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A path towards "international standards" for the Cambodian academic system?

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Abstract

"International standards in higher education and research" cover, in fact, a set of "tools" developed in different countries and in different times aiming to answer the demands of modern societies from their education system. This article starts with a discussion of the rationale behind these international standards and the organizational tools that can facilitate their implementation. Our observations on the Cambodian higher education system seem to point to the necessity to develop new implementation tools answering the "how" question even if many institutional tools are included in the large arsenal of decrees and sub-decrees already adopted. The second part of the article starts with these observations, considers how they can give rise to some fragilities in the Cambodian higher education system, and proposes some practical measures that aim to alleviate them.

Keywords: International academic standards; higher education governance; education policy; research policy; economic development

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Introduction

What we call today "international standards in higher education and research" cover a set of "tools" developed in different countries and in different times aiming to answer the demands of modern societies from their education system. We observed during the last century a convergence between academic systems among this diversified set of solutions and the emergence of a set of primary characteristics shared between successful educational systems over the world. We call "international standards" in higher education and research this shared set of features that we will present in the third section of this article. Many countries that have adopted these characteristics have been able to benefit fully, since the Industrial Revolution (Mokyr, 2005; Nelson, 1996), from the *virtuous cycle* that operates through the positive feedback channels between the main *engines* of economic development that are knowledge, education, science, and technology (Aghion & Howitt, 1998).

The universities that have implemented these standards with success have attracted talents from other countries in the world. They are sometimes called "world-class universities" (Aithal & Aithal, 2019; Ros & Sol, 2021; Salmi, 2009). Given the imprecision of this concept, we will focus more directly on the precise characteristics that aim to solve specific organizational problems in higher education and research.

It is important to observe that these standards are perfectly compatible with strategies recently developed by Cambodia in science and technology (ESCAP, 2021; MISTI, 2021). We cannot detail them in this article, but a set of consecutive education plans have resulted from the Rectangular Strategies:

> Selected recent and current key medium-to-long-term plans and policies include: Education Strategic Plan 2001-05 Education Strategic Plan 2006-10 Education Strategic Plan Update 2009-13 Education Strategic Plan 2014—18 Policy on Higher Education Vision 2030 Higher Education Reform Action Plan 2015-18 Cambodian Higher Education Roadmap 2030 and Beyond Policy on Higher Education Governance and Finance for Cambodia Higher Education Action Plan 2018-22. (Mak et al., 2019a)

These plans and accompanying decrees and sub-decrees have established a full arsenal of institutions and measures perfectly in-line with international

standards (Mak et al., 2019a; Sok & Un, 2018a). This arsenal establishes answers to the "*what*" question, but many studies underline that their application has been somewhat problematic, and the "*how*" question seems to continue to be much more relevant.

In this article, we will successively explore potential answers to the why, what, and how questions concerning international standards. In the next section, we will first examine the rationale behind these international standards: Why have they emerged and become essential regulation mechanisms in modern societies? Adopting a systemic view of the higher education system will help understand these issues and better identify the aims of each global dimension of these international academic standards. In the third section, we will describe and discuss the different components of these standards and the organizational *tools* aiming to implement them. The rest of the article will focus on the Cambodian higher education system. The fourth section will summarize some important characteristics of this system and underline some fragilities that may result from them. The fifth section will propose some potential answers to the *how* question and aims to shed light on some tools that may help the catching-up of the system with international standards. The last section will conclude the article.

The rationale for international standards

These standards have been developed to answer many issues that have been progressively emerging since education started to play the central role in modern societies, in the development of the first Industrial Revolution and later. The parts that the universities are expected to play have become multi-dimensional as the level of technological, economic, and social complexity has risen in industrial societies.

The increasing fragmentation of the international supply chains, accompanied by the complexification of the international division of labor, the growing specialization in the service sectors, allowed by the development of information systems and data-based marketing and provision, put increasing pressure on the higher education system both in terms of developing very specialized competencies in all sectors, and giving the students a comprehensive ability to understand the structure of the system/society in which they live as citizens.

Moreover, the tensions put upon social coherence of these societies by increasing levels of inequality give a central role to education at all levels, but especially to higher education (where inequalities may become considerably amplified) in preserving this coherence.

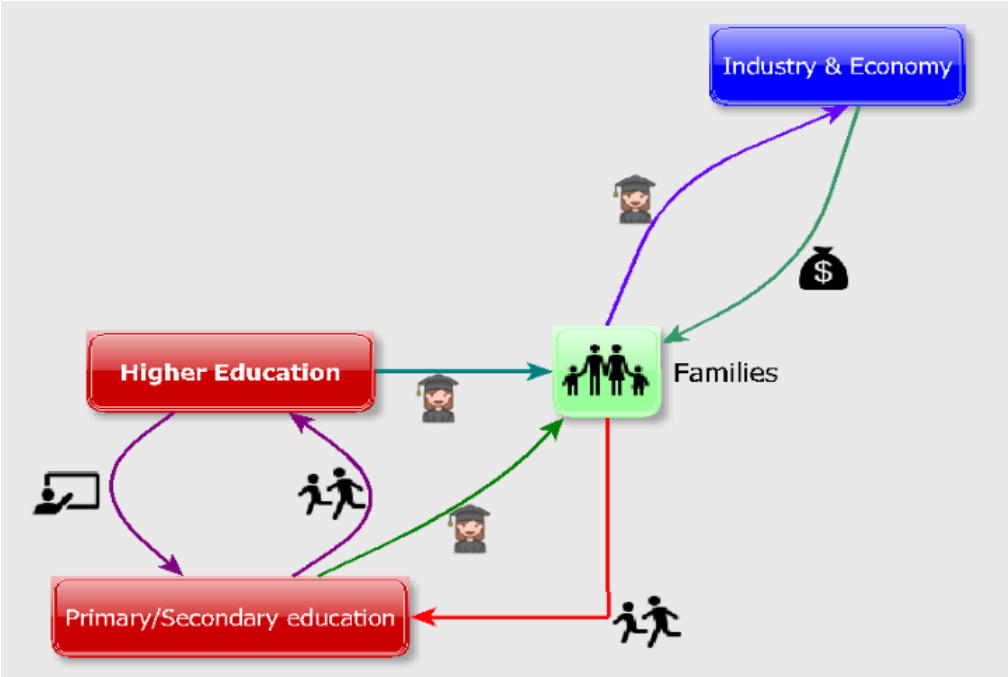


Figure 1. Education as a private good?

