailand, the Government provides S&T organizations with the financial self-control power under the scheme of allocation of public budgets in lines with lump sum mechanism and allows these organizations to supply S&T services to create revenue sources [3]. Part of collected funds would be kept to make investments for S&T organizations and to increase wages for staffs of S&T organizations. Some cases are listed here for illustration purpose.

- *Earth Observation Center* of Geo-Informatics and Space Technology Development Agency (GISTDA) is a half-government organization and

it covers itself 30% of finances through provision of observation products to domestic and international organizations;

- *Thailand Institute of Scientific and Technological Research (TISTR)* is a State enterprise and it covers itself 20-30% of finances through contracts of research, technology transfer which are signed with production community. The State budgets are provided for R&D activities up to pilot plants and then the finance of business would be mobilized by itself;
- *National Institute of Metrology (NIMT)* covers by itself 10% of finance through provision of technical services in field of metrology, standard and norm establishment. The State covers the remaining 90% of operation finance.

II. ACTUAL PRACTICE OF SHIFTING TO SELF-CONTROL AND SELF-LIABILITY MECHANISM OF PUBLIC TECHNICAL SERVICE ORGANIZATIONS IN FIELD OF STANDARDS-METROLOGY-QUALITY IN VIETNAM

1. Global issues of public technical service organizations in field of standards-metrology-quality

In field of standards-metrology-quality, public technical service organizations are the ones which have functions and duties to conduct technical services such as product trials, technical consulting, technical tests, technical calibration activities, conformance certifications, establishment of standards, norms, technical regulations and etc. to meet requirements of State management functions.

Actually (in 2014), there are 4 Centers of Standards-Metrology-Quality technical services under management of the Directorate for Standards-Metrology-Quality including Center 1 in Hanoi, Center 2 in Da Nang, Center 3 in Hochiminh City and Center 4 in Dac Lac. And almost 50 Standards-Metrology-Quality technical units in provinces and center-controlled cities and all of them are public technical service organizations.

2. Legal backgrounds of shifting public technical service organizations to self-control and self-liability mechanism

Public technical service organizations, in initial stage, conducted activities on basis of tierce administrative mechanism. During the process of innovation of management mechanism, these organizations were allowed to extend the scope of service to cover certain fields of enterprises and other social sectors. Therefore, by 2002, these organizations operated their activities in lines with Resolution No. 10/2002/ND-CP dated 16th January

2002 on financial scheme applied to revenue earning tierce units. And, by 2005, public technical service organizations were regulated to operate in lines with self-control and self-liability mechanism (Resolution 115, Resolution No. 96/2010/ND-CP amending and revising some articles of Resolution 115, and Resolution No. 80/2007/ND-CP dated 19th May 2007 on S&T enterprises).

The above noted documents, in their main contents, specify regulations for self-control in identification and realization of S&T tasks, self-control in production-business activities, self-control in finance, self-control in staff and organization structuring and self-control in international relations. Resolution 115 specifies regulations towards self-control and self-liability mechanism in Term 1, Article 4, namely:

- Organization of scientific research and technological development, organization of S&T services which are able to provide itself the finance for regular operation, may select the shift the organizational scheme and activities to one of the two forms:
 - + Finance self-covering S&T organizations (to cover themselves fully (100%) the regular operation finance);
 - + R&D organizations.
- Scientific research organizations which work in field of fundamental research, strategic research and State management policies are provided by State budgets to cover regular operation finance subject to assigned tasks.

3. Results of shifting activities of central technical service organizations under control of the Directorate for Standards-Metrology-Quality

3.1. Forms of shifting

On 17th January 2007, Ministry of Science and Technology (MOST) had approved the projects for shift to self-control and self-liability mechanism and the time schedules of shift, namely January 2009 for Center 1, January 2010 for Center 2 and February 2007 for Center 3. They are required to cover the whole regular operation finance (Term 1, Article 4, Resolution 115). During the shifting process, Center 1 gets a State supported investment of VND1,850 million (in 2007, 2008 years) with the incentive bonus volume of VND910 million for early shift. Center 2 completed the shift by 2010, later than the targeted schedule. Center 3 gets the investment volume of VND320 billion to enhance infrastructure (80% from State source and 20% from mobilized sources) for 2007-2013 period. The

Centers get business licenses immediately after being shifted to self-control and self-liability mechanism. Actually, Center 1, Center 2 and Center 3 were successfully shifted to the new operation basis in lines with Resolution 115.

