This consultant’s report does not necessarily reflect the views of ADB or the Government concerned, and ADB and the Government cannot be held liable for its contents. (For project preparatory technical assistance: All the views expressed herein may not be incorporated into the proposed project’s design.)
ASIAN DEVELOPMENT BANK

TA 7105-VIE

PREPARING THE HIGHER EDUCATION SECTOR DEVELOPMENT: NEW MODEL UNIVERSITIES PROJECT (HESDP-NMUP)

Sub-Project Proposal: Feasibility Report
Hanoi University of Science and Technology (HUST)
Hoa Lac High Tech Park

March 2010
Status of this Report

This report is based mainly on discussions with the Vietnam Academy of Sciences and Technology (VAST), domestic partner for the proposed HUST, during the inception visit in March 2009, at two workshops held in May and July 2009, and during the Mid-Term Review Mission in September 2009. Participation from MoET was very limited.

The discussions on this proposal for HUST scheduled to be held during the Final Review Mission on 22nd January 2010 were cancelled by MOET and not effectively reinstated.

Information was also obtained from attendance as observers at Franco-Vietnamese discussions in June and November 2009 and January 2010, during which details of Governance and some aspects of academic development were discussed. These discussions were primarily to establish the framework for the Government-to-Government cooperation that set up the French consortium of Universities to act as the international Strategic partner for HUST and details of the MOET preferred Charter.

In November MOET submitted a proposal to the Prime Minister to obtain approval for the establishment of HUST. The TA team saw an earlier superseded draft but did not receive the final proposal from MOET until 6 January, when the details of our own proposal was substantially completed. Details of the Charter to be agreed with the French consortium were still under negotiation at time of finalisation of this report.

Accordingly this report is based mainly on international experience of the TA Team, the assessments which the we were able to make of the earlier draft of the MOET concept for HUST, and limited information available from the Franco-Vietnamese discussions. It represents the recommendations of the TA team for the type of enabling environment we consider the most likely to offer the prospect for success in establishing HUST as a high quality international standard university over about ten years. Further discussion with the Government is required before full consensus can be obtained.

Very late in the preparation work MOET advised us of the need reduce the area within the Hoa Lac site boundaries by almost 20 Hectares. This will have implications for the site planning and cost estimates. Further discussion will also be required to resolve these matters.

The information in this Sub-Project Proposal is consistent with material included in the main Loan Proposal. It is prepared to accompany the RRP for the information of the Board of the ADB, and to provide information to MOET in its preparation of the Government Feasibility Report on HUST.

The other papers placed together in this Volume II bring together all the relevant papers prepared during the TA 7105 investigations. They are intended to be available as reference material for the leaders and staff of the University, and to TA consultants supporting the capacity building activities, to inform the ongoing work of establishment of the new model university.
THE DETAILED SUB-PROJECT PROPOSAL - HUST

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1 Mission and Objectives of HUST

Mission

The mission of HUST is to:

- educate highly-qualified manpower for scientific research and technology transfer in the service of the socio-economic development of Vietnam, in particular in relevant fields of science and technology;
- conduct education and scientific and technological research in close liaison with the industry and commerce sectors;
- disseminate and exploit the results of scientific and technological research;
- support career guidance for students, and preparation for, and follow-up of, the entry of graduates to the work-force;
- seek out co-operation with national and international organisations of the Parties, and the universities and schools of Vietnam, France and other countries, with a view to its development

Objectives

HUST’s long-term objective is to become a leading higher education establishment and research centre within Vietnam, attaining regional and international standards.

HUST is authorised to provide high-quality undergraduate, post-graduate and doctoral education, especially training programs in which France has an advantage, which are adapted to the needs of Vietnam. The University conducts research in scientific sectors of priority for the socio-economic development of Vietnam.

The University is designed as an experimental model for the process of reform of the tertiary education system of Vietnam, and to contribute to raise the level of the Vietnamese tertiary education to advanced regional and international levels.

The University strives to be ranked between the years 2025 and 2030 among the 200 best universities in the world. Subsequently it continues its efforts to achieve a still higher ranking.

Outcome: Reaching ‘International Standard’ in a University

To be accepted as having developed to international standard HUST will have to demonstrate that it fulfils these criteria:

- Be offering the full range courses for bachelor degrees, masters degrees and doctorates across its themes of focus; and
- have a high reputation for its courses, research and service, and be held in high esteem by peer institutions and their staff, not only nationally but also internationally.

The indicators for this recognition will be:

- HUST’s ability to attract the best qualified and most able students, both from Vietnam and from other countries
- The proportion of academic staff with doctorates from high ranked institutions in Vietnam and other counties, and the international experience of those staff

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1 The mission and Objectives are from the Government’s Draft Regulations for HUST.
• The rigour and relevance of its academic programs and its internal quality assurance system for sustaining the rigour and for continuous improvement to maintain relevance to modern labour market demands
• The success of its graduates in professional employment or in further study at leading overseas universities, especially where Vietnam graduates win competitive overseas scholarships
• The quality of its research as measured by publications and citations, external research grants and partnership links with industry; and
• The standing and reputation of its international partners.

In addition it is noted that the concept of an ‘international’ university is more than the quality of programs, teachers and graduate outcomes alone; it also includes a notion of a ‘community of scholars’ that both enables and encourages inter-communication for the generation of innovative thinking and approaches and has the resources from a high critical mass of students and staff, and research funding, to develop new programs of research and teaching to translate the innovation into high quality academic outcomes.

Performance/ Results from Outcomes:

• Annually, from 2016 – Average 90% of graduates (across the Post-graduate and undergraduate levels, have found either employment in high technology positions in Vietnam industry, or as teachers/researchers in other universities, or are enrolled as Post-graduate students in HUST or any other universities in Vietnam or the world.
• By September 2015 – HUST permanent campus with the initial design capacity for 5000 students ready for full operation, and planning on track to reach full enrolment capacity within three years (2018 intake) ) [Given a four year undergrad course full capacity will not be reached until the 4th intake]
• By September 2016 – A research publication program established - HUST will have established a list of research papers identified as being prepared for submission for international publication, or research activity in progress with a potential international publication date identified
• By 2025 – doubling in output of PhDs and Masters graduates available for research and technology applications and higher level management in Vietnam industries; and higher qualified teachers for HUST and other Vietnam Universities.
• By end 2025 – HUST staff/students have 30 or more research papers published annually in recognised international refereed publications; and a clear plan to lift this to over 100 annually over 10 years to 2035.
• By end 2030 – new investment in high tech industry in Hanoi High Tech Park reaches planned peak and enterprises established in the Park are reporting new commercially viable innovations or applications based on research activities done in HUST.

Outputs of Establishment Phase (also Roadmap):

Overall Outputs and milestones: HUST established and operating to design specifications

• September 2010 – Leadership appointments made, Council Established and university ready for loan effectiveness with commencement of initial staff recruitment and first stage capacity building in management, administration and academic development
• September 2011 (commencement of 2011-12 academic year) – initial capacity building completed and ready to enrol first students in post-graduate studies
• September 2014 (commencement of 2014-15 academic year) Student enrolment in the Establishment/Transition Phase in temporary facilities reaches approximately [1050 option 1] or [450 post graduate –option 2]

• January 2015 – HUST promotion strategy and phased campaign for generating enrolments in new campus ready for implementation

• September 2015 – commencement of full operations at permanent site, with first year student intake of approx 1700 enrolments, with provision of undergraduate and post-graduate courses in all faculties

• September 2015 - HUST assessed by independent evaluation as using international standard practices in institutional autonomy, quality improvement systems and quality of student outcomes.

• By September 2018 (commencement of 2018-19 academic year) – HUST student enrolment at full design capacity (5000)

• By September 2020 student graduations number about 700 Bachelors, 450 Masters and 200 Doctors, with annual drop-out rates not exceeding 5% for undergraduate courses and 10% for graduate courses.

**Outputs by Component:**

**Component 1: Establishing Governance and Management systems**

• By December 2009 – university approved

• By end March 2010 - first management appointments made to Council, and interim (planning) French Rector and Vietnam Vice-Rectors appointed

• By September 2010 - first permanent Rector appointed by the Minister after a public advertisement and merit identification process by the French consortium, with recommendation to the Minster

• By Dec 2010 - strategic direction developed and appropriate; Management structure established and Foundation Chairs for Thematic Groups/Faculties appointed and recruited

• By July 2011 – Capacity Building Procurement completed and TA advisers ready for commencement.

• By September 2011 – Initial University operating rules established and ready for test operation with first intake (finance, personnel, enrolment, library, IT systems)

• By September 2013 – All leadership, and management systems fully developed and operating to international standard (at reduced scale)

• By June 2015 – all systems fully tested and evaluated, refined and ready for move to new premises and commencement at full operating capacity.

• By September 2015, second Rector appointed by the Minister following an international search and voting by the Senate and the University Council on a recommended nominee. Second Rector takes full responsibility for overseeing the move to new premises

• By June 2016 - All leadership and management systems reviewed and refined, set for optimum operation of “new model” international standards, taking full advantage of new premises, new autonomy and higher recurrent financing.

**Component 2: Establishing Academic Development**

By September 2013:

• Centre for Teaching and Learning Excellence established and operating

• QA centre established and operating
• Research Support Centre established and operating
• Industry Engagement Centre established and operating
• laboratory Management Centre established and operating

By June 2015 –
• all academic systems fully tested and evaluated, refined and ready for move to new premises and commencement at full operating capacity.

By June 2016 –
• All academic systems reviewed and refined, set for optimum operation of ‘new model’ international standards, taking full advantage of new premises, new autonomy and higher recurrent financing.

Component 3: Construction and Fit-out of Facilities

• By July 2011 – Procurement for design-build contract completed and Architecture design work ready to commence
• By January 2012 resettlement of current occupiers of site completed
• By July 2012 - Design phase of contract completed.
• By September 2012 request for tenders to construct the university issued.
• By July 2013 – site works preparation completed and successful contractor ready to commence construction
• By March 2015 - Main Campus construction and basic fit-out finalised, ready for handover to owner, and final fit-out and set-up
• September 2015 – Commencement of HUST at full operational status, with first new intake on permanent premises.

Component 4: Sub-Project Management (of the Loan)

• March 2010 – MOET and VAST and French Consortium jointly agree on establishment of Sub-Project Management Unit (SPMU) and interim SPMU Director appointed. SPMU has full devolved authority to manage all procurement, reporting direct to Minister for Education.
• By June 2010 - SPMU fully established (simultaneously completion of university approval, see Component 1), final Director and all staff appointments to full design capacity completed, all staff completing relevant training in procurement and financial management and ready for FULL-TIME work on HUST dedicated/exclusive contracts (no outside work unless approved by HUST)
• By July 2011 – Overall Construction Supervisor Firm commences
• By July 2011 – Capacity Building Procurement completed and TA advisers ready for commencement.
• By September 2013- Phase I of Capacity Building contracts completed and all management and academic systems established and operating on ‘test’ basis.
• By June 2015 – all management and academic systems fully tested and evaluated, refined and ready for move to new premises and commencement at full operating capacity.
• By Dec 2016 – Phase II of Capacity Building completed and all contracts finalised
• By June 2017 - all Capacity Building contracts Liquidated and SPMU ready for closure, staff move into mainstream university administration (on recurrent funding).

2 The Need for the Project and Project Benefits
Vietnam’s development has been remarkable and sustained. Per Capita income has exceeded $US1000 and it is indicated to be classed as a middle-income country by about 2010, removing it from the ‘less-developed’ category. This has emerged from the successful application of economic and social reforms since the Doi Moi opening in 1986, and follows the last decade of reforms that intensified moving the country from a centrally planned to a market oriented economy and to greater participation in the competitive international economy through membership of the WTO.

While this has shifted the country towards greater industrialisation and competitive systems, the economy still remains underdeveloped in its levels of investment in, and outputs from, scientific research and innovation. To continue its drive towards development Vietnam needs to adjust its development policy, moving from an economy based on exploitation of natural resources and heavy reliance on unskilled labour to one that is more engaged in the global knowledge economy and using higher proportions of skilled labour to support stronger industrialisation, and increased service industries, including trade services. The emerging pressures on all countries to take active steps to address national issues emerging for economic development from climate change will also create demand for new investment in locally focussed research and innovation for Vietnamese industry and agriculture.