This central role is not necessarily visible to families deciding about their children's education or even to governments of countries where industry and technology have not yet become significantly central to economic growth and development. In these contexts, education in general and higher education are seen as a private good: a means for parents to ensure higher future income for their children and, often, for themselves when they become old (see Figure 1). In this frame, education is seen as *a private good* for families, resulting from a trade-off between immediately sending their children to work, condemning the family to a low-income flow, and *investing* in their education, accepting to wait, and possibly attaining a higher future income flow (Altbach, 2007). For a family stuck in a Malthusian regime where the immediate day-to-day survival is at stake, unfortunately, there is no actual trade-off, and education is not a possible choice. Even for other families, higher education is seen as having only an incremental advantage, allowing their children to ensure a higher income from the economy than lower education levels. This private good vision of education has become more dominant globally since the 80s, but it is only a partial and incomplete apprehension of education's role in society.

Education indeed plays a much richer and central role in modern industrial societies. Technological innovations, higher education, and academic research are at the center of a complex nexus of interactions and positive *externalities,* as economists call it (see Figure 2).

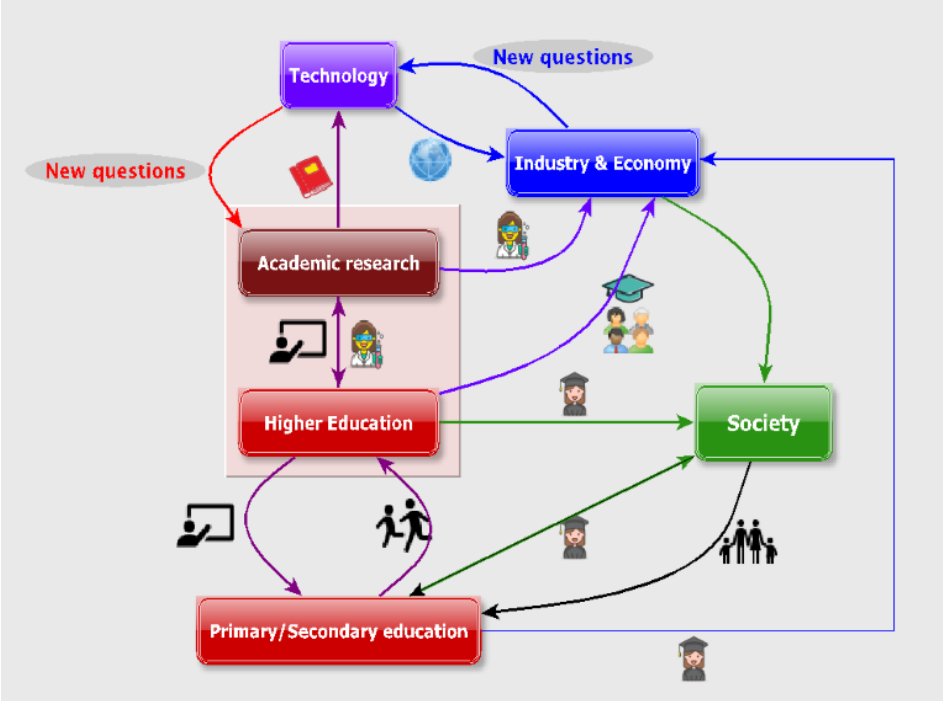


Figure 2. The central role of higher education and research in economic and social development

Higher education allows families to reach higher income levels indeed. Still, it also allows the emergence of scientific research in universities and companies by providing them with competent scientists and engineers. This research is necessary for companies aiming to absorb technologies developed elsewhere and create new technologies internally through research and development (R&D) activities. The technological needs of the industry and their R&D activities benefit from scientific knowledge developed in universities, for which these R&D activities are also a source of new scientific questions opening new research paths. In countries that are not on the world's technological frontier, these internal research abilities play an essential role in absorbing new technologies and catching up with that frontier (UNESCO, 2016).

Besides the economic growth that increases the general welfare in society and also allows the extension and intensification of education levels of the

population, education brings positive effects in other areas of social life: better citizens directly contribute to the development of more open societies, which play, in its turn, a clear positive role in economic development on the long term; better health care levels; better care of inactive populations (children and elderly); the lower number of conflicts; less violence; a fairer society and economic relations; better labor participation, and consequently higher productivities. Hence, these positive externalities constitute an even broader virtuous cycle steering economic and social development (Bray, 2002).
Consequently, modern societies demand a lot from higher education and research (Altbach, 2007):

- Train competent citizens with a sufficient general education level;
- Train specialists with cutting-edge skills for technological, economic, and social development;
- Build a sufficient research capacity to ensure technological and scientific autonomy at the national level;
- Train future educators for all educational institutions.

Answering all these emerging demands induced industrial countries to develop different education systems over time, and we have seen the emergence of various answers to these demands even in the same country.
Over the last century, as an effect of the second globalization, we have observed a convergence between these diverse solutions and the emergence of some shared organizational principles and frameworks adopted as an efficient way for universities and higher education and research to fulfill their missions in modern societies. We will designate these shared principles by "international standards" and describe them in the next section.

These standards emerged and diffused because they have been successful in ensuring:

- *Legitimacy* and efficiency of decision-making processes at all levels;
- *Adherence* of all members of the institution to its objectives;
- Full engagement of faculty in *training* students (knowledge diffusion);
- Full engagement of faculty in academic *research* (knowledge creation);
- Ability to attract *new talents* and to allow their emergence in the institution, at all levels, and in all academic functions;

- Good connection with local and national needs and development strategies.