3.2. Self-control in identification of tasks

The Centers are pro-active in identification of tasks in direction of services for analysis, test, examination, expertise, certification, metrology and standards for enterprises.

Some remarkable results of positive impacts of technical service activities in field of Standards-Metrology-Quality are found well in their socio-economic effective performance such as anti-fraud activities related to business of electricity and fuel, and fixation of taxes imposed to import goods such as steel, salt, garment, toys etc.

In 2013, Center 3 was recognized by the US CPSC as safety conformance assessment organization for consuming goods. Center 1, Center 2 and Center 3 are appointed by ministries to be organizations for test and conformance certification.

3.3. Self-control in finance

By 2006 the State still provided the regular operation finance of VND1,300 million for Center 1, VND550 million for Center 2 and VND2,300 for Center 3.

From 2007 to 2013, the Centers managed to maintain the average before-tax benefits not lower than 20% and raised funds for development of tierce activities from 30% after-tax collection-expenditure balance. Some indicators had high growth rates.

Every year, the Centers use about 28% of before-VAT revenues for the wages and about 3% for staff supplement incomes which is in lines with regulations of wages, bonus and internal expenditures. They use also 8-10% of annual revenues for setting-up Non-business Activity Development Fund and part of that is used to enhance technical potentials (equipment purchase and human resource training).

Following figures present financial activities of the Centers during recent years:

- In 2009, the Centers have performances of financial activities better than previous years which is seen through higher rates of incomes of staff (Ref. Table 1).

Table 1. Out-State budget finance and revenues of the Centers by 2009

No.	Centers	Out-State-budget finance (VND million)	Average incomes of staff (VND million per staff, per month)
1	Center 1	39,465	7.011
2	Center 2	12,172	3.835
3	Center 3	150,853	10.387

- In 2012 and 2013, non-regular expenditures of Center 1 and Center 2 experienced increases while the one of Center 3 was stable (Ref. 2).

Table 2. Non-regular expenditures of the Centers by 2012 and 2013

No.	Centers	Non-regular expenditures (VND million)	
		2012	2013
1	Center 1	16,373	19,567
2	Center 2	13,942	14,225
3	Center 3	15,400	15,510

3.4. Self-control in organization and human resource management

- Centers were pro-active in recruitment, use and management of staffs. They signed labor contracts with staff in lines with regulations of Resolution 115 and transferred them from permanent status to long-term contracted status.
- Attention was paid for development of human resources (about 80% of total staff have graduate and post-graduate degrees) and tens of leading positions were appointed on basis of assigned self-control power.
- Centers had set up many units to meet market needs of technical services, namely Center 1 had set up Market Department, Center 3 had set up branch offices in provinces in Hochiminh City region.

3.5. Self-control in international cooperation

- Centers were pro-active to extend bilateral cooperation with other partners in basis of signed MoUs, including South Korea, Japan, US, Thailand, China, Australia, Germany, Russia and others.
- Centers were also active to implement cooperation activities in field of Standards-Metrology-Quality with international organizations such as ASEAN/ACCSQ, ISO, IEC, APO, FTA and others.

3.6. Evaluation the results of shifting activities

Successes:

- Self-control mechanism applied since 2007 in field of identification of tasks, finance, human resources, infrastructure and international cooperation promoted the socialization activities and produces positive results;
- Revenues increased through years (averagely 10-15% per year), average State budget deposit is in range VND3-12 billion per year (average growth 10% per year), average income increased considerably exceeding ten million VND per month (increased by 10-25% per year);
- Enhancement of professional capacities of staff; Higher position of the Centers in international cooperation activities (Center 3 has many test rooms qualified by foreign partners);
- Potentials of the Centers get enhanced considerably and meet requirements of State managements functions and public services for enterprises and markets.