These challenges require radical change in the Vietnam’s universities in order to satisfy increasing demand for skilled manpower. Vietnam’s universities need to shift from simply teaching to research and teaching. The country needs to concentrate more R&D resources and efforts in research-oriented universities with international standards. The linkage between the existing universities and research is weak and needs to be strengthened. The 10th National Congress of Vietnam’s Communist Party (2006) identified the goal of “creating basic movement in education and training development” and set the specific requirements and responsibilities for the national higher education as follows: “Basically and comprehensively reforming higher education, creating strong movement of training quality, and accelerating the construction of some international standard universities to train the talented for the nation”.

This policy on reform for enhanced focus on science and technology is also mirrored in Vietnam’s official policy for a comprehensive reform of the higher education sector, to produce a ‘paradigm shift’ in management of the sector of moving from a central state management model to a devolution model, where universities have authority to control all internal management, and reshaping the state role to one of support and direction from a distance, in order to create conditions that are more conducive to successful development of new research oriented international standard teaching and learning practices. The Higher Education Reform Agenda (HERA) explicitly articulates the goal of changing at least the top tier of ‘Key Universities’ into autonomous research based institutions by 2020.

The planned investment in NMUs is a part of the HERA strategy. With these investments Vietnam seeks to create a platform for a new course. The HUST together with the other NMUs, will contribute to adapting graduate supply to be responsive to changes in the structure of the labour market, and provide significant impetus towards increasing the proportion of highly skilled workers in the labour force.

2. Supporting Vietnam Industrial development:

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2 Document of The 10th National Congress of VN Communist Party, National Politics Publisher, 2006, page 206
3 Government Decision No: 14/2005/NQ-CP 14 Nov 2005
HUST will be established in the High Tech Park at Hoa Lac, with 64.8 Hectares of land. This will create favourable conditions for the development of HUST and for Hanoi industry, providing opportunities for links of mutual benefit. The university will have ready access to industry facilities to support a research focus that is more directly relevant to the local needs, while industries and enterprises in the High Tech zone and the region will benefit from access to research capacity that will be focussed on their needs of, and to personnel for future hiring who are more highly qualified in directly relevant technical knowledge and application methodology. The location of the research university in the zone will be an important factor in attracting foreign investment to the city.

HUST, with its strong emphasis on post-graduate and especially doctoral studies, will have a key role to play in raising the quality of teaching and research in the universities of Vietnam by increasing the supply of fully qualified lecturers, as well as in the direct provision of highly skilled manpower to industry and government.

The TA Team notes that, while 64.8 hectares is sufficient for the first phase as proposed for 5000 students, it provides limited scope for further expansion. Most world-class universities have total enrolments of 20,000 students or more; some have lower enrolments (around the 10,000 mark) but unit costs at these smaller WCUS are mostly high. To have the opportunity of reaching world-class ranking, it is recommended that provision be made for HUST to grow over time to 15,000 students or more. This suggested higher capacity will be important to offer the critical mass that is helpful for gaining world class recognition, and to support the expected contribution to long term development impact in Vietnam through availability of more PhDs to work in industry and other universities.

It is recommended that the HHTP and MOET consider how a long-term expansion to that level could be accommodated within its plans for the development of the HHTP. That consideration would be more usefully done now, before potentially cost efficient options are rendered impossible by other developments.
3 Principles for Establishment of HUST

Legal Basis for Establishment

In accordance with the Letter approved by the Prime Minister HUST will be established in the Hanoi High-Tech Park at Hoa Lac, on 64.8 hectares of land. In accordance with the Prime Minister Decision No. 2067/2009/QĐ –TTg dated 9/12/ 2009, HUST is established as a public university attached to the Ministry of Education and Training and having its own legal personality.

The government has taken decision to establish the New Model Universities as an integral part of the strategy for development of the Higher education Sector, and consistent with the specific strategies of the Higher Education Reform Agenda (HERA), mentioned above. As part of these government decisions, it has been determined that HUST is to be a public university under the Education Law of Vietnam. The establishment will be in conformity with provisions of the following laws and decrees of Vietnam:

- Education Law 2005 passed in the 7th session of the 11th National Assembly.
- Decree No. 75/2006/NĐ-CP dated 02/8/2006 by GoV regulating in detailed and guideline to enforce some articles in Education Law.
- The instruction given by GoV to MOET indicated in letter no. 1269/CP-KG dated 06/9/2004 on completing the network of universities and colleges.
- Decision No. 145/2006/QĐ-TTg dated 20/6/2006 by Prime Minister on orientation and policy toward the development of international standard universities in Vietnam.
- Letter No. 2519/VPCP-KGVX, dated 21/4/2008 by OoG informing the instruction of Prime Minister on the development of four international standard universities.
- Decision No. 2067/2009/QĐ –TTg dated 9/12/ 2009 by the Prime Minister relating to the establishment of HUST.

In addition to these provisions of Vietnamese law, the Inter-Governmental Agreement for the foundation and development of HUST concluded between France and Vietnam on 12th November 2009 is also highly relevant

‘New Model University’ Features

Under the covenants agreed with the lending sponsor (the Asian Development Bank) the HUST is to be established as a demonstration institution for new model universities that is enabled by special regulatory and financing provisions to implement new management and academic approaches that will test the most effective way for Vietnam universities to reach excellent international standards. It is to be one of four new model universities to be established as an integral part of the Higher Education Reform Agenda (HERA), which aims to reform the system of Higher Education to improve quality of teaching and learning, and increase capacity for student intake.

Details of the minimum features that are recommended by the TA Team as necessary to constitute a ‘new model’ university and the assurances that will guarantee that HUST will be established with these features are at Annex 1.
Three key features will distinguish HUST as a ‘New Model University’:

1. It will be a **fully autonomous research university** operating on a specific regulation that devolves MOET’s current operational management controls to the University Council; and establishes a unique charter that empowers the University Council and Rector to take executive decisions about the full range of activities required to deliver high quality research and education services to students and required them to make comprehensive accountability reports to the government on an annual basis.

2. It will receive state budget support for **recurrent operating cost via a special regulation** that authorizes MOET to negotiate a five year rolling funding plan that allows a level of funding based on the special needs for its establishment and consolidation phases (up to the first 10 years) that is separate from and not bound by the normative based financing regulations of the higher education system. This is to support a higher concentration of resourcing that is needed to establish a university developing from a Greenfields site, and to support it to attain higher international standards in research and teaching.

3. Within the autonomy of HUST, **full academic freedom** will be protected, and all **appointments of leaders and staff will be based on merit criteria**, after transparent selection procedures. All staff will be employees of the University, rather than of the Government, and will not be subject to Government regulations on salary and conditions. The University Council will set the guidelines for its engagement policy, and may vary provisions for salary and conditions in employment contracts to support a strategy of seeking the highest quality staff for appointment, whilst also ensuring that contracts are responsible and affordable within the resources available to the university from government operating grants and external sources. Appointments of management and academic leaders will be based on international searches and (except for some exemptions in the foundation appointments) will be made by the University rather than the Government, and will be accountable to the Rector, who is in turn accountable to the University Council. The University Council will be accountable to the Government for the good governance of the University and for performance of the university in meeting academic and research objectives.

4 **Special Features of HUST**

*Sponsorship by VAST and the People’s Committee of Hanoi*

HUST will be established as a national based university with a direct relationship with the MOET, while under the direct sponsorship of the VAST and in full association with the HHTP. In this respect:

- The HHTP will provide and service the land on which it is to be established, and will extend to HUST the full range of privileges and exemptions available to other investors in the Hanoi High Tech Park.

- VAST will also support the establishment of HUST through contributions from qualified staff and facilities for the temporary campus while the permanent campus is under construction, and while the leadership and academic capacity of the new university is being developed. This support is outlined in the Draft HUST Regulations and will be codified and recorded for management and funding purposes via a cooperation and service agreement between VAST and HUST. The diagram in Figure 1 below illustrates the support relationship between VAST and HUST in the Establishment Phase (first 5 years).
International Strategic Partner and other International Interaction

HUST will be established with support for a consortium of French universities, under an agreement signed between the government of Vietnam and the Government of France on 12 November 2009.

Universities form many partnerships with universities in other countries. An operational cooperative alliance may be formed to enhance teaching and research in a limited number of specific programs and to allow for cross-university cooperation in student scholarships. In their start-up phase the Vietnam Greenfield New Model Universities will need international allies that can offer more in-depth strategically planned support to assist them to achieve international standards.

A strategic partnership aims to assist the NMU to achieve its mission and objectives through a broad-ranging program of assistance that has concentrated support targeted to developing critical areas of leadership, university management and its administration systems, and its academic development together with contribution to early phases of operational teaching and research. Forms of assistance offered by a strategic partner include:

- Advice on academic and campus development
- Academic staff seconded from the partner country to work in the NMU for substantial periods of time
- Capacity building for Vietnamese academic and managerial staff, including both doctoral programs and staff development
- International curriculum supported by the seconded staff
- Joint degrees; and
• Equipment and facilities assistance and support for training of academic support staff and laboratory technicians.

The Government’s policy is that the new Greenfields NMUs, should work closely with an international strategic partner, in the form of a group or consortium of universities from a selected country. For HUST this is a Consortium of French Universities, endorsed by the government of France. The universities in the consortium groups agree to provide:

• strategically targeted assistance for university leadership and academic development, including support for establishing new governance in an autonomous operating environment
• assistance with development of research and teaching programs and access to advanced curriculum and research methodology led by experts from the consortium
• provision of some leader academics to staff selected positions in the NMU for a period of 5-10 years; and
• access to scholarships for tuition for PhDs in France, in consortium universities, as a contribution to the training of higher qualified personnel to become research/teachers in the NMU in due course.

To ensure a sound grounding for the NMUs it is expected that the breadth and depth of capacity building requirements will be substantial, and, even with the significant contributions from strategic partners, will require supplementary funding from the loan provisions. Recommendations on the nature, range and depth of the capacity building requirements are set out in summary in the Components A & B of the RRP loan proposal. This funding will need to be coordinated carefully with the strategic partners to ensure the most effective and efficient processes and to reduce the risk of duplication of resources and contradictory approaches to the technical development work.

Accordingly, this proposal includes provision of a level of Capacity Building to be funded from the loan, to fill the needs in the Establishment Phase of HUST. These are set out in detail in Annexes 4 and 5 of this sub-project proposal.

Proposed Discipline Mix

HUST will be a multi-disciplinary science focused university with both undergraduate and post-graduate programs, and an increasing emphasis on new research in applied sciences and technology. The discipline mix has been proposed by MOET and VAST, after consultation with the French consortium. It is designed to fill needs in the future High Tech Park and in the nation for high level knowledge and skills in science and technology most closely aligned to future industrial needs. The recommended mix is an appropriate basis for future expansion as facilities and recurrent financing become available to support a more comprehensive program of studies and research.

Discussions amongst MOET, VAST and the French consortium have centred on a proposal that postgraduate study and research at HUST should be inter-disciplinary in nature, and focus on six main themes. Earlier proposals by VAST had envisaged that research would be organised around eight key disciplines: Mathematics, Physics, Chemistry, Biological Sciences, Information Technology, Materials Science, Energy, and Environmental Technology.

The ADB consultants concluded that there was no inherent conflict between having inter-disciplinary themes as the organising principle for postgraduate research and teaching and
having enabling disciplines as the organising principle for undergraduate teaching, but noted that it requires a mechanism to allow for appropriate blending so that Bachelors attain adequate mastery of basics in science to support inter-disciplinary application in postgraduate research activities. Accordingly a new structure is recommended. It expands the “energy” theme to cover an engineering science programme, built on a generic electrical and electronics core, but emphasising instrumentation and measurement, modelling, design, and control systems. The programme would address a major industry demand and provide graduates able to contribute to research in all the themes. The themes and disciplines would then be:

<table>
<thead>
<tr>
<th>Undergraduate Disciplines</th>
<th>Research Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>Biotechnology and Pharmacology</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Aeronautics and Space</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Energy</td>
</tr>
<tr>
<td>Materials Science</td>
<td>Materials and Nanotechnology</td>
</tr>
<tr>
<td>Engineering Science</td>
<td>Water, Environment and Oceanography</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
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</tbody>
</table>

The TA Team, basing itself on the MoET proposal for HUST, drew up plans for the HUST campus on the basis that its initial capacity should be 5000, with 3,600 undergraduate students and 1,400 postgraduate students. MoET has not queried these figures, though a capacity of 8000 students has figured in discussions between MoET and the French international partners.