These standards share indeed a set of global characteristics that allow them to fulfill these aims:

- A transparent, participative, and efficient *governance* system that ensures *legitimacy*;
- A transparent and fair *hiring* system that can *attract talents*;
- A transparent, fair, and progressive academic *career path* system that ensures the aligning of individual incentives with the objectives of the institution and hence ensures operational *efficiency*;
- *Facilities* for students, teachers, and research that are necessary for attracting talents again and for the quality of education and research;
- A performant *university-industry–society network* that ensures efficient connection with *global/national goals* and needs and enables the higher education and research system to participate in economic and social development fully.

Consequently, we have a relatively clear idea about which characteristics are necessary for higher education and research to be able to play its expected central role in society. Of course, one crucial question remains: Through which mechanisms may these characteristics be implemented? Answering the question "what?" is not enough; we also need to answer the question "how?". Consequently, the following section will be dedicated to practical "tools" put into action in this implementation.

Components of international standards

We will present in this section the mechanisms through which the preceding principles can be implemented in a higher education system.

Principles of good governance and internal legitimacy

Following the previous general discussion, the governance structures in higher education and research need to ensure the internal legitimacy of decision processes and strategy choices because the legitimacy would enforce the adherence of the members of the institution to these decisions and strategies,

hence increasing the operational efficacy and the ability to attain all strategic targets. To this end, current international standards correspond to transparent, participative, and effective governance structures allowing for strategic autonomy through continuous monitoring and periodic self-assessment (Mak et al., 2019a).

Indeed, autonomy is necessary because academic activities have, in general, a marked creative dimension (teaching, research, and administration) and are rarely compatible with a strictly hierarchical organization. However, universities, since their origin, are also quite complex organisms, encompassing many scientific areas and activities. At its foundation in 1200, the University of Paris already comprised 12 disciplines (starting with canonical law, theology, and health sciences) in four *faculties* and became fully independent from religious and political authorities in 1231, after a two-year strike by the faculty. Today, a typical mid-sized French university comprises 20-30 departments, several engineering schools, several vocational schools at a bachelor's level, many research laboratories, and a mesh of administrative levels and functional divisions (www.u-bordeaux.fr).

Governance structures of universities consequently needed to be able to efficiently deal with complexity while fostering creativity by ensuring the following characteristics through the implementation of corresponding organizational *tools* that have been invented to this end:

- Autonomy and flexibility**:** By *decentralization/delegation* of information collection and decision–making through a multi-level organization.
- Legitimacy: By ensuring *representativeness* in decision–making bodies/councils at all levels, generally through a transparent election process.
- Accountability**:** By creating a *functional set of collective assessment routines and indicators* at all levels, periodically monitored by an independent internal audit bureau.
- Coordination**:** By ensuring *open and continuous communication* between all fields and organizational levels, as well as during the periodical meetings of different relevant councils.

- Efficiency: Making *decisions at the most appropriate operational level*. Top governance team being in charge of the most global and strategic decisions/arbitrations, delegating day-to-day governance to lower levels.

This governance model allowed universities to obtain full strategic autonomy in all major areas progressively:

- Recruitment of students;
- Conception and evolution of teaching programs at bachelor's and master's degree levels;
- Organization of research activities and facilities;
- Development of professional network;
- Development of an international academic network;
- Management of existing financial resources and activities to attract supplementary resources;
- Recruitment of faculty at different positions and departments.

We will now consider in detail these organizational tools, starting with the main one that concerns the decentralized organization of the governance structure.

A multi-level governance structure

A multi-level organizational structure is necessary for efficient decentralization and delegation. The main components of such an organization in universities are commonly the following (see Figure 3):

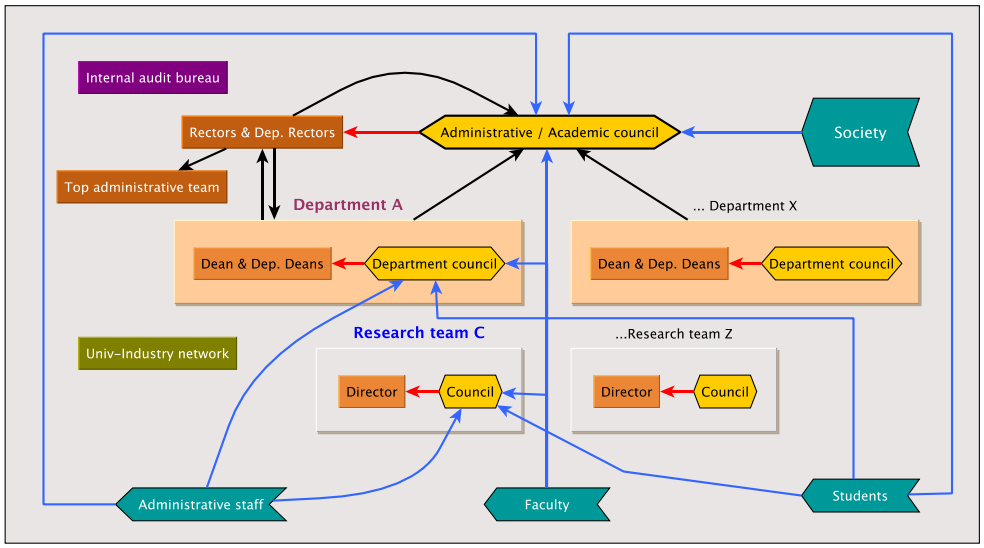


Figure 3. A multi-level and representative governance structure

- The top governance team is composed of the rector and deputy rectors, as well as administrative directors in different major fields of autonomy:

    - Scientific priorities and strategies;
    - Coordination and planning of teaching programs at all levels;
    - Financial coordination and planning;
    - Coordination and planning of human resources (in the administrative areas and between academic fields);
    - Coordination and planning of physical resources (buildings, equipment, etc.);
    - Coordination and development of a national and international network of the university.