Backgrounds successes:

- Leading bodies of the Centers are dynamic, highly motivated and decisive in shifting the Centers to the new SCSL mechanism. They were succesful to promote the SCSL mechanism provided by Resolution 115 and get the high consensus of staffs;
- Leading bodies of MOST and the Directorate of Standards-Metrology-Quality provided permanent attention, guidelines and favorable supports in planning the shifting options and infrastructure upgrading investment which are important pre-conditions for shifting process;
- The Centers have early experiences of practices oriented financial self-control mechanism (which was used for revenue earning tierce units) since the issuance and implementation of Resolution 10/2012/ND-CP. These moves let them establish stable markets;
- The Centers having built technical capacities (infrastructure and skilled staffs to fit market demands) before implementation of shifting process.

Difficulties:

- Not allowed to be self-control in use of tierce activity funds, particularly for purpose of human resource training and equipment purchase;
- Not allowed to apply regulations of Resolution 115 in terms of bank loans, purchase, asset liquidation, investments and management of self-procured equipment;

- Not achieving the full awareness of staff for market orientation concepts as well as market driven mindset.

Challenges:

- Maintaining technical capacities to meet market demands;
- Separating clearly the State supported capitals and the self-raised investment capitals.

4. Local impacts of results of shifting of public technical service organizations

4.1. Forms of shifting

By October 2013, 49 among 63 provinces and center-controlled cities had established Standards-Metrology-Quality technical units. 2013 Year Reports submitted from 21 units exhibited many difficulties in implementation of Resolution 115. Only a few units were successful in shifting to the full (100%) self-control mechanism in provision of regular operation finance as regulated by Term 1, Article 4, Resolution 115 (only two units completed the shift and 3 units are preparing the plan). 7 units reported that they already made a partial shift or still remained fully covered by State budget for regular operation finance (in lines with Article 9, Resolution No. 43/2006/ND-CP dated 25th April 2006 by the Government); 3 units had shifted and 1 unit is preparing the plan to shift to the full-State-support mechanism (applying the regulations in Term 3, Article 4, Resolution 115). Therefore, majority of local public technical service organizations in field of Standards-Metrology-Quality were not shifted to SCSL mechanism as regulated in Term 1, Article 4, Resolution 115.

4.2. Self-control in identification of tasks

Actually, the tasks of local Standards-Metrology-Quality technical units remain mainly assigned by State authorities. Extra-State tasks remain low developed.

4.3. Self-control in financing

Statistic figures of financial activities during two years 2012 and 2013 of 13 local units showed that their finances remain mainly State sourced without having supplement sources from services.

4.4. Self-control in organization and human resource management

Since the local units were established recently and just shifted to the SCSL mechanism they did not implement the SCSL mechanism in terms of organizational and human resource management.

4.5. Self-control in infrastructure and equipment development

The local units, since being newly established, did not implement the SCSL mechanism in terms of infrastructure and equipment. During two years 2013 and 2014, People's Committees of 27 provinces have started implementation of the projects of infrastructure investment for public technical service units in field of Standards-Metrology-Quality in their localities. The total finance volume of these projects was VND813,499 million (according to Decision No. 317/QĐ-TTg dated 15th March 2012) to set up pre-conditions for the units to shift to the SCSL mechanism.

4.6. Global evaluation of implementation of Resolution 115 in local level

Successes:

- Local Standards-Metrology-Quality technical units are recently established and then their main orientation of works would be to carry out State management functions first. The implementation of technical services in field of Standards-Metrology-Quality for local enterprises and communities is only just in starting stage and remains in very low level;
- Some local governments remark the necessity to shift these units to SCSL mechanism and then started investment projects for infrastructure construction and equipment which would play the pre-condition role for their gradual shift to SCSL mechanism.

Difficulties:

- At this stage, majority of local Standards-Metrology-Quality technical units were established as spin-outs of administrative nature organizations. They might take over some infrastructure facilities, equipment and examiners but all of them remain in a technical level lower than the required one;
- Local socio-economic activities scale remain small sized, limited and low developed and then can only offer low market demands. This leads to low sources of works and difficulties of implementation of Term 1, Article 4, Resolution 115;
- Implementation guiding documents cannot be said to give clear instructions. Regulations indicated in Term 1, Article 4, Resolution 115 do not fit local real practices as well as international experiences. In a local small sized and low developed service market, they can cover themselves only partial regular operation finances.