To analyse space and staffing requirements, and find reasonable solutions, basic assumptions have had to be made about possible administrative and academic structures for the university. The new campus has been planned around six theme-based Research Institutes; seven discipline-based Teaching Departments (in two Faculties); and a Learning Resources Centre, including the Library, the Educational Development Centre; and a Centre for Teaching and Learning Excellence. The simplest arrangement of the undergraduate Faculties might be as indicated in the following table:

<table>
<thead>
<tr>
<th>Applied Science</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Materials Science</td>
</tr>
<tr>
<td>Biology</td>
<td>Engineering Science</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
</tr>
</tbody>
</table>
This proposal does not cover the construction of a specific Technology Transfer Institute within the boundaries of HUST. Detailed plans have already been made for constructing business incubators at the Hoa Lac High-Technology Park, and, in the spirit of collaboration between the university and industry, development of the TTI would ideally be integrated with, and perhaps funded through, that project. The HUST Industry Engagement Centre recommended below, however, will be the focal point for ensuring effective links with the HHTP Industry Incubator which is elsewhere in the Park. The TA Team’s proposals for the HUST campus have been designed and costed on the basis of the discipline mix above.

Predicting future enrolments is difficult, because student choice plays a key role. For the purposes of campus planning the consultants concluded that the best strategy was to distribute undergraduate EFTS equally between teaching departments, and design buildings with sufficient flexibility to ensure that adjustments could easily be made to cope with variations from the initial position. In practice, the allocations for Chemistry and Biological Sciences were increased to 600 EFTS, with the other departments receiving 480 EFTS, in order to encourage a supply of graduates with the skills and motivation to contribute to the environmental aspects of the research themes. Most of the Research Institutes have been planned for 250 EFTS, but the Aeronautics and Space theme has been set at 150 EFTS because of concerns about job market relevance.

Links to Industry and Options for Public-Private Partnerships

An essential feature of a high quality university is that the outputs in graduate knowledge and skill are directly relevant to the needs of the economy, in the form of demand for skilled employees. To support the development of such quality graduates modern universities forge close links with industry representatives, to engage them in both regular consultation about emerging needs for knowledge and skills, and to undertake research and teaching programs that are directly tailored to fit the needs of industry. There are also many advantages to universities if they can attract co-funding from industry for the conduct of research that is relevant to industry development and to ‘add value’ by supporting the commercial development and exploitation of research outputs. This investment can be in single targeted programs, of via scholarships, or in more strategic longer-term relationships, often in the form of a formal contract for a public-private partnership.

To attract this type of business-industry financing, the HUST will need to:

- Establish regular interaction with industry, and undertake regular needs surveys to understand industry needs for education, training and research services
- Set up knowledge exchange and technology transfer services, especially in cooperation with the High-Tech park and other industry parks and their investor enterprises
- Develop industry internship programs with industry for university undergraduate and postgraduate students and researchers; and
- Understand and make full use of the provisions in existing laws and regulations, especially in relation to incentives for technology transfer and intellectual property rights.

The ADB loan funding proposal identifies Technical Assistance to be available to help establish structures and processes in HUST, including an Industry Engagement Office that will have responsibility for assisting the academic faculties in building relationships with industry and other potential users of their knowledge, expertise and technologies. Such an office will
be a permanent feature of the university and be supported through the operational cost programming to be developed for HUST. As mentioned above, this office will be the focal point for fostering close links with the HHTP Industry Incubator.

In addition to the potential for public-private partnerships to develop and exploit intellectual property from research outputs, there is also an option for HUST to consider the benefits of public-private partnership contracts to support the future capital investment for the growth of the university. Such contracts could be sought to finance the construction of specific infrastructure. This could be in the form of industry support for construction of a particular high-tech laboratory or high-cost equipment item(s); or it might be in the form of an agreement for private investors to build the student dormitories and / or staff housing on the university grounds in return for rights to collect rentals for a specified number of years before the asset reverts to public (university) control.

In respect of housing this may offer opportunities to reduce the initial or later call on the state budget for capital for an asset that will generate its own stream of income. As matters stand, the TA Team’s proposals for the campus include provision for dormitories to be financed from the loan, but not staff housing. Given that it is proposed to pay academic staff at NMUs significantly higher salaries than at other universities, they should be able to pay economic rents. Staff housing may therefore be suitable for private finance.
English as the Medium of Instruction

English will be the principal medium for instruction in HUST. This is to underpin, and reinforce, the international character of the university, and to ensure that a good platform of skill is available for students and staff to have ready access to the full range of publications in science and technology to ensure that all research and teaching is able to be informed by the latest scholarship in the world. The largest number of publications presenting updates in knowledge is published in English language international refereed Journals, and the university needs to have quick access to them. Students and researchers also need to publish in English to ensure the optimum opportunity for international recognition of their research, and eventually to contribute to HUST being able to gain inclusion in region and world class ranking lists.

The design specifications for HUST include language laboratories, to support HUST establishing a program of English and French language support for students and for Vietnam Staff who may need intensive assistance to upgrade English to a grade sufficient for study and publication in English. (This is usually at 7.0 IELTS) HUST will also support its foreign students in the study of Vietnamese.

HUST may have options to offer to assist the costs of this English Language Training (ELT) for limited numbers of those highest quality persons who they wish to attract as students or staff, and/or for those most in need as part of equity funding programs. Where the costs for provision of this ELT are so offered, they should be managed via the mutual service agreements (described further below) – ie HUST will outsource the provision of the services, either within the internal language laboratories, or in other facilities, for the costs of ELT for selected personnel and students. The policy on such subsidy should be determined by the President and the University Council in the context of developing its student and staff recruitment plans, and consistently with the recurrent funding that is included in the 3-5 year negotiated funding agreement with MOET. It should be noted that elsewhere in this report the TA team has offered information on recurrent funding assumptions for HUST, but has not factored in costs of free or subsidised provision of ELT to prospective students.

5 Campus Design and Development

Location at Hanoi High Tech Park (HHTP) Education Zone

This university is to be located in the Hoa Lac High Tech Park, within the Hanoi city area. The HHTP is being developed by the Government, under the ownership and guidance of the Ministry of Science and Technology. An Education Zone of 108 hectares is defined and a master Plan was approved for it on 19 June 2009. It will include HUST, with 64.8 hectares, and the private FPT University (which has commenced its site works) and other as yet unspecified training centres.

Currently the site is mainly occupied by the military using it for training purposes; but there are also nearly 200 households that will be affected economically by the new development. The TA Team has prepared, and sent to MoET, a separate report on the resettlement of the current occupants, for which provision is made in the cost estimates.

Modern Infrastructure for Research laboratories and Teaching facilities
HUST will be developed with modern infrastructure and campus facilities designed to international construction standards and international university space and facilities usage standards. Details of the construction norms are set out in Annex 6:

Sharing Facilities with VAST

During the first five years of the Establishment Phase HUST will share facilities in a purpose renovated space at the VAST. Students will have access to the VAST laboratories for initial studies. The architectural design and construction of the Hoa Lac campus is expected to take at least five years, with plans for the new campus to be ready in time for the commencement of the 2015-16 academic year in September 2015. During this time it will be necessary for the HUST to continue to use the temporary facilities in VAST throughout, as it is NOT appropriate for incremental transfers to partially completed campus. The laboratory equipment must be maintained in clean and dust free environments to avoid major failures or permanent damage that may be caused to expensive and sensitive equipment. The noise and disruption at a partially completed site will be a serious disadvantage to students and staff, and would impede the development of a positive reputation of the university from its earliest years.

6 Operating Requirements to Underpin Attaining International Standards

Adopting international best practice for governance and autonomy in management and operation

In Annex 13 to its Final Report the TA Team has set out certain assurances and conditions which it is proposed should be agreed between MoET and the ADB before the loan is made. These include:

- Provision for the university be fully autonomous, including a specific regulation that devolves MOET’s current operational management controls to the University Council; and which establishes a unique charter that empowers the University Council and President to take executive decisions about the full range of activities required to deliver high quality research and education services to students; and which also requires the university to make comprehensive accountability reports to the government on an annual basis.

- Provision for recurrent operating cost via a special regulation that authorizes MOET to negotiate a five year rolling funding plan that allows a level of funding based on the special needs for its establishment and consolidation phases (up to the first 10 years). For the Establishment and consolidation phases this financing will be separate from, and not bound by, the normative based financing regulations of the higher education system. This is to support a higher concentration of resourcing that is needed to establish a university developing from a Greenfields site, and to support it to attain higher international standards in research and teaching.

- Provision to ensure that full academic freedom will be protected, and all appointments of leaders and staff will be based on merit criteria, after transparent selection procedures. The TA Team has recommended that to give real effect to autonomy, all staff should be employees of the University, rather than of the Government, and should not be subject to Government regulations on salary and conditions. It is recommended that the University Council should set the guidelines for its engagement policy, and may vary provisions for salary and conditions in employment contracts to support a strategy of seeking the highest quality staff for
appointment, whilst also ensuring that contracts are responsible and affordable within the resources available to the university from government operating grants and external sources. Appointments of management and academic leaders should be based on international searches and (except for some exemptions in the foundation appointments) should be made by the University rather than the Government, and will be accountable to the Rector, who is in turn accountable to the University Council. The University Council itself should be accountable to the Government for the good governance of the University and for performance of the university in meeting academic and research objectives.

Governance

As a university demonstrating ‘new model’ ways, the TA Team recommends that HUST will be established and have autonomous powers to manage all strategic planning, operational management and academic matters for the university. This means in practice that the most senior management office holder can operate the university after the style of a corporate ‘Chief Executive Officer’ (CEO), with full responsibility to manage the operations of the university, under the guidance of the University Council and answering to the Council for performance in managing the university; and overseeing the accountability of the university to the Government via submission of detailed annual reports. As an autonomous university, it is recommended that HUST will have these features:

- A University Council, with powers to determine the numbers of its members and the type and range of skills and experience its members should bring to ensure the university has access to the most suitable direction and management appropriate to its mission and stages of development, and to appoint its own members and Chair of Council, and the Rector of the University after conducting international and Vietnam-wide searches for the most appropriate persons for all positions. The Council should have the ultimate authority in the university and be responsible for strategic direction, approving internal organisation and procedures, and for overseeing accountability to government and to the people.
- A Rector supported by a Senate, to provide executive management and day to day control. The Rector should be the Chief Executive Officer of the University, appointed by the Council after an international search, on merit criteria only, and responsible only to the University Council for performance. The Rector is also the Chair of the Senate. Vice-Rectors will also be appointed by the University council to assist the Rector in specific fields of management, as may be determined by the University Council.
- An Academic Board/Science Council, comprising the senior academic leaders, chaired by the Rector, and responsible for all determinations for academic planning and development, standards and outcomes.

These features are for the ‘Consolidation’ and later ‘Growth’ phases of HUST. Independence in making appointments is critical to eventual success in developing the highest international standard universities and should be the norm for NMUs. But it is recognised that, for HUST, as a matter of practicality for its situation as a ‘Greenfields’ development, the first, appointments to the Council and to the positions of Rector should be made by the Government. These terms should be for a limited time, and the first Council and Rector’s key responsibilities will be to establish the longer term normative criteria and procedures for the university, and then use them to make its own selections for subsequent terms.

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4 Details of these phases are set out further at Annex 2
Governing Council Membership

For the first term of the Council, members should be selected by consensus between MOET and the French consortium. It is recommended that the two organizations apply the recommended criteria as far as possible. The first members should be initially appointed by the Minister for Education, with the co-endorsement of the French consortium, to serve for a term of not more than five years.

To respect the spirit of full autonomy, and to enhance the growing reputation of the university, the members of the second and subsequent Councils should be selected by the university after an extensive national and international search using merit criteria (as set out in the Section 5 and in Annex 1). University nominees may be endorsed/verified by the Minister for Education.

Criteria for members of the University council can appropriately reflect the interests of key stakeholders, including the VAST and industry that the HUST will primarily serve. The critical factors are that no one should expect to be appointed as a representative of any other body with a mission to influence the university management to serve the interests of that external body. Each member should be appointed as an individual having first and only responsibilities to serve the management and development interests of the HUST and its mission to serve the national and regional interests. It is recognized that the university has interests and responsibilities to support the skill needs of the region and as such there may well be some commonality of interests between the HUST and Council members who have appropriate knowledge of general regional needs.

It is recommended that the membership of the second and subsequent Councils should have high weighting given to appointment of external representatives, including industry, up to about 70-75% of the Board to reflect the aspirations for HUST to be well aligned to and supportive of Vietnam’s objectives for expanded industrial development.