- Administrative divisions and departments;
- Department deans;
- Research team directors;
- University councils:

    - Academic council at the top level, electing the rector and the deputy rectors. As an example, the academic council of the University of Bordeaux is composed of 80 members, divided into two equally sized commissions: the first one in charge of academic research and the second one in charge of academic programs and academic life.
    - Department councils elect and advise department deans;
    - Research team councils elect and advise research team directors;

These councils play an essential role in this multi-level structure:

- They elect, advise, and control (accountability) the executive teams at each corresponding level.
- They guide and monitor the activities of that team.
- They are composed of elected faculty members, administrative operators, and students (representativeness). Elected members may be complemented, for a fraction, by designated ones. They should also comprise external members from the society and university partners.

- Executive teams and academic councils are re-elected periodically (typically every five years). Their number of terms is generally limited (two terms at most, for example) to attract new talents and innovative ideas to these exhausting positions.

Steering such a complex organization cannot be done efficiently without a continuous monitoring system through quality assessment procedures.

Quality assessment

Quality assessment (QA) is essential because strategic autonomy requires periodic monitoring for its implementation. Steering the university cannot be done with closed eyes, hence the importance of *continuous internal monitoring* at all levels through *self-assessment*. Also, it cannot be done without a map of the landscape, hence the necessity of a periodic external point of view through *external QA* procedures.

Internal monitoring and QA

Steering the university and implementing the strategy need continuous (yearly at least) assessment and monitoring. Again, the primary governance principles (transparency, decentralization, openness, and efficiency – parsimony) should guide this monitoring process that should proceed using:

- A compact set of indicators at all levels;
- Data collection and assessment processes at each local level (department, laboratory, administrative levels);
- Evaluation process by an independent Internal Audit Bureau.

External quality assessment

A periodic external point of view on the university is also necessary for:

- Avoiding *blind angles* during the steering process and internal QA process;
- Checking the performance of the internal strategy in comparison with the evolution of the national and international academic landscapes (the university may be advancing but lagging in the global academic landscape).

This external assessment is generally done by a national institution (the Accreditation Committee of Cambodia in Cambodia, High Council for Evaluation of Research and Higher Education in France (Yildizoglu, 2020a, 2020b), German Accreditation Council in Germany, or regional ones like ASEAN University Network – Quality Assessment). To be complete and fully useful, they need to cover all strategic domains, including governance, training programs' quality, and research activities. In general, they start from the internal QA report by the university and probe the reality of the situation through an extensive visit to the university by an independent committee composed of members fully competent in the areas covered by the university.

Financial support and autonomy

Strategic autonomy is only a burden in the absence of necessary financial resources. The development and modernization of the higher education system necessitate the mobilization of resources from public and private financing sources.

In industrial countries, the primary sources of financing are public funds, which cover 66% of the costs of universities in France and 80% in Germany, and nearly 100% in northern Europe, for example.

On the other hand, developing countries spend much less of their budget on each student. The faculty wages and quality of life are generally relatively lower than in industrialized countries (Bray, 2002). This can be explained by a severe constraint on available resources in these economies. Their governments may also tend to see education as a private good since the positive externalities may be less visible, or even worse, less *desirable*, in their eyes. Moreover, given the high share of low-income families in these countries, tuition fees cannot constitute a source of financial autonomy, at least not without increasing the already substantial inequality generally observed in these countries. Globally, public funding of universities is suboptimal in many countries, including industrial countries.

We represent in Figure 4 the relationships between potential sources of funds for universities and their main activities. These are financed by international

research programs (e.g., the National Science Foundation programmes in the USA, or the European Framework programmes, of which the most recent one is Horizon 2020, with a budget of 95 billion Euros over seven years) and from the private sector, notably through research collaborations.

Many universities have created foundations for managing these private funds in the most tax-efficient way to maximize their mobilization for academic operations. The quality of academic research (see below) and training programs is essential in establishing the university's reputation and attracting non-recurrent funds.

One issue that continues to be quite controversial in the public financing of universities: Despite many studies that show the necessity and importance of recurrent and stable public funding of all universities and research, budget constraints and political arbitrations have been pushing many countries to adopt project-based temporary financing and "excellence"-based financing of a handful of universities. Such a concentration of financial means aggravates inequalities in accessing quality higher education.

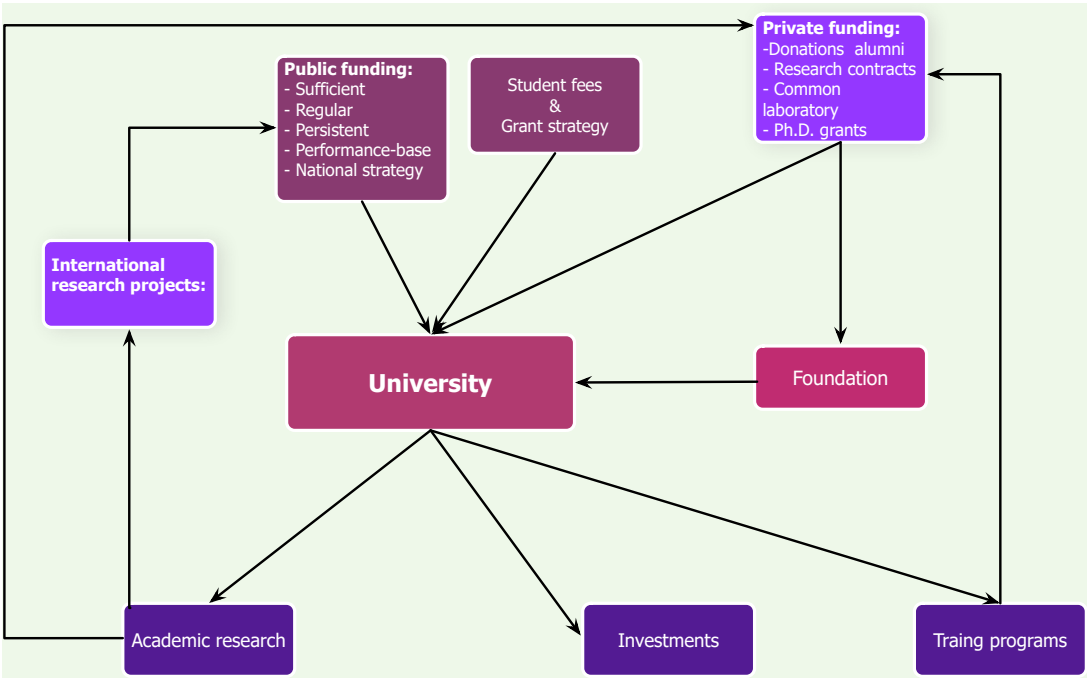


Figure 4. Funding of higher education and research through public and private resources