Challenges:

- Full (100%) self-control in provision of regular operation finance remains a very big challenge for local Standards-Metrology-Quality technical units;
- Competition from Standards-Metrology-Quality Centers is very tough.

III. MECHANISMS AND POLICIES FOR PROMOTION OF SHIFT OF TECHNICAL SERVICE ORGANIZATIONS IN FIELD OF STANDARDS-METROLOGY-QUALITY TO SELF-CONTROL AND SELF-LIABILITY MECHANISM

1. Mechanisms and policies for finance

1.1. For public technical service organizations under management of the Directorate for Standards-Metrology-Quality

Promotion of higher level of self-control for Centers, namely through works of:

- Allocation of capitals, fixation of value of assets transferred under their management in lines with generally applied regulations. The Centers should be more powerful to decide the mobilization and use of capitals and assets in binding relation to assigned tasks in order to extend the provision of public tierce services;
- Provision of guidelines for the Centers to establish funds of wage and supplement incomes; for capital contributions for JVs, joint business, mortgage for loans, finance leasing; for decision of development investment capitals from activity development funds in lines with regulations stipulated in Resolution 115;
- Firm indication of actual wages in labor contracts to be used as basis for insurance contributions.

1.2. For local public technical service organizations in field of Standards-Metrology-Quality

- Foreign experience be taken in application of the full or partial self-control mechanism. The scheme of self-control in provision of regular operation finance should be applied in different time terms and various levels before achieving the full application of that;
- Creation of financial mechanisms for establishment and development of funds of wages and supplement incomes for staffs. The set-up of funds for non-business activity development should not be required in initial stages when revenue resources are still limited;
- Permitted loans from preferential capital sources to extend scale and scope of technical service in field of Standards-Metrology-Quality.

2. Mechanisms and policies for organization and human resource management

2.1. For public technical service organizations under management of the Directorate of Standards-Metrology-Quality

- Continued promotion for decentralization of powers, and assignment of self-control powers and self-liability requirements in field of

organizational aspects including the transfer of powers for staff recruitment and control, and human resource management to the heads of Centers, in lines with Resolution 115;

- Innovation of staff management mechanisms to adapt to the implementation of SCSL mechanism of the Centers, principles of market driven economy; strong promotion of training works and qualification enhancement for staffs on basis of self-mobilized capital sources;
- Studies and pilot implementation of partial and full shift of large income organizations to business or joint stock models (oriented to high level self-control as the one for enterprises).

2.2. For local public technical service organizations in field of Standards-Metrology-Quality

- Enhanced finance supports to hold training courses to extend capacities to meet requirements of standards, qualifications, professional capabilities and skills;
- Decentralization of powers for making decisions in field of human resources management such as recruitment, staff control and abroad mission trips in lines with Resolution 115.

3. Mechanisms and policies in infrastructure and equipment

3.1. For public technical service organizations under management of the Directorate for Standards-Metrology-Quality

- Issue of guidelines for rights of asset management and for assignment of self-control powers of purchase of fixed assets of Centers;
- Permission for Centers to decide themselves the development investment which can be taken from the tierce activity development funds or bank loans in lines with Resolution 115 (Term 4c, Article 5); application of bid procedures for purchase of test equipment, decision of liquidation and concession of assets which were purchased by self-raised capital sources in lines with Term 3, Article 9, Resolution 115.

3.2. For local public technical service organizations in field of Standards-Metrology-Quality

- Continued supports from MOST and the Directorate for Standards-Metrology-Quality to enhance potentials of test equipment through projects of infrastructure and equipment investment, to guide the enhanced self-control powers in purchase, use and liquidation of assets provided from State budget as well as purchased by self-mobilized capitals;

- Strong promotion of the projects by local People's Committees to enhance capacities of local Standards-Metrology-Quality technical units (in provinces and center-controlled cities, in lines with Decision No. 317/QĐ-TTg dated 15th March 2012 by the Prime Minister).