At the time of finalisation of this report there has been no substantive discussion with MOET on the TA recommendations for governance or financing for NMUs. At the Final Review Mission MoET responded that:

- it had developed a charter for VGU which it proposes to apply with adjustments to the other NMUs, and invited the French consortium and the TA Team to note any amendments to that which in their view were desirable; and that
- MOET would fulfill its obligations to support the NMUs as public universities and were working on a mechanism, again using similar approaches adopted for the VGU, to give effect to that, but no firm details are available on the nature of mechanism that MOET has in mind.

The TA team notes that the draft regulation includes cumbersome processes that will create inefficiencies in operation and has potential for lack of clarity between the strategic role of the Council and the Executive role of the Rector. Over time the highly bureaucratic structure and potentially conflicting roles likely to inhibit the strong development of the university with close links to industry, because industry sponsors may not see reasonable scope to bring its skills and experience to influence the programs of relevance to industry, and that in turn could reduce potential for industry investment in the growth of the university.

Regarding an adequate level of recurrent funding, in the TA Team’s view, the level (including fee and contract income as well as subsidy from the State Budget) needs initially to be at least an average of $4000 per student, and to increase over time as the university progresses towards international standards. The mechanism also needs to be flexible, and ensure a clear
legal basis to avoid delays in payment. At the wrap-up meeting for the Mission the ADB representative emphasised that the four components of the loan – A, B, C and D – were a single package; there could be no agreement on the loan for buildings and equipment without agreement on the policy and regulatory framework. Accordingly the TA Team recommends that there be further work between the ADB and MoET to address matters covered by the proposed assurances in order that loan documentation may be prepared for the approval of the ADB Board.

**Staff appointment on Merit Criteria**

It is recommended that the normative principles to apply in HUST will be consistent with those of a fully autonomous ‘new model’ university, such that all selections for appointment to senior staff and for professorships should be the responsibility of the Rector, with accountability to the University Council. The Rector shall oversee competitive selection processes that are based only on academic qualifications, and relevant experience in teaching and research (and academic leadership for Deans). Senior positions must be full-time HUST positions and must be based on both international and national searches.

In the Establishment/transition years, similarly as for the appointments of leadership positions, it is recommended that there be special arrangements for the selection of academic and academic/laboratory support staff. There will be four categories of staff:

(a) staff from VAST who work in HUST part-time as foundation support staff; and

(b) Staff appointed to full-time positions who are Vietnam nationals from VAST and other Vietnam system universities who possess high technical qualifications but who have not had access to experience in research and teaching in international standard universities, but who are assessed as having good potential to quickly acquire the additional modern skills – these will be eligible for support to do so through the academic Capacity Building program; and

(c) staff appointed to full-time positions who have trained in foreign international standard universities (including foreign citizens, Viet Kieu and Vietnam citizens) who have had more than three years of experience working in foreign international standards universities – these must meet the required merit criteria in advance to be selected.

(d) Expert personnel who are made available under donor programs by an international strategic partner, as part of the partner’s development program, plus visiting Professors or Fellows who are procured for specified services on Technical Assistance contracts, who are appointed to in-line teaching and research positions to offer academic leadership by providing normal teaching and research operational functions, as well as contributing to specific academic development activities under the capacity building program.

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5 Article 27-29 of the draft Charter for HUST discussed between MoET and the French international partner deals in general terms with the use by HUST of staff currently employed by VAST. It appears to envisage mainly full-time permanent transfers of staff. The arrangements discussed in this report are those which the TA Team believes to be in the best interests of HUST, and do not follow in all respects the provisions of the draft charter.

6 These visiting academic staff in in-line positions are to be distinguished from off-line academic advisers who may also be appointed on TA TORs for supporting the capacity building program, but who do not work as operational staff nor provide any direct teaching or research services. However, both in-line donor staff and off-line capacity building advisers may work together in teams to support the academic development program.
The staff in category (a) will teach part-time in VAST and in HUST, with the mix of time to be determined by the Rector of HUST and the President of VAST balancing the skill requirements and resource needs of HUST and VAST. They will be selected initially by the President of VAST in consultation with the new Rector of HUST for a duration not exceeding the Establishment/Transition phase. In making these selections the two leaders will take account of the merit criteria (specified below), tempered by the option to offer these part-time opportunities in HUST to VAST staff who have high reputation for strong technical knowledge in their discipline, but who many not have had access to opportunities to acquire new teaching methodologies or sufficient English language to be able to immediately teach in English (which will be the standard for HUST). These staff will have access to the program of academic capacity building in the Establishment Phase as described below.

Staff in category (b) should be selected after a national search based on academic merit (and academic leadership for management positions, eg Deans). No full-time appointments should be based on a preference for staff of any other university, including VAST, although VAST academics shall not be excluded from consideration for appointment to the full-time faculty of HUST.

Vietnam national Staff in Category (a) – part-time or (b)– full-time - will be appointed to HUST positions on a probationary basis until they have undertaken the initial professional development to be offered under the Capacity Building Program. This program will be available to all Vietnamese staff who have not had exposure to the international standards for teaching and research characteristics of modern universities, and will aim to enhance these skills, and where necessary, English language, to bring local staff to international standards. Full-time staff may not be confirmed with long term contracts until appropriate standards in modern methodology are demonstrated. Criteria for assessing effective teaching skills will be developed and applied in the initial selections and for the staff exiting the academic capacity building program. (TA can be available to assist in the development of these criteria and the assessment methods).

Full-time staff in category (c) may be appointed on contract terms according to the policies adopted by the Council to attract the best foreign talent. These staff will also contribute as trainers in the Capacity Building program for the other category staff. Merit criteria that require possession of high technical discipline based qualifications, and skills in modern teaching and research techniques and ability to develop new responsive curriculum will be established and endorsed by the University Council in the Establishment period. An example of the merit criteria used in many international standard universities is in Volume II, Academic Development Paper C. of the TA Mid-Term Report.

In the establishment period it should be a management target that a portion of staff (not exceeding 30-35%) may be part-time staff shared with VAST. These staff may not qualify for appointment to any HUST full-time position until at least after the full establishment period (to protect the retention of experienced staff in VAST). Two options for managing the use of shared part-time staff are available and should be decided by the Rector in due course:

- Shared part-time staff may either be appointed to positions at both universities (eg to VAST for their time teaching there, and to HUST for their time teaching there; or
- the staff of VAST might remain as full-time positions at VAST and be ‘contracted out’ to HUST by VAST under the service agreement suggested below, and then be paid a supplement allowance by VAST from the revenue gained from HUST.

Approach for Managing the Financial Arrangements of VAST and HUST Separately
Where VAST and HUST use each other’s resources (e.g., staff of one VAST teach at HUST, or classes from HUST use the laboratory facilities of VAST), the institution supplying the services makes a charge to the institution using them. The cost estimates and income for these services should be built into the budgets of each of VAST and HUST, so that costs proper to each institution are fully identified and paid for under the separate system of each. These charging mechanisms might best be set out in specific service agreements between each university. Similar ‘service agreements’ for shared resources and joint use of common facilities or property are a common feature of many universities in developed countries, and the HUST can obtain assistance in developing them from experienced experts using funds under the capacity building provisions of the ADB loan (for Component 1).

Roadmap for Development through Phases

The development of a new institution takes a long time. For a university to plan and manage its establishment it is estimated that an overall time for it to be fully established and recognised by peers and community will up to 10 years; to reach recognition for international standard could take up to 25-30 years; to reach World Class status will take longer, up to 35 years or longer7. It is unlikely to ever reach this level unless there is a Government commitment from the beginning, before commencement of the establishment phase, to provide continuing high level investment from the state budget on a permanent basis and to ensure its establishment with appropriate autonomy and opportunities to recruit the most talented students and staff.

It is suggested that the HUST be organised through the main phases (and within each there will be sub-phases). The three main phases are:

- **Establishment Phase** – years 1-5 (Loan Duration, + international strategic partner support (if available):
- **Consolidation Phase** – years 6-10 (includes final year of loan support, plus continuing French support at reducing level)
- **Growth Phase** – years 11-15 – (sustainability with Vietnam resources).

A summary of the main activities that will need to be undertaken in the main phases is shown in a simplified presentation format, in Annex 2.

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7 Under Article 4 of its draft Charter HUST strives to attain ranking in the world’s top 200 universities between 2025 and 2030.
7 Cost Estimates

The estimated total cost for investment to establish HUST at its initial design capacity of 5000 is $268.22 million. The summary table 1 below shows the investment.

Table 1: Tentative Project Investment Plan HUST - ($US million) (Loan and Gov only)

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated Total Cost (2009 prices)</td>
<td></td>
</tr>
<tr>
<td>Component A: Establishment of leadership and management systems in NMUs</td>
<td>3.17</td>
</tr>
<tr>
<td>Component B: Establishing Academic Development in NMUs</td>
<td>6.23</td>
</tr>
<tr>
<td>Component C: Construction and Equipping two NMUs (incl project management &amp; cont)</td>
<td>210.16</td>
</tr>
<tr>
<td>Component D: Project Management (for Component A&amp;B) and Implementation</td>
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</tr>
<tr>
<td>Total (1-4)</td>
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</tr>
<tr>
<td>PLUS Contingency, and price escalation (for all components)</td>
<td>27.12</td>
</tr>
<tr>
<td>PLUS finance charges during Implementation and ADF interest</td>
<td>20.53</td>
</tr>
<tr>
<td><strong>Total Investment</strong></td>
<td><strong>268.22</strong></td>
</tr>
</tbody>
</table>

Detailed investment estimates are at Annex 8

8 Implementation Arrangements and Project Management

The TA Team recommends that the management of implementation be devolved to the responsible university based Sub-Project Management Unit; with high level oversight by a Ministerial Steering Committee. A limited role for supporting the implementation will be undertaken by MOET. The rationale for this devolved model is that it offers the most effective and efficient model to manage what will be highly complex requirements; and second that it is an essential part of the demonstration effect of the NMUs.

The Project Management arrangements and structure are detailed in Annex 7.

Procurement Guidelines

All procurement to be financed under an ADB loan will be carried out in accordance with ADB’s Procurement Guidelines (2007, as amended from time to time). There are two main areas for procurement: (i) the TA for capacity building to assist establishment of university leadership & academic development (Components A & B); and (ii) the construction and fit-out of the two university campuses (Components C). The Procurement Plan sets out a strategy for consultant contracts to assist the Executing Agency in overall construction supervision and for overall auditing across both sub-projects; and for there to be contracts at university level for the project management of construction and for the implementation of TA for leadership and academic development to be handled directly at each university SPMU. This responsibility is placed in the SPMUs so the management can be responsive to the specific needs of each campus’s development and pace of activities. Contracts for project management of construction will be based on a multi-phased ‘Design-Build’ model, to reduce costs and time in procurement and to encourage efficiencies in the design and implementation phases.
There will be a Design-Build Manager specifically for HUST. This contractor will provide holistic project management for construction across the whole site. This Design-Build Manager will be responsible for the developing and submitting architectural concept designs in the bidding, and once a decision is made and the contract is awarded, will then undertake the detailed architectural planning, and oversight the conduct of all civil works, all building works, the fitting-out of furniture and equipment, and sourcing and installation of all science laboratory equipment under an integrated construction plan. An integrated construction plan is essential to avoid lengthy delays in procurement and works, and to reduce risks that the Government will incur higher FCDI arising from delays.

The Design-Build Manager will advise the SPMU on and supervise subsequent procurement by the SPMU of the contract packages of civil works, and goods such as computers and laboratory equipment. The Design-Build Manager will be permitted to use substantial sub-contractors for aspects of the construction and fit-out plan, and must use ICB and NCB as appropriate, according the provisions on size of packages. ICB will be used for sourcing of laboratory equipment (except for any supplied by donors). The Design-Build Manager will be an international firm, and it is expected that it will associate with local construction firms and will supervise the undertaking of any Local Civil works for site works preparation and landscape finishing works. These works may be packaged into national competitive bidding if they are below $2.0 million. Prior review will be used in the procurement processes, including equipment.

Three packages of consulting services will be selected using advance recruitment action. These are first for a full-time procurement advisor, who will assist in the procurement of the overall construction manager firm, and the independent audit firm. This advisor will advise the SPMUs on the establishment of their procurement functions and recruitment of staff, and provide short course training to the appointed staff and leadership of the SPMUs. The procurement of the construction supervisor and the independent audit firms will be advanced up to the stage of technical and financial proposals evaluation. MOET may not sign the contract with the winning firms before financing agreement becomes effective, but is expected to be ready to sign both contracts not later than one month after effectiveness. ADB’s support of advance action does not commit ADB to approve the project or to finance the recruitment costs. An outline of the Procurement Plan is at Annex 7.