In any case, financial autonomy in deploying these resources is necessary for the implementation of the strategy, and public budgeting systems in many countries had to evolve in this direction by

- Implementing the possibility of flexible budgeting;
- Decentralizing spending decisions and separating these decision centers from ordering centers (autonomy);
- Allowing multi-year rolling budgets;
- Forcing analytical and functional accounting.

Attracting and developing talents in education and research

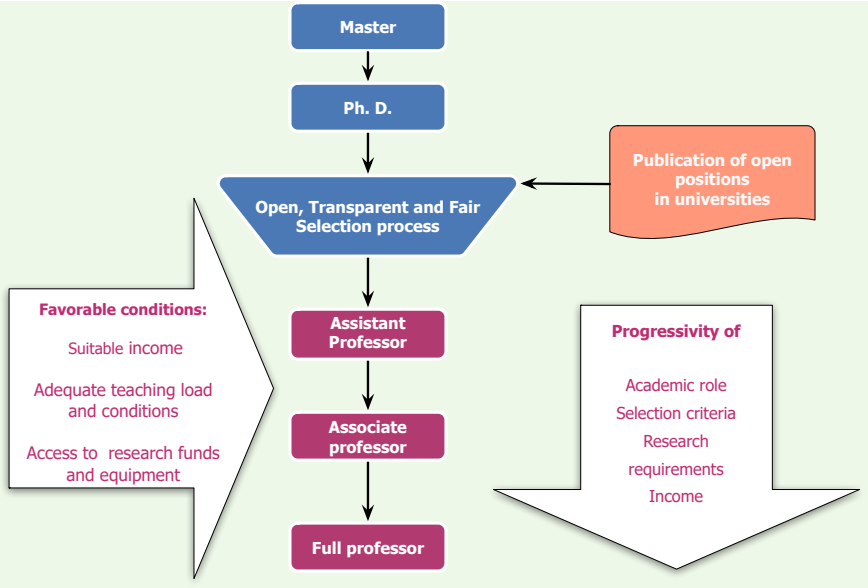


Figure 5. Attracting and curating talents

Attracting the best students to the university and the best graduates towards academic research are critical in the development of each university in the system. Attracting Cambodian academics with a PhD from abroad and giving them very favorable academic and financial conditions for following their research projects in Cambodia are essential in the capacity-building phase and very important in limiting the brain drain (Ahrens & McNamara, 2013). We have discussed above the governance principles necessary for such an attractiveness. Figure 5 connects these principles with more practical and systematic aspects. Indeed, implementing these principles in each university is needed, but many countries have fixed hiring and career procedures at the national level. Consequently, not all dimensions can be controlled by an

individual university (see the section on the national level). Nevertheless, in a given system with global rules, each university should implement and promote the most open and fair procedures.

Commitment to academic research

Academic research plays a central part in the social/economic role of higher education and research and in the development of universities. Consequently, modern universities aim to become a *research-friendly* environment with a significant valorization of research efforts by faculty to keep strong their motivation to engage in academic research.