4. Mechanisms and policies in international cooperation and integration, and market promotions

4.1. Activities for international cooperation and integration

- Implementation of Point b, Term 4, Article 5, Resolution 115 by MOST and Ministry of Public Security which provide the heads of public technical service organizations with powers "to decide directly the invitation of foreign experts and scientists to Vietnam as well as abroad mission trips of staff";
- Strong promotion of participation in workshops, conferences, training courses and bilateral and international cooperation activities in field of Standards-Metrology-Quality.

4.2. Solutions to enhance self-control level in market promotion activities

- Pro-active enhancement of service quality and formation of custom-centered culture of staffs;
- Pro-active enhancement of pro-active mindsets of marketing skills and market promotion for staff.

CONCLUSIONS

1. Experiences from many countries show that the model of SCSL mechanism to cover partial regular operation finances is applied for R&D organizations and public S&T service organizations (at various levels, subject to natures of their scope of activities and market demands). If R&D organizations are required to cover themselves, in lines with self-control mechanism, 80-100% of the total regular operation finances their R&D activities would be shrunk and those organizations would not be R&D organizations in right senses;
2. The mechanism regulated by Resolution 115 for the full (100%) self-control cover of regular operation finances which is applied for Center 1, Center 2 and Center 3 was implemented with success and produced positive results for these Centers, namely the increasing trends of contributions to State budgets, tax pays as well as higher incomes for staffs;
3. The shifting process of Standards-Metrology-Quality technical units to SCSL mechanism in lines with Resolution 115 (Term 1, Article 4) faces

many difficulties. The main cause comes from low capacities of these units, low level of local demands for technical services and center-lined service of State management functions. Therefore, majority of technical service units were shifted, in real practice, in another scheme which is regulated by Article 9, Resolution No. 43/2006/ND-CP (where the regular operation finance is secured by State budget);

4. It is strongly recommended that the State amends and revises Term 1, Article 4, Resolution 115 where organizations of scientific research and technology development and S&T service organizations are allowed to shift to the partial-or-full self-control mechanism (subject to nature of S&T activities, market development level and self-control level of these organizations);
5. The State is to issue policies of investment and supports to enhance potentials of local public technical service organizations as well as policies for technical service market development. They are all to offer favorable conditions to public technical service organizations to have increasing revenue sources from provision of technical services for markets and enterprises. This also promotes the fast shift of these organizations to the basis of partial self-control management and then full self-control management to cover their regular operation finances in lines with Resolution 115.

REFERENCES

In Vietnamese:

1. Hoang Xuan Long. (2002) *Studies of scientific backgrounds for establishment of mechanisms and policies for SCSL mechanism of R&D organizations*. MOST level research project. National Institute for Science and Technology Policy and Strategy Studies.
2. Dang Duy Thinh. (2006) *Enhancement of links and innovation of organizational structures for institutional unification of research and development activities for industrial production*. Bulletin *Studies of Science and Technology Policies*, No. 12, pp.5-15.
3. Dang Duy Thinh. (2007) *Experiences of Thailand in financial management in S&T organizations*. Scientific research report. National Institute for Science and Technology Policy and Strategy Studies.
4. Dang Duy Thinh. (2007) *Discussions on mechanism of shifting S&T organizations to SCSL based organizations to link production and science*. Bulletin *Studies of Science and Technology Policies*, No. 14, pp.5-11.
5. Pham Quang Tri. (2007) *Studies of development of R&D organizations in some selected countries and Vietnam*. Research project. National Institute for Science and Technology Policy and Strategy Studies.

6. Nguyen Vu. (2014) *Studies of solutions to enhance activity effectiveness of public technical service organizations in field of Standards-Metrology-Quality in basis of Standards-Metrology-Quality mechanism*. Post-graduate thesis. National Institute for Science and Technology Policy and Strategy Studies.

Tiếng Anh, Đức:

7. Felderer, B. and Campbell, David F.J. (1994) *Forschungsfinanzierung in Eruopa - Trends-Modelle Empfehlung fuer Oestereich*. Manzsche Verlags-und Universitaetsbuchhandlung, Wien.
8. Martin Bell, R. (1993) *Intergrating R&D with industrial production and technical change: strengthening linkages and changing structures*. Workshop on Intergration of Science and Technology in the Development Planning and Management Process in the ESCWA Region, Amman, p.27-30 September 1993.