Implementation Period

The Project implementation is six years, estimated from January 2011 to December 2016. The anticipated closing for the Loan is 30 June 2017.

9 Social Analysis and Equity Access Plan

HUST will experience some difficulties in ensuring policies and services to support attaining increasing levels of participation for all the groups that currently experience difficulties in equal access to HE. In particular the orientation on science and technology will of itself make it more difficult for HUST to be at the leading edge of enhancing access to HE for disadvantaged groups, but it is right that the special opportunities which NMUs offer should be open to all; and in the HUST’s own interest that students from all different backgrounds should be able to compete for places.

Special, pro-active actions are possible and can be implemented, if the appropriate policy for financing is adopted to support the universities to do so. An action plan that can be developed and implemented by HUST to enable and support enrolment of increasing
proportions of students and staff from the special groups is recommended (and is outlined at Annex 9).

Students at HUST should be eligible for the forms of student support available at other public universities, including fee waivers and rebates, and access to Social Policy Bank loans. These schemes will need some adaptation for HUST, so that amounts available to students take account of the much higher fees payable at HUST. Specific proposals are made that the universities should develop and implement their own programs, such as postgraduate scholarships, tailored to the needs of the students that are additional to any entitlements students may have from the normal Government scheme, and that the special financing mechanism recommended to ensure HUST has adequate recurrent financing should include appropriate levels of reimbursement to the universities for fee income foregone as they implement the Equity Action Plan measures.

Equity Action Plan measures include pro-active ways to: (i) ensure reduction of barriers to admissions, with assistance with English language, and preferential access to accommodation in university dormitories and special promotion links with high schools; (ii) special targeted financial assistance, organised and managed through the university’s student support service; (iii) measures to incorporate gender and ethnic sensitive issues into programs and curricula, and special promotions to encourage more women to enrol and to seek teaching positions, for which there are many successful examples available in other countries; (iv) policies to ensure that physical facilities do not present barriers and that adequate transport is available to enable good access, especially for the poor and students with physical disabilities; and (v) measures to invest in continuous improvement of the approaches over time by ensuring the collection and analysis of quality data on enrolments and progress of students from disadvantaged groups. Technical Assistance for each university to assist in developing the initial detailed policies is included in the Capacity building programs for funding under component A.

A more detailed analysis and outline of the recommended Action Plan is at Annex 9.
Annexes:

1. CORE PRINCIPLES FOR NMUS TO ATTAIN INTERNATIONAL STANDARDS
2. ROADMAP FOR PHASES FOR DEVELOPMENT TO 2025
3. INDICATIVE RECURRENT FINANCING REQUIREMENTS FOR HUST OPERATIONS OVER THREE PHASES TO 2025
4. COMPONENT A: UNIVERSITY LEADERSHIP AND MANAGEMENT CAPACITY BUILDING PLANS
5. COMPONENT B: ACADEMIC DEVELOPMENT CAPACITY BUILDING PLANS
6. COMPONENT C - CAMPUS CONSTRUCTION AND DEVELOPMENT PLANS
7. COMPONENT D: SUB-PROJECT MANAGEMENT AND IMPLEMENTATION
8. DETAILED COST ESTIMATES
9. EQUITY ACCESS PLANS FOR THE POOR, ETHNIC MINORITIES AND WOMEN
Annex 1

Core Principles for NMUs to Attain International Standards

A research university is a creator of new knowledge, through research, a synthesiser of knowledge through scholarship, and a disseminator of that knowledge through teaching.

To be accepted as having developed into international standard research university each of HUST and DIU will have to demonstrate that it fulfils these criteria:

- Be operating as a university offering the full range of courses for bachelor degrees, masters degrees and doctorates; and

- Have a high reputation for its courses, research and service, and be held in high esteem by peer institutions and their staff, not only nationally but also internationally.

The indicator measures for this recognition will be:

- Ability to attract the best qualified and most able students
- The proportion of academic staff with doctorates from high ranked institutions in Vietnam and other counties, and the international experience of those staff
- The rigour and relevance of its academic programs and their responsiveness to the rapidly changing needs for knowledge to serve the discipline and society, its internal quality assurance system for sustaining the rigour, and for continuous improvement to maintain relevance to modern labour market demands
- The success of its graduates in professional employment or in further study at leading overseas universities, especially where Vietnam graduates win competitive overseas scholarships
- The quality of its research as measured by publications and citations, external research grants and partnership links with industry; and
- The standing and reputation of its international partners.

In addition the concept of an ‘international’ university is more than the quality of programs, the teachers and the graduate outcomes alone; it also includes a notion of a ‘community of scholars’ that both enables and encourages inter-communication for the generation of innovative thinking and approaches and has the resources from a critical mass of students and staff, and research funding, to develop new programs of research and teaching to translate the innovation into high quality academic outcomes.

In Vietnam, to establish the NMUs so that they can become true international standards research universities, taking account of the issues in the current higher education system (as outlined Annex 1) the Government must make a number of core reforms to the regulations that govern the operations of universities to provide the necessary enabling environment for the NMUs to realise these objectives; and the NMUs will need to take the responsibility for using the new enabling environment creatively and appropriately to develop the standards required and produce the results in student outcomes and new knowledge supporting accelerated economic development.
The following have been identified as the minimum principles and features that will be needed in Vietnam to establish and to sustain HUST and DIU as New Model universities reaching the status of international standard research universities and are the TA Team recommendations for further consideration by MOET:

1. Each will be a **fully autonomous research university** operating on a specific regulation that devolves MOET’s current operational management controls to the University Council; and establishes a unique charter that empowers the University Council and President to take executive decisions about the full range of activities required to deliver high quality research and education services to students and required them to make comprehensive accountability reports to the government on an annual basis.

2. Each will receive state budget support for **recurrent operating cost via a special regulation** that authorizes MOET to negotiate a five year rolling funding plan that allows a level of funding based on the special needs for its establishment and consolidation phases (up to the first 10 years) that is separate from and not bound by the normative based financing regulations of the higher education system. This is to support a higher concentration of resourcing that is needed to establish a university developing from a Greenfields site, and to support it to attain higher international standards in research and teaching.

3. Within the autonomy of DIU and HUST, **full academic freedom** will be protected, and all **appointments of leaders and staff will be based on merit criteria**, after transparent selection procedures. All staff will be employees of the University, rather than of the Government, and will not be subject to Government regulations on salary and conditions. The University Council will set the guidelines for its engagement policy, and may vary provisions for salary and conditions in employment contracts to support a strategy of seeking the highest quality staff for appointment, whilst also ensuring that contracts are responsible and affordable within the resources available to the university from government operating grants and external sources. Appointments of management and academic leaders will be based on international searches and (except for some exemptions in the foundation appointments) will be made by the University Council rather than the Government, and will be accountable only to the University Council. The University Council will be accountable to the Government for the good governance of the University and for performance of the university in meeting academic and research objectives.

**Government Regulatory Action to allow for the application of core principles for New Model Universities**

The Government should embed these principles into a new regulation for each NMU which contains its Charter, which should give the University Council full authority to manage all the internal affairs of the University – including:

- making all management and staff appointments
- the role and operating procedures for all committees – including the University Council, the President’s Board, the Academic Board and Faculty Boards
- the academic strategy, the research priorities and teaching programs
- the discipline mix and how the disciplines are configured into faculties and programs
• the curriculum, including its development by members of staff of the University, or if it is to be acquired from other universities, whether purchased or shared

• the methods of teaching, and how teaching and research should be integrated

• the academic standards, as indicated in admission policies and practices, and policies and practices for the assessment of student learning

• links to external organisations – other universities and industry for collaborative research and teaching programs and international associations

• all aspects of financial management – generating revenue from tuition fees, service charges for other links with academic partners and industry investors, and linking these measures with priorities for the academic programs

• all aspects of employment management – strategies for building a concentration of talent, methods for selecting academic and administrative personnel on merit criteria, policies for remuneration and conditions of employment including the right to hire all staff as university employees rather than as civil servants attached to MOET and for determining the conditions for the allocation of titles (e.g. Professor) and promotions

• the capital assets of the University – all buildings and equipment, land use, bank accounts and investment funds

The Government should guarantee to ensure each New Model university has adequate resources to support its development from the ‘Greenfields’ start through to status as an international standard research university. This support should be guaranteed for at least two phases, Establishment and Consolidation, lasting up to ten years from approval as a university by the Prime Minister.

The provision of recurrent financing resources should be undertaken in a manner that will allow the greatest flexibility to ensure the level and process for payment is fitted to the emerging needs of the university, and is affordable within the state budget. It is recommended in Vietnam that this will initially be more appropriately achieved using a special Multi-year Performance-Resource Agreement that can be reviewed on an annual basis, to allow for variations in the pattern of development. Use of normative state formulas will be too constraining and will not be flexible enough to cater for special early development investment needs in recruiting and training new academic and management personnel, and the establishment of basic research capacity, and will be too uncertain until a stable pattern of enrollment is established.

The Agreement should contain Government required performance targets for quality and outcomes, accompanied by resources adequate to support the university’s achievement of the required outcomes, and performance criteria for the MOET/MOF to make the payments in a timely manner. The recurrent financing agreement should allow for adequate resources to meet teaching and base research activities, and to support an appropriate regime for subsidy of tuition fees for equity students, and for supporting the university’s plans for special merit scholarships to attract the highest quality students (which are additional to the student’s eligibility for the Government’s standard student allowances).

The initial overall level of operating funding to the university should be at least equivalent to an averaged unit subsidy of $US4000 per student, (at 2009 costs equivalents, adjusted for
price movements). It should be expected by the Government that this averaged level will need to be increased on a regular basis as the university matures, in order to keep up with continuous development needs, and until there is sufficient momentum in programs for research and enrolment that can support reasonable attraction of other financing sources. The Agreement should not impose any unreasonable constraints on the university’s freedom to manage deployment of the elements of the funding.

In Vietnam, to allow for this new special form of government operating subsidy to be paid to the NMUs, it may be necessary for the Government to approve a new special enabling regulation that authorizes MOET to negotiate two five year rolling funding plans. This should exempt the NMUs from the normative financing provisions of the existing higher education regulations, and exempt the staff from public sector employment regulations, allowing for specific employment under each university’s authority and funding.

**NMU Responsibilities**

Each University Council will be responsible for the good governance of the University and for performance of the university in meeting academic and research objectives. Each University must be accountable in a fully transparent manner to the Government and the People for their stewardship of the public funds and for education performance. The Charter/Regulation will require the university to make comprehensive accountability reports to the Government on an annual basis, on its outcomes in quality of learning and research and its use of the state budget funds. The annual report will include an audit report of the university accounts conducted by an independent auditor using international standards of auditing. On receipt of annual reports the Government will review and may reset outcomes targets, and may offer comment on the policies and practices adopted by the University for achieving them.

All accountability reports to the Government should be published each year by each university, in hard copy and on the university web-site, for general availability to the public.
During the Establishment Phase there will be numerous areas of planning and implementation to prepare the university for full operation in the ‘consolidation’ stage, during which it can move more rapidly to the full design capacity for student load, and consolidate the teaching and research development. Recommended roadmap steps for establishing the university governance and the management and administration systems are set out below in figure 4.