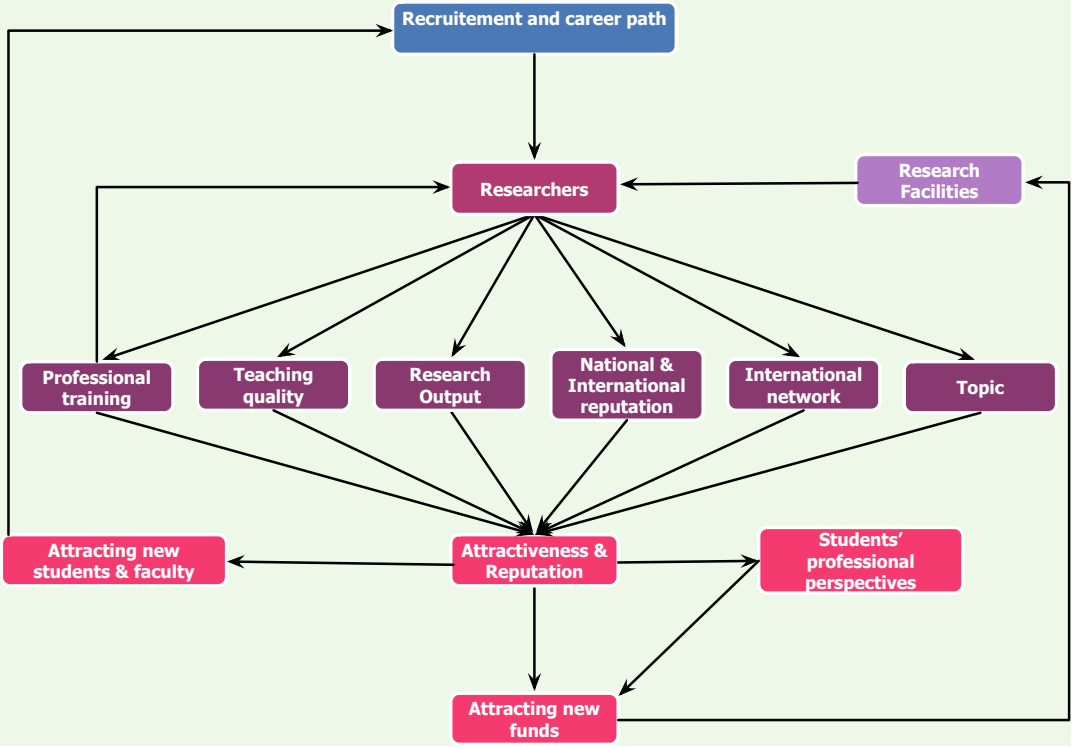


Figure 6. The central role of academic research

Figure 6 represents the central role that academic research plays in establishing the quality and attractiveness of a university. We can have a virtuous circle through these interdependencies when academic research is firmly supported in the university and enforces its attractiveness towards new students, researchers, and funds, which in turn enhances its ability to develop academic research. However, we can also have a vicious circle when a university neglects academic research and attracts less and less human resources and funds for developing it even if it changes strategy at one point. Going from a vicious circle

to a virtuous one may be difficult once the university puts itself in the former because of these positive feedback forces that impose strong inertia. Only a dedication of significant resources can help overcome such inertia, and all marginal efforts would generally be without any significant results.

Support and coordination at the national level

Last but not least, some critical components of these standards concern the global higher education and research ecosystem. They need to be developed and implemented at higher institutional levels than the individual universities. Indeed, many critical dimensions of higher education and research require coordination and support at the national level (see Figure 7). We have already discussed the importance of recurrent and stable public funds. External quality assessment is also one of them, as we have seen above. The legal framework also plays a vital role because it determines the modalities of many aspects of autonomy and governance of universities (including the professional status of the faculty).

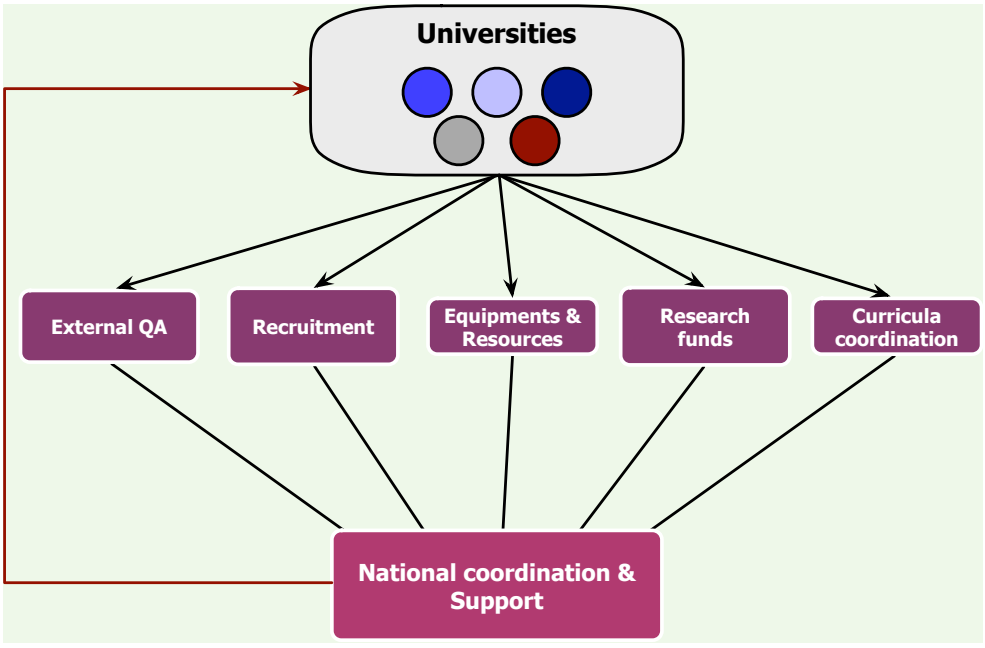


Figure 7. Support of higher education and research at the national level

Moreover, other operational dimensions also need coordination between universities:

- Coordination of faculty recruitment demands by different universities when public funds finance these positions;
- Acquisition of expensive equipment and resources (like access to journals) may need pooling resources at the national level;
- Allocation of public funds for research, depending on the shared criteria used for their assignment (like research performance);
- Pedagogical coordination of curricula between universities in different disciplines, such as obtaining a bachelor's or master's degree in a given domain, ensures competency standards for mobility between universities and companies hiring these graduates.

Given the essential role of this set of principles and organizational solutions in securing that higher education and research can satisfy society's demands, it is crucial to understand how close Cambodian higher education and research are to these international standards and how it can get closer to them.
In the following two sections, we will first consider the current situation of Cambodian higher education and research as we see it and propose some potential tools for strengthening it to close the gap with the international standards.

Challenges in the Cambodian higher education system

We can observe the following significant characteristics of the higher education system in Cambodia (MoEYS, 2021):

- 128 higher education institutions nationwide as of 2021, including 48 public (37,5%) and 80 private (62,5%) higher education institutions, under the control of 16 ministries and institutions.
- 80 higher education institutions are under the Ministry of Education, Youth and Sport control, of which 13 are public and 67 are private.
- 45 higher education institutions provide postgraduate education services, and 21 institutions also provide PhD-level education.
- These institutions mobilize 16,676 educators with the following academic levels:
    - 26.54%, a bachelor's degree;
    - 65.12%, a master's degree;
    - 4,1% of full-time faculty, a PhD degree.

- 201,900 students following different academic levels:
  - 85%, at the bachelor level;
  - 5% at the master level;
  - 0,5% at the PhD level;
  - 9,5% at an associate degree.
- The bachelor's degree students are distributed in the following areas:
  - 70% in social sciences: 42% in business-related subjects, 7% in law, 10% in foreign languages, 2% in tourism, and 9% in other social sciences and arts;
  - 30% in STEAM: 5% in basic science, 9% information technology, 8% engineering, 3% agriculture, and 5% health.
- Master's degree students study in the following areas:
  - 76% in social sciences;
  - 11% in humanities;
  - 8% in natural sciences;
  - 3% in agricultural sciences;
  - 2% in engineering and technology.

In this landscape, we consequently observe:

- A considerably high number of private institutions (62,5%) resulted from a rapid expansion since the foundation of the Norton University in 1997 when the privatization of higher education was allowed (Chet, 2009);
- A potential difficulty of coordination in an education system controlled by many ministries, potentially following contradictory strategies, a problem already signaled nearly 25 years ago (Ahrens & McNamara, 2013; Clayton & Yuok, 1997), along with the hope that this issue should be quickly resolved;
- An over-representation of social sciences and an under-representation of STEAM areas in the study fields;
- A dramatic loss of students between bachelor and master levels (the latter keeping only 5% of the students);
- A significant reduction in the student population during the COVID period;
- An under-representation of the PhD level in the faculty population.

From reading the Education Congress report (MoEYS, 2021), it is hard to have a clear vision of the *economic model* of higher education institutions, the strategies aimed by different institutions, and the diversification between public and private institutions. Interviews with various institutions and a relatively large literature on the evolution of Cambodian higher education and research help better to build such a vision.

These observations above let us think that the following potential fragilities may be an obstacle to the development of the Cambodian higher education system:

Fragility 1: Insufficient initial training of the faculty

The preceding statistics show a weakness in the initial training of the faculty (Ros & Sol, 2021). For example, one cannot expect a faculty member having only a master's degree or even only a bachelor's degree, sometimes obtained many years ago, to be a fully competent teacher and researcher under the current standards, which have become very demanding and very technical, not only in STEM disciplines but also in humanities and social sciences

Fragility 2: Biased economic model of the higher education institutions

Our interviews in the universities and more anecdotal conversations with colleagues show that the current economic model of the universities may introduce some considerable distortions in the incentive structure in the academic system: the relative weakness of their basic income, the weakness of research structures, and the limited role of research in the remuneration and advancement of the faculty seem to push the faculty towards heavy teaching loads (up to 30h per week, in several different universities in some cases), and do not encourage them towards academic research (Heng et al., 2022; Mak et al., 2019b; Oleksiyenko & Ros, 2019; Ros et al., 2020). This bias is enforced by the weak public financing of the higher education institutions that pushes them to tuition-based funding, on which they also have more autonomy than in public funding. Hence, a second vicious circle results from the necessity to attract students to tuition-based programs, which seems to fire a *race-to-the-bottom* since it is easier to reduce the fees (the price) than to increase the quality of the programs they offer (Ros & Sol, 2021).

Fragility 3: Weakness of academic research

As a consequence of the previous observation, academic research is the poor child of the university, failing to attract necessary resources and priority in many institutions and areas. When external resources are available, attracting them becomes the main driver of the research projects and implementing a research strategy at the university level becomes nearly impossible. The absence of perennial and institutionally recognized research teams is another difficulty in building persistent critical mass and strategy in the face of this continuous flow of decentralized projects and the transient research groups dedicated to them.

Fragility 4: Diversity without coherence?

Diversity is generally desirable in the higher education system. Still, it can only be productive in capacity building and creativity if it is the source of substantial synergies in the system and does not play against its coherence (Ahrens & McNamara, 2013; Chet, 2009; Sen & Ros, 2013). Given the limited number of highly qualified faculty at the national level, can we expect that these faculty can nourish 128 institutions with satisfactory academic accomplishments?

Fragility 5: Lacking critical mass

As a corollary to the preceding observation, can all these institutions attain a critical mass in administrative, financial, and research facilities and capabilities? This fragility is a corollary to the preceding fragilities: The dispersion of fully qualified human resources and other assets, which are already rare in the system (Fragilities 1-3), over a high number of institutions (Fragility 4), without much coordination between them, makes impossible for each of them to mobilize a level of these resources necessary for providing high-quality education and developing academic research.

Fragility 6: Weak coordination of offered professional perspectives

Are these universities and MoEYS able to accompany the large population of bachelor students to a good professional and/or scientific education at the

master's level, limiting strong disequilibria in the system, which can be a source of bottlenecks in the insertion in the professional life, and of a disappointment for the students, as well as of an inability to fully mobilize Cambodia's remarkable youth and their creativity?

Fragility 7: Incomplete governance structures

Last but not least, many dimensions of the governance principles and tools that have been discussed above are not yet implemented in the Cambodian higher education system. Indeed, the *academic councils* in many universities are yet to include a large composition ensuring their representativeness of different members and their integration with the economic and social environment of the universities. Accountability is also not fully secured at all levels. Consequently, complete autonomy continues to be a difficult target to attain (Mak et al., 2019a; Sok & Un, 2018b).

These fragilities result from the interaction between many dimensions of the Cambodian higher education system, starting with the current economic model of the universities. Overcoming them necessitates strategic policy measures at the system level, following the systemic nature of international standards we have considered in the first part of this article. These standards point to the final targets of reforms in higher education and research. They answer the question of "What?", but they do not answer a trickier question: "how." In the next section, we will consider potential measures that may facilitate convergence toward these standards.

Some potential measures for convergence toward international standards

Following the discussion on the above-mentioned issues, we propose some concrete actions that seem accessible on a short horizon.

A new economic model for the universities

Some of the measures can only be implemented at the national level, while under a new economic model for universities, others can be implemented by each university.

Fragility 2 discussed above underlines that the current economic model of Cambodian universities could introduce significant bias making their development quite problematic.

Some of the measures proposed here aim to change the corresponding components of this model. Still, without a global change in public strategy, universities will struggle continuously with obstacles met during the implementation of these measures.

Public universities would need:

- An institutional framework favoring the implementation of a more decentralized organizational structure with the delegation of all decisions to the most appropriate local level, including the financial ones (Mak et al., 2019a).
- Higher public financing (with autonomy and accountability) to change their current economic model that is mainly based on tuition fees, and hence on teaching in (not always a very high quality probably) professional programs (Mak et al., 2019b);
- A possibility of proposing higher wages to liberate the energy of their faculty;
- A fair advancement system for their faculty to motivate the latter during their whole career to engage fully in the development of their university and research (Ros et al., 2020);
- A national environment that helps universities attract more grants and private funds (potentially managed by a national foundation or a university when the latter's size permits it).