**Figure 4 - Roadmap for Establishing Governance and University Management and Administration Systems**

<table>
<thead>
<tr>
<th>Preparation 2009-2010</th>
<th>Establishment Part 1 - 3 years-</th>
<th>Establishment Part 2 – 2 years –</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Agree Charter and Government Regulation</td>
<td>- First Council establishes an Academic Board and other Council committees.</td>
<td>- First Council is renewed by new Council selections–</td>
</tr>
<tr>
<td>- Establish NMU as University</td>
<td>- First Council approves operating guidelines for the functioning of the Council and of its committees.</td>
<td>- New Council to search and recommend second Chair of University Council.</td>
</tr>
<tr>
<td>- PM Approve Charter</td>
<td>- First Council develops legal and financial instruments for the University.</td>
<td>- New Council to review all University policies and procedures.</td>
</tr>
<tr>
<td>- First Council is appointed by MOET – one-half for 5 years and one-half for 2.5 years.</td>
<td>- First Council approves an academic and an administrative management structure for the University, and establishes policies for recruitment of an academic leadership.</td>
<td>- New Council to recruit and recommend second Rector by end of 2015.</td>
</tr>
<tr>
<td>- Chair of the First Council is appointed for 5 years.</td>
<td>- First Council determines the academic strategy direction and priorities for the University.</td>
<td>- University to occupy new buildings and to commence full operation by <strong>September 2015</strong>.</td>
</tr>
<tr>
<td>- Rector of the University is appointed for 5 years by MOET, after recommendation by French consortium.</td>
<td>- Rector commences the process of making key academic and administrative appointments.</td>
<td></td>
</tr>
</tbody>
</table>
Annex 3

INDICATIVE RECURRENT FINANCING REQUIREMENTS FOR HUST OPERATIONS OVER THREE PHASES TO 2030

Figure 1: Three Main Phases of Development, Sources of Operational Funding within a Special Funding Package – potential change over time

<table>
<thead>
<tr>
<th>2010-2015</th>
<th>2016-2020</th>
<th>2021-2030</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESTABLISHMENT</strong></td>
<td><strong>CONSOLIDATION</strong></td>
<td><strong>EXPANSION</strong></td>
</tr>
<tr>
<td>Gov Recurrent</td>
<td>Gov Recurrent</td>
<td>Gov Recurrent</td>
</tr>
<tr>
<td>60%</td>
<td>45%</td>
<td>42.5%</td>
</tr>
<tr>
<td>Gov Research</td>
<td>Gov Research</td>
<td>Gov Research</td>
</tr>
<tr>
<td>20%</td>
<td>20%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Tuition +Other</td>
<td>Tuition +Other</td>
<td>Tuition + Other</td>
</tr>
<tr>
<td>20%</td>
<td>35%</td>
<td>45%</td>
</tr>
</tbody>
</table>

Recurrent Funding - Cost Assumptions

Recurrent funding estimates are given in the Report to indicate the broad scale of funding which might be needed for the NMUs to work towards their objectives as research universities of international standard and to enable them to get good value from the capital invested in them. More detailed, activity-based funding estimates can only be made by the new managers of the NMUs once the initial academic programs are decided.

The main assumptions is the estimate of $4000 per student per year in 2009 dollars is an adequate initial unit operating cost of a NMU working at design capacity. The factors contributing to this base are:

Figure 2: Cost/Standard Assumptions contributing to operating cost estimates

<table>
<thead>
<tr>
<th>Number</th>
<th>Item</th>
<th>Cost/standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Ratio of academic staff to undergraduate students</td>
<td>20:1</td>
</tr>
<tr>
<td>2.</td>
<td>Ratio of academic staff to postgraduate students</td>
<td>15:1</td>
</tr>
<tr>
<td>3.</td>
<td>Unit cost of employing a member of academic staff per year</td>
<td>$20,000</td>
</tr>
<tr>
<td>4.</td>
<td>Ratio of Academic Support Staff to Academic Staff for undergraduate work</td>
<td>0.5:1</td>
</tr>
<tr>
<td>5.</td>
<td>Ratio of Academic Support Staff to Academic Staff for postgraduate work</td>
<td>1:1</td>
</tr>
<tr>
<td>6.</td>
<td>Unit cost of employing a member of Academic Support Staff per year</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Non-staff costs per student per year</td>
<td>$1500</td>
</tr>
<tr>
<td>7.</td>
<td>Funding for research capability as a proportion of institutional funding in the first ten years</td>
<td>20%</td>
</tr>
</tbody>
</table>
$4000 per student is an institutional average. The actual cost of educating a student will vary widely, depending on the discipline studied, and the type of degree – Bachelor, Master or Doctor. The report emphasises the need for unit operating funding to grow over time as NMUs work towards higher standards, including the goal of WCU status.

The annual cost of repaying the loan for each NMU is calculated on the basis of estimated capital costs, and assumptions about the loan terms. It is additional to the operating funding quoted above.

Some figures to illustrate costs per student on different courses, and loan repayment costs, are included in the Economic and Financial Sustainability Analysis.

**Recurrent Funding- Financing Assumptions**

The main assumptions for the recommendations for recurrent financing are that:

1) After an initial period tuition fees will support 25% of operating costs in the consolidation Phase and 30% in the Expansion Phase;

2) The Government will provide a subsidy to support the building of research capability, such subsidy to reduce after the first ten years;

3) NMUs will grow income from research contracts, technology transfer etc until it reaches 15% of total operating costs;

4) The government grants for teaching will approximate the difference between total approved costs and the income derived from (1-3) above.

**Table 1: Indicative Operating Expenditure over Time for HUST, by Funding Source – 2009 Dollars**

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>A. Establishment Phase – about 2014</th>
<th>B. Consolidation/ Full Design Capacity, about 2020</th>
<th>C. Expansion Phase, about 2026-2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Students</td>
<td>1580</td>
<td>5000</td>
<td>7000</td>
</tr>
<tr>
<td>Guideline Expenditure per Student</td>
<td>$4000</td>
<td>$5000</td>
<td>$6000</td>
</tr>
<tr>
<td>Total Annual Operating Expenditure</td>
<td>$6.64m</td>
<td>$25m</td>
<td>$42m</td>
</tr>
<tr>
<td>Funding Source</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt funding for teaching</td>
<td>$3.98m (60%)</td>
<td>$11.25m (45%)</td>
<td>$17.85m (42%)</td>
</tr>
<tr>
<td>Govt block funding for research</td>
<td>$1.33m (20%)</td>
<td>$5m (20%)</td>
<td>$5.25m (12.5%)</td>
</tr>
<tr>
<td>Student Tuition Fees</td>
<td>$0.664m (10%)</td>
<td>$6.25m (25%)</td>
<td>$12.6m (30%)</td>
</tr>
<tr>
<td>Income from research contracts, business activities and donors (including international)</td>
<td>$0.664m (10%)</td>
<td>$2.5m (10%)</td>
<td>$6.30m (15%)</td>
</tr>
</tbody>
</table>
partners).

<table>
<thead>
<tr>
<th></th>
<th>Total Annual Income</th>
<th>Income from State Budget</th>
<th>Income from Other Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$6.64m</td>
<td>$5.31m</td>
<td>$1.33m</td>
</tr>
<tr>
<td></td>
<td>$25m</td>
<td>$17.75m</td>
<td>$7.25m</td>
</tr>
<tr>
<td></td>
<td>$42m</td>
<td>$25.72m</td>
<td>$16.28m</td>
</tr>
</tbody>
</table>

Notes to Table 1

1. Student numbers for Col A derive from Tables 6 and 8 on pp 95 and 96 of MTR Report Vol 1 Final. Student Nos for Col C assume growth in HUST to 7000 students and in DIU to 4500 students.

2. Annual Operating Expenditure per Student in 2009 Dollars is projected to grow by $1000 from Scenario A to B, and again from B to C, in line with the Report’s recommendation for gradual increases towards international standards.

3. Total Annual Operating Expenditure in Cols B and C is the product of multiplying the student number by the guide-line expenditure per student. In Col A Annual Expenditure is higher, because of the diseconomies of the Establishment Phase (see MTR Vol I Final C. 8D).

4. Percentage shares for Funding Sources are as in Figure 1 on p.10 of MTR Vol I Final.

5. The “Income from State Budget” line is increased by $1.5m in Col B and by $2.62m in Col C to allow for the fact that some of the Student Tuition Fee income will ultimately derive from the State Budget via Student Support.

Increasing funding per student over time as envisaged in Note 2 will be needed not just to improve provision but also to sustain the asset base in good working order. One Australian research university which publishes its depreciation policy applies straight-line depreciation at rates ranging from 12.5% to 25% to Plant and Equipment, depreciates library stock 100% in the 4th year after acquisition, and allows for 2% reducing balance depreciation on the value of its building stock. It is proposed that HUST should start out with buildings and facilities worth $110m, Equipment worth $61m and Library Stock worth $8m. If it were to follow the example of the Australian university cited, annual provision for depreciation would need to be around $14m. Planning and funding for NMU sustainability needs to be based on a clear policy for depreciation, and funded appropriately.

Annual Recurrent Costs

The next table adds the cost of loan repayments;

Table 2: Total Annual Recurrent Costs for HUST

<table>
<thead>
<tr>
<th></th>
<th>A. Establishment Phase – about 2014</th>
<th>B. Consolidation/ Full Design Capacity, about 2020</th>
<th>C. Expansion Phase, about 2026 -2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Annual Operating Expenditure</td>
<td>$6.64m</td>
<td>$25m</td>
<td>$42m</td>
</tr>
<tr>
<td>Loan Repayments</td>
<td>$0</td>
<td>$12.6m</td>
<td>$12.6m</td>
</tr>
<tr>
<td>Total Annual Recurrent Costs</td>
<td>$6.64m</td>
<td>$37.6m</td>
<td>$54.6m</td>
</tr>
<tr>
<td>Funded from State Budget</td>
<td>$5.31m</td>
<td>$32.55m</td>
<td>$41.65m</td>
</tr>
<tr>
<td>Funded from Other</td>
<td>$1.33m</td>
<td>$7.25m</td>
<td>$16.28m</td>
</tr>
</tbody>
</table>
Notes to Table 2

1. Loan repayments are calculated for a loan of $199m out of OCR at 4.50%, repayable over a 30 year term and a loan of $9.56m out of ADF Hard Terms at 2.22%, repayable over 24 years. In 2014 there would be no repayments because the loan would still be active, but Finance Charges during Implementation will be payable.

2. It is assumed that there will be no re-lending of the loans to the university – hence 100% of loan repayment is born by the State Budget.

3. There might need to be further capital expenditure to accommodate the 8000-10,000 students projected under Scenario C for the late 2020s. No allowance has been included for that.
COMPONENT A: UNIVERSITY LEADERSHIP AND MANAGEMENT CAPACITY BUILDING PLANS

The structure of the component is as follows:

A-1 – Governance, Leadership and Management for Councils and University Leaders
A-2 – University Management and Administrative Systems
A-3 – Student Services

These components (with all sub-components) will be applied in each of the Sub-Projects (HUST and DIU) separately as they are integral to the establishment of each university within its own culture and environment.

Component A: Establishing University Management and Systems

A-1 – Governance, Leadership and Management for Councils and University Leaders

A Capacity Building program for the President, Rector and other key leadership positions, and for members of the Council, to assist them to understand their role in the new autonomous environment and to manage a significant transition to new ways of university leadership and management. This will involve a mix of short training modules, mentoring support and capacity building activities to support the following roles and functions:

- Understanding the charter and roles and responsibilities
- Planning and developing supporting structures of council and the university
- Establishing the long term strategy for new research/teaching/industry integration
- Prioritising for program development and preparing annual operating and financing plans to build research and academic strength
- Planning and managing for high quality personnel - recruitment and development.

The Training Program will support the appointed founding Chair of Council and President, and Council members to establish the detailed structure of the university’s governing system, establish and commence the operations of the range of Council committees and sub-committees, determine the universities strategic directions and prepare University Business Plan for the Establishment Period. It will also support the development and embedding of the internal operating regulations, and the search and selection for the second Council, and President positions.

Resources: ($US) – Est 50 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises. ::8

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8 TA estimates based on unit cost of $15,000 per person month (inclusive of all personnel and support costs) plus software. The Cost Estimates also allow for an additional 15% across all Component A and B items as counterpart funding from Vietnam to cover accommodation, utilities etc.
A-2 – University Management and Administrative Systems

A program of Technical Assistance and training for, and funding to, establish the university management and administrative systems, including:

- Student administration system and operating manuals
- Financial management system and financial operating manuals
- Library Collection Management and Catalogue systems and operating manuals
- Personnel Management systems and operating manuals
- Installing and maintaining all Management Information Systems - data collection, processing and use of data for planning and for monitoring of quality

The Technical assistance will support the establishment of **internal management systems and data collection** for both monitoring of academic inputs and outputs, and for financial management for each university. The NMUs will need to establish new systems, based on the needs of the university to operate at more sophisticated levels of management that are required in an autonomous environment, and to facilitate the financial reporting, annual independent auditing and systematic surveying for quality monitoring that will be necessary to sustain the standards expected of NMUs, and essential to underpin striving for achieving World Class Universities status. These systems will also be critical to the needs of the universities’ to engage in regular evaluation of their own activities to comply with the government’s requirements for accountability under the Performance Agreement (tied to funding) and the external Quality Assurance system. A rigorous system for data collection is also needed to report on the performance Indicators sought by the ADB to measure the achievement of loan objectives. The systems used in MOET and current universities will not be adequate to support the NMUs and should not be adopted, even temporarily while the NMUs are operating in the interim premises. Associated training programs for financial managers and for leaders in financial/resources management will also be necessary.

**Resources: ($US)** – Est 45 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises. This estimate includes software; Estimates for equipment are included in Capital costs.

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9 The amounts shown against the international strategic partner in Annexes 4 and 5 are illustrative. They are not co-financing agreed with the French, and hence are not included in the Sub-Project Cost Estimates.
A-3 – Student Services

A program of Technical Assistance to establish an Office of Student Services, and provide Capacity Building in its operation, including:

- Student Enrolment System and Academic Record Monitoring system
- Student Advisory and Mentoring Service for study and academic support
- Financial counselling and Student Assistance Schemes (fee rebates and other assistance)
- Medical services (referral clinic) and social counselling services
- Employment Services
- Specialised facility to support programs under the University’s Equity Promotion Policies to develop and deliver pro-active plans to increase enrolment of high quality women, students from ethnic minorities and students with disabilities into science and technology courses.

**Resources: ($US)** – Estimated 57 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises; This estimate includes software; equipment is included in estimates for Capital costs
COMPONNET B: ACADEMIC DEVELOPMENT CAPACITY BUILDING PLANS

The structure of the component is as follows:

- B-1 –Centre for Teaching and Learning Excellence
- B-2 – Quality Assurance Centre and Academic Management Systems
- B-3 - Research Support Centre
- B-3 - Industry Engagement Centre
- B-4 – Research/Teaching Equipment Services

**B-1 –Centre for Teaching and Learning Excellence**

This will provide TA assistance to establish a Centre for Teaching and Learning Excellence (CTLE) that has capacity to prepare graduate students to be university teachers and improve the teaching and curriculum development competencies of existing teachers. TA will support the development and embedding into the university systems the following key functions of these centres:

- Upgrading teaching, curriculum, assessment and advisory/supervisory skills of academic staff.
- Integrating research and scholarship into teaching and learning.
- Teaching certification programs for graduate students wishing to become university teachers.
- Programs for graduate students whose first language is not English.

Funds will be available to support curriculum development software that will coordinate curriculum development with assessment design. Additionally, 2-4 full time instructional design consultant should be assigned to the centre and supported by at least one clerical and one technical staff during the establishment period of both universities. Although assessment strategies will become an integral part of curriculum design, additional money will be provided initially to establish a broader university-wide assessment program, with a gradual decrease in funding so that by the 5th year the assessment processes are completely integrated into and funded by the university.

*Details of training and professional development services to be provided through this centre are in Chapter 6A and 6C of Volume I of the Mid-Term Report.*

**Resources: ($US)** – Estimated 43 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises; This estimate includes software; equipment is included in estimates for Capital costs

<table>
<thead>
<tr>
<th>Figures in $US</th>
<th>HUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB Loan</td>
<td>910,000</td>
</tr>
<tr>
<td>Donor (Intl strategic partner)</td>
<td>200,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,110,000</td>
</tr>
</tbody>
</table>

**B-2 Quality Assurance Centre and Academic Management Systems**
This Sub-component will fund Technical Assistance for training and capacity building amongst staff of new model universities to embed a permanent internal QA management service for management and academic staff. The capacity building will include the following activities:

- **Senior management level (including deans of faculties and heads of departments):** understanding new QA and quality culture and development of internal systems to manage all facts of building and maintaining quality and standards in research and in teaching.

- **Staff of Quality Assurance Centres:** training for understanding quality culture and using the systems and processes to support academic staff in development and approval for new programs and for data management and use of monitoring surveys to measure the standards of teaching and learning and complying with national accreditation and QA system.

- **Senior academic staff:** training in short courses for understanding key features of internal quality assurance; strategies that staff may use to monitor and improve teaching quality; the Vietnam quality assurance and accreditation framework; and the use of peer review and other strategies to improve teaching practice.

This centre should also be the locus for managing the University’s own regular research for monitoring quality and using it to feedback into continuous improvement processes. The TA will provide training to establish capacity to design, conduct and analyse data from regular surveys of industry and other key research users’ needs. Graduate tracer surveys could also provide ongoing information about employer needs.

As it forms an integral element of quality assurance, performance appraisal should be integrated with other institutional quality measures. This centre will therefore also be the base for developing and managing plans to assess staff performance. TA will be provided to develop and implement programs dealing with staff performance assessment and counselling, academic leadership and management and managing institutional change.

**Resources: (US$) –** Estimated 75 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises; This estimate includes software; equipment is included in estimates for Capital costs:

<table>
<thead>
<tr>
<th>Figures in US$</th>
<th>HUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB Loan</td>
<td>1,309,000</td>
</tr>
<tr>
<td>Donor (Int strategic partner)</td>
<td>100,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,409,000</td>
</tr>
</tbody>
</table>

**B-3 – Research Support Centre**

This Sub-component will provide TA and support funding to establish the centre and its programs and embed them into the university culture. The centre will provide staff with high level support in designing and publishing their research, applying for grants and providing research training to postgraduate students. TA will provide initial full-time specialist to develop the services and procedures, and to train recruited staff. The centre should have full time support staff supplemented with ‘consultants’ from academic faculties with relevant experience, or from mentor partner universities. The centre should provide assistance in editing papers and guidance in submitting papers to peer reviewed journals, assistance in
research design, research methodology and statistical analysis. Its priority will be to support the university to continually build research capacity and excellence, and to give special support to bring research results to publication to further the university in gaining international recognition and ranking.

Details of specific assistance are in Chapter 6A of Volume I of the Mid-Term Report.

Resources: ($US) – Estimated 69 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises. This estimate includes software; equipment is included in estimates for Capital costs.

<table>
<thead>
<tr>
<th>Figures in $US</th>
<th>HUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB Loan</td>
<td>1,292,000</td>
</tr>
<tr>
<td>Donor (Int strategic partner)</td>
<td>400,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,692,000</td>
</tr>
</tbody>
</table>

B-4 – Industry Engagement Centre

The Sub-component will fund TA to assist in establishing an engagement centre that would have responsibility for building relationships with industry and other potential users of their knowledge, expertise and technologies. The Centre’s priority will be to support researchers to establish connections with companies and other organizations in technology parks and elsewhere to gain a better understanding of their needs, and of the scope for contract research and training, and for joint funding of infrastructure and services and to access industry advice to the university on teaching and research that would be relevant to industry needs. The TA will support the Centres in building competencies in:

- Establishing regular interaction with industry, and needs surveys to gain an ongoing understanding of industry needs for education, training and research services
- Setting up technology transfer and knowledge exchange services, preferably in cooperation with technology parks and their tenants, and specifically with the new Technology Transfer Centres that are planned to be established elsewhere in Hoa Lac High Tech Park and in the new Danang High Tech Industrial Park at Hoa Vang.
- Developing industry internship programs with industry for university undergraduate and postgraduate students and researchers
- Understanding and making full use of the provisions in existing laws and regulations, especially in relation to incentives for technology transfer.

Detailed information on Industry Engagement Centre is in Mid Term Report, Volume II, Part I, Financial Frameworks, Paper A.

Resources: ($US) – Estimated 47 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises; This estimate includes software; equipment is included in estimates for Capital costs.
B-5 – Laboratory Management Centre

This Sub-component will provide funding and TA to assist the establishment of a Laboratory Management Centre and a centralized workshop system to provide for the maintenance and repair needs of the laboratories and the broad base of Technician knowledge and skill to sustain a world class technical university. The Centre must be established to support three fundamental developmental areas: skill development, infrastructure and equipment, all geared to ensuring maintenance of the highest standards of laboratory capabilities. The responsibilities of the centre include:

- streamline and monitor equipment acquisition
- implement income generating activities
- provide staff training
- advise on laboratory design and management.

The Laboratory Management Centre will require some specialised software to support the equipment maintenance and repair/replacement management programs. Training for this would be aimed at a ‘cascade’ model of staff training focused on the Technicians employed for the ‘hands-on’ work of data generation. Standard Operating Procedures, (SOPs) would have to be developed for laboratory operations such as the laboratory quality manual and a management system for an equipment and reagent inventory, instrument calibration, etc. This would be done using MS Office programs. On the other hand, laboratories such as the Chemistry analytical, biology and environmental laboratories would require the development of a specialised ‘Laboratory Management Information System’ (LIMS). This software is expensive and the purchased ‘off-the-shelf’ versions tend to limit laboratory operations to comply with the software. Ideally, the software should be adapted to accommodate the specific laboratory operations. However the more configurable the system, the more it costs to develop and maintain. As an indication, in each of the chemistry, environmental and biology laboratories a specially adapted LMIS may vary from $15,000 - $100,000, depending on the specific programs being undertaken in each. Such systems may not be applicable for labs in other specializations. The Laboratory Management Centre should also provide services to the discipline laboratories through the maintenance and calibration of equipment. A calibration laboratory would be required in each of the key areas of temperature, mass and volume, at an estimated cost of $700,000 each (x3).

Decisions on the approach can only be made in consultation with the discipline research leaders and the Academic Council and incorporated into the early strategic plan of the university. TA will support the management in the development of these plans.

The TA will establish a training program and curriculum for the development of Technician support staff, and develop a structure for a career path for Technicians to ensure maintenance of this crucial skill within the university. It will also support the establishment of a culture of systematic technical training. It will establish formal training, with set course outlines, and on-job-training. The TA will include support to method and develop practices for
• On-job-training that allows for a flexible approach, which is easily adjusted to the training needs established by a competency assessment.
• Competency assessment of practical skills as the means of identifying the on-going training needs of Technicians and certifying attainment of competence.
• Training for practical responsibilities of the Technicians, and as such will be set up to be conducted on-site as equipment becomes available. Technical training for Technicians must always focus on the proper use of the equipment and its maintenance and not on the theoretical knowledge surrounding the technique.

Details of the requirements for Technician training and the role of the Laboratory Management Centre are in Mid Term Report, Volume II, Part 4, Facilities Development, Paper 4.

Resources: ($US) – Estimated 73 person months cumulative over six years; with emphasis in early years and close to the time for the move to the new premises. ; This estimate includes software; equipment is included in estimates for Capital costs.

<table>
<thead>
<tr>
<th>Figures in $US</th>
<th>HUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADB Loan</td>
<td>1,104,000</td>
</tr>
<tr>
<td>Donor (Int strategic partner)</td>
<td>300,000</td>
</tr>
<tr>
<td>Total</td>
<td>1,404,000</td>
</tr>
</tbody>
</table>
Annex 6

COMPONENT C - CAMPUS CONSTRUCTION AND DEVELOPMENT PLANS

1 Introduction

The TORs for the Campus Design and Architecture specialists included the following:

Campus Design: develop a plan to establish two new model university campuses, including administration and classroom facilities, laboratories and incubators, university marking and industrial networking, and such other service facilities as job placement, alumni, health, student recreation, and community services.

Facilities and Laboratory Development Specialists: prepare a detailed development plan for facilities and teaching and research laboratories and incubators in relevant science and technology fields (e.g., life sciences and computer science). The plan should include an indicative list of equipment to be procured.

Architects: (i) collect data and analyze cost norms for civil works and prepare a realistic schedule and cost estimates for design, supervision, inspection, and maintenance of civil works to be planned under the proposed project; (ii) prepare bidding documents for (a) an architectural design competition for the two new model university subprojects (architect), and (b) civil works of two new model university subprojects (engineer).

Principles and Basis for Calculations

HUST is to be constructed and operated to the highest international standards, and will:

- teach at both undergraduate and postgraduate level
- incorporate formal centres of teaching and learning excellence
- provide effective and extensive support for emerging researchers
- deliver up-to-date curricula through flexible, modern teaching methods
- provide modern classrooms and laboratories to support new teaching methods
- have libraries that can offer access to scholarly resources and curricular support
- establish staff salaries and teaching loads that reflect international standards
- provide adequate levels of teaching, research, technical and clerical support
- use both postgraduate and undergraduate assistants to support research
- accommodate progressive integration of existing research institutes.

The university must also serve as an example for other universities, and as a source of graduates, with Masters or PhD degrees, able to transmit to future generations of students the knowledge and skills that they have gained by research and advanced practice. XXX The paper provides:

- preliminary estimates of discipline mix and student load
- an outline of the campus design parameters and methodology
- a summary of the recommended space provision and distribution
- estimates of the required library, laboratory, and computing facilities.
In order to make progress in planning the campus, a theoretical organisational structure has had to be developed. The results of that exercise were set out in detail in the Mid-Term Report and are summarised below.

The recommendations were developed by the TA team in order to support the preparation of a feasible campus plan, in the absence of any detailed university programs elaborated by the MOET and French. Franco-Vietnamese discussions have been continuing since June 2009 during periodic visits by the French and without any full-time contribution by Vietnam management or academic experts (as no sub-project planning groups are yet appointed). At time of the TA team preparation the agreements between Vietnam and France were only in the earliest stages of development, sufficient only to articulate the concept of six multidisciplinary themes. Further progress was made in January 2010 discussions; and it is expected that from about March 2010 there will be an interim French Rector available to lead further academic development, and that MOET will appoint three full-time local advisers to support an intensified level of academic planning with the French consortium. The TA team recognises that this Franco-Vietnam working group may adapt the organisational structure use by the TA experts to develop the campus design recommendations.

The TA team could only develop the campus design in general terms, which offer scope for adaptation once the university’s detailed planning was developed. Accordingly the procedure adopted was to develop the campus plan based on norms for academic standards in other high quality international universities for similar discipline mixes, and staff/student ratios, and to use international construction norms, costing assumptions and modern architectural planning concepts. In particular the recommendations on site planning relating to size and locations of buildings in the academic zone are designed to provide ‘shells’ of buildings that can be adapted for any later planned uses, eg by re-sizing laboratory spaces with use of flexible internal dividing walls, and planning buildings in a ‘cluster’ that will allow for later decisions about which disciplines will occupy them. Clustering offers the opportunity to co-locate certain disciplines, with spill-over into the next closest building where necessary, and also supports logical cross-disciplinary movements of both staff and students between laboratories and classrooms. Similar clustering of main teaching lecture theatres supports the most efficient use of large and smaller sized lecture theatres and workshop/tutorial rooms. XXX This ‘clustering’ concept is not a feature of existing universities in Vietnam, but is not uncommon in international facilities. In the circumstances of the NMUs in Vietnam, where the campus planning is being developed in advance of the academic establishment, it offered the only feasible option.

Clustering also offers opportunities for more efficient use of the physical space and for construction costs. It does, however, provide a constraint, in that it is not practical to develop the university’s first phase in sub-stages, such that one building in competed and occupies while others are progressively constructed. The campus is thus designed to be constructed in one major construction package, using an integrated construction plan, which will need to be managed under the supervision of experienced international construction managers.

2 Construction Norms used for the Design specifications

Construction Space Standards

The Space Standards used to prepare schedules of accommodation and facilities, and cost estimates, for HUST are fully described in the Space Allocation Guidelines included as pages
109 to 120 of the Campus Design Guidelines for DIU included in Volume II of our Mid-Term Report (now represented in Report FACDEV-Paper D1 in this volume for HUST).

These standards reflect international practice as set out in standard works of reference, notably:

- David Littlefield – NEW METRIC HANDBOOK: PLANNING & DESIGN DATA Sub: Higher Education; and
- Contemporary practice at American Universities.

Neufert has been used along with Littlefield for academic accommodation. The standards adopted for academic accommodation for HUST and DIU are similar to those proposed in the Feasibility Study for Vietnam-German University, which has also used Neufert as a source for space standards.

The Campus Design Guidelines would form one of the bases for the architectural proposals in the Design-build Tender. Bidders would be asked to follow the guidelines, and to record and justify any departures from them.

Table 1: These are some of the more significant norms used for construction specifications:

<table>
<thead>
<tr>
<th>Teaching Spaces</th>
<th>Seating Capacity</th>
<th>Floor Area in Sq M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classrooms</td>
<td>30</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td>Science laboratory</td>
<td>24</td>
<td>131</td>
</tr>
<tr>
<td>Language laboratory</td>
<td>24</td>
<td>65</td>
</tr>
<tr>
<td>Computer laboratory</td>
<td>24</td>
<td>65</td>
</tr>
<tr>
<td>Dormitories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate unit</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>Postgraduate unit</td>
<td>1</td>
<td>24</td>
</tr>
</tbody>
</table>

**Schedules of Accommodation and Facilities**

Schedules were prepared for HUST based on:

- The assumptions about student numbers and discipline mix set out in Chapters 7 and 8 of Volume 1 of the Final Mid-Term Report; and
- The Space Standards described above.

There are a number of other space and occupancy norms – for example every member of the academic staff is allocated an office, of a size which varies with the staff member’s grade.
These schedules are set out in detailed spreadsheets for HUST provided to MoET with this Final Report. The schedules include capacities and floor areas for all types of space.

The TA Team has not yet had the opportunity to discuss these schedules of accommodation with MoET – a matter which needs to be addressed in any extended phase of preparation.

**Costing Assumptions**

The space requirements set out in the schedules were multiplied by norms for costs per sq m derived from building prices in Vietnam as current in mid-2009. The Vietnam Quarterly Construction Cost Reports by Davis, Langdon and Seah provide valuable basic data about construction prices in Vietnam but adjustments had to be made to estimate costs per square metre for universities as these are not directly covered by Davis Langdon and Seah. In making these adjustments the TA Team drew on the expertise of its national architectural consultants.

The costs per sq metre used are shown at the Grand Total tab of the Schedules of Accommodation spread sheet and are summarised in Table 2 below:
Table 2

<table>
<thead>
<tr>
<th>Space Type</th>
<th>Cost per Sq M - HUST</th>
<th>Cost per Sq M - DIU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone A – Administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Offices</td>
<td>$440</td>
<td>$400</td>
</tr>
<tr>
<td>Teaching Faculties</td>
<td>$715</td>
<td>$650</td>
</tr>
<tr>
<td>Research Institutes</td>
<td>$800</td>
<td>$720</td>
</tr>
<tr>
<td>Zone B - Academic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone C – Residence and Recreation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dormitories &amp; Student Activity</td>
<td>$500</td>
<td>$450</td>
</tr>
<tr>
<td>Outdoor Sports Facilities</td>
<td>$250</td>
<td>$225</td>
</tr>
<tr>
<td>Zone D - Services</td>
<td>$400</td>
<td>$325</td>
</tr>
<tr>
<td>Zone E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>$50</td>
<td>$45</td>
</tr>
<tr>
<td>Road &amp; Pedestrians</td>
<td>$100</td>
<td>$95</td>
</tr>
<tr>
<td>General Landscape</td>
<td>$50</td>
<td>$45</td>
</tr>
</tbody>
</table>

The costs per square metre for DIU are generally 10% lower than for HUST to reflect regional variations in building costs. A functional difference is built into the costs per square metre for services. Apart from this cost per square metre basis an allowance has been made at both HUST and DIU of $6.5m to cover the cost of reticulating services within the site boundaries.

3 Campus Design Plans (summary)

Recent discussions amongst MOET, VAST and a consortium of French universities have centred on a proposal that postgraduate study and research at HUST should be multidisciplinary in nature, and focus on six main themes. Earlier proposals by VAST had envisaged that research would be organised around eight key disciplines: Mathematics, Physics, Chemistry, Biological Sciences, Information Technology, Materials Science, Energy, and Environmental Technology. The last of these was not targeted at undergraduate level.

The consultants concluded that there was no inherent conflict between having multidisciplinary themes provide the organising principle for postgraduate research and teaching and having enabling disciplines provide the organising principle for undergraduate teaching. They suggest that the “energy” discipline could usefully be expanded to cover an engineering science programme, built on a generic electrical and electronics core, but emphasising instrumentation and measurement, modelling, design, and control systems. The programme would address a major industry demand and provide graduates able to contribute to research in all the themes. The themes and disciplines would then be:

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Research Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>Biotechnology and Pharmacology</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Aeronautics and Space</td>
</tr>
<tr>
<td>Biological Sciences</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Information Technology</td>
<td>Energy</td>
</tr>
<tr>
<td>Materials Science</td>
<td>Materials and Nanotechnology</td>
</tr>
<tr>
<td>Engineering Science</td>
<td>Water, Environment and Oceanography</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
</tbody>
</table>
Based on the best information available to date, the consultants have assumed that the campus should be designed to handle 3,600 undergraduate students and 1,400 postgraduate students. To analyse space and staffing requirements, and find reasonable solutions, basic assumptions have had to be made about possible administrative and academic structures for the university. The new campus has been planned around six theme-based Research Institutes; seven discipline-based Teaching Departments (in two Faculties); and a Learning Resources Centre, including the Library, the Educational Development Centre; and a Centre for Teaching and Learning Excellence. The simplest arrangement of the Faculties might be as indicated in the following table:

<table>
<thead>
<tr>
<th>Applied Science</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>Information Technology</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Materials Science</td>
</tr>
<tr>
<td>Biology</td>
<td>Engineering Science</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
</tr>
</tbody>
</table>

This planning does not cover the establishment of a Technology Transfer Institute focused on technological innovation as proposed by the French consortium. This agency should have significant medium-term value in strengthening the links between the university and business. Detailed plans have already been made for constructing business incubators at the Hoa Lac High-Technology Park, and, in the spirit of collaboration between the university and industry, development of the TTI would ideally be integrated with, and perhaps funded through, that project.

4 Laboratory Buildings

Establishing a profile of undergraduate laboratory needs for a new university is possible only on the basis of some fairly basic assumptions about the nature of teaching programmes that have yet to be designed. In the circumstances, a conservative approach has been adopted, and the possible needs computed on the basis of a traditional science and technology programme, with the following general features:

- moderately high contact hours (24 to 28 per week during semester)
- regular participation in laboratory work (3 hours per week per course)
- a substantially common set of first year courses
- increasing specialisation in later years
- several strands within each major

If the actual programme is more flexible, with, for example, an increased credit allocation to elective courses in non-laboratory-based fields, undergraduate laboratory facilities will be under less pressure. That may allow some margin for longer-term growth, but there may also be an increase in the demand for laboratory work in professional Masters programs, from students needing to upgrade their technical skills.

For first-year students, each School has been allocated generic laboratories, able to accommodate modular equipment packages designed to introduce students to all key aspects of laboratory practice in the field. For the later years, each School has been allocated laboratories able to accommodate the more specialised equipment required by
students pursuing a major in the discipline. In practice, the laboratory design should be 
flexible enough to allow Schools to manage the resource in whatever way best matches the 
educational requirements. In general, laboratories have been designed to accommodate 24 
students, plus supervisors.

At the postgraduate level, given the present uncertainties about future research 
programmes, the approach has been to allocate to each Research Institute or Centre a 
sufficient number of laboratories to handle the planned numbers of postgraduate students, 
and to provide an indicative equipment list for standard functions likely to be needed by the 
unit in question. The assumption has been made that more specialised equipment required 
for individual research projects will be secured from research grants or external sponsorship.

5 Laboratory Equipment

The TA team was charged to develop a proposal for equipment necessary to establish the 
university will appropriate and adequate laboratories to serve its Establishment Phase, with 
the student initial design capacity for 5000.

As noted above in respect of facilities design, attempting to develop specifications for 
equipment for laboratories when the specific teaching and research programs are unknown 
is difficult. In the absence of clear plans for programs the only option for the TA Team was to 
develop a plan for the standard equipment, plus a reasonable level of sophisticated 
equipment that modern researchers and teachers would expect to find in a good standard 
laboratory across the range of disciplines indicated to be required for the six thematic areas. 
The procedure followed was to list the equipment, and estimate the cost, for one of each 
type of laboratory (based on costs advised by suppliers in mid-2009). This list and the cost 
estimates identified for them forms the basis for calculating a pool of funds sufficient to equip 
HUST with the estimated numbers of laboratories required. This list is indicative only. It is 
expected that as the university is further developed the academic leaders will review the list. 
Adjustments may be made as necessary. However the university and MOET should note that 
the loan cost estimates are based on the listed equipment and the estimated prices, and 
any variations in the list that take the costs over the levels estimated and included in the loan 
agreements will have to be borne by the government or donors. It will be a requirement of 
the procurement process during implementation that the list of equipment must be reviewed 
and verified by the university academic leaders, approved by the Rector, and sent to the 
ADB for prior approval before specific procurement action is implemented.

There are four papers included elsewhere in this Volume II (for HUST) that detail information on 
the development and maintenance of science and technology laboratories. These cover:

• types of laboratories
• the items of equipment recommended, with costs,
• information and recommendations on the development of the laboratories, the 
maintenance for equipment; and
• recruitment and training of laboratory technicians, which includes recommendations 
for future consideration in areas such as technician career development, the 
availability of a central equipment and repair workshop, the formation of a Board of 
Directors governing applied research and design options for laboratories. In addition, 
the report also contains a detailed spreadsheet of indicative