Potentially helpful measures

At the national level

- New composition and roles for the academic councils in universities to make them more representative through elections every five years, with more substantial participation in governance, in collaboration with the top management team;

- Alignment of the mandates of the rectors and associate rectors in accordance with the previous measure and with a maximum of two terms;
- Instituting a Scientific Council with external and foreign members (in particular with representatives of partner universities) in universities;
- Additional funding truly dedicated to academic research, but with access conditioned by the quality of proposed research projects and by the achievement of the projects proposed in the past;
- Coordination between ministries for establishing precise modalities for the implementation of the new professorship ranks sub-decree. Ministries should coordinate their efforts for building an attractive wage grid, clearly distinguishing the status of assistant/associate/full professorship positions;
- A national doctoral school on major disciplines through pooling competencies between national universities and beyond (from the ASEAN and other countries) for quickly building capability and forming future researchers;
- A national center for the management of research projects to relieve the strain on universities. Each university could initially send one or two persons (depending on the university's size and needs) to participate in this center and be trained to become the local expert in this area in their university and train other persons. Training sessions by international experts from the leading grant-giving organizations (EUFP, JICA, etc.);
- Dedicated funds to provide universities with access to the leading scientific journals in each field. It would be necessary to carry out first a national survey to determine the list of journals to include in the subscription negotiations with the editors.

At the university level

- Strategic autonomy of the management team, but in dialogue with a representative Academic Council and a Scientific Council;
- Adoption of an effective decentralized organizational structure with full implementation of necessary decisions delegation at the appropriate levels.
- Creation of an independent internal audit office;
- Creation of an internal information system for the collection of information about the activities in the university.
- An annual self-assessment based on a realistic and meaningful set of indicators, updated at least once a year before the annual meeting of the

Scientific Council and the end-of-year meeting of the Academic Council to check internally and externally the progress of academic operations;

- A sufficiently large and competent administrative and accounting team;
- Transparent and fair recruitment and advancement processes in the university;
- A strengthening of the faculty by facilitating their access to quality doctoral training, particularly through international partnerships. This training should aim to effective competency acquisition and transfer through a hands-on learning process with the actual capacity acquisition evaluated through a research project or a scientific article. A part of the training would hence cover the writing of scientific papers;
- Hiring processes based on transparent and realistic criteria. Universities should clearly define the expected role of each professorship grade (Yildizoglu, 2020c, 2020d). The hiring process should include external members (faculty from other universities and/or countries) to limit potential local favoritism;
- Ensure that research activities (projects, publications, etc.) count fully in career advancement;
- Persistent research teams that are not limited to specific projects and, hence, are an important component in the implementation of the research strategy of the university.
- A renewable yearly researcher status to promote research activities and allow teacher-researchers to obtain a sufficient income, partially or fully liberated from any teaching load, with interdiction of teaching elsewhere during this period (an immediate termination condition), the obligation of exhibiting actual research activities each year through publications in international journals starting with the second year of the status period. To be effective, this status should be adjoined by a bonus to the regular wage not to force the candidate to accept an income reduction, making such a position unattractive;
- Continuous amelioration of the ability to attract the best-educated high school students through broad information campaigns and clear rules;
- Internal assessment of the quality of academic programs and their relevance to the missions of the university;
- New advanced master programs in a language for which advanced textbooks exist and through which new competencies could be transferred, if necessary, by faculty temporally invited from other countries;

- A University-Industry Partnership Office to coordinate with national industry competency building and benefit from their experience, as well as valorizing applied research abilities of the university and attracting new funds;
- A graduate school that coordinates master's programs and, where applicable, doctoral programs.
- Development of international partnerships for teaching and research within the ASEAN and beyond.

At the individual level

Independently of the higher education system, a university's principal assets are the persons that compose it. Even if the current economic model of the universities can sometimes make it difficult, these individuals should never lose sight of the critical mission that they are called to play in the development of the Cambodian economy and society by giving the necessary knowledge, competency, and ability to the young population of the country.

Motivated by this mission, they should continue to develop their knowledge by exploring new approaches to the tasks they must fulfill, reading all the recent literature they can find on their domain, and exercising their intellectual curiosity by never abandoning the pursuit of scientific research. The capacity-building process needs to take place at all levels, national, university, and individual.

Tomorrow's modern universities cannot be built without these persons and their contributions. Only with such a continuous investment can they entirely play their role in developing their career, university, and country.

Conclusion

Several potential fragilities of the Cambodian higher education system we have discussed in this article are observed in many higher education systems worldwide, not only in developing countries. The most successful systems are the ones that have been able to create solutions for overcoming these fragilities, and these solutions indeed gave rise to international standards.

This article has discussed why these international standards have emerged and introduced some organizational principles and tools developed to facilitate their implementation. Our observations on the Cambodian higher education system underline the importance of developing different specific mechanisms and answering the "How?" question, starting from the institutional tools included in the large arsenal of laws, decrees, and sub-decrees already adopted. This article has also proposed some potential measures that would facilitate the convergence of the Cambodian higher education system toward the international standards and benefit from the solutions incorporated into them in fulfilling the expectations of society from this system.

Still, such measures necessitate substantial investment in development strategy and policy priorities. Even in the most developed countries, such a political engagement has become increasingly problematic since the 1990s (Bray, 2002). These countries can count, at least for some time, on the capacity accumulated historically or on pockets of excellence where the *elite* is reproduced. Developing countries have no such luxury and have to build their autonomy under current dire economic conditions. These conditions may make the policy trade-off in favor of education hard, but without such a trade-off, economic conditions in these countries will necessarily deteriorate. No development strategy can avoid giving a solid priority to education.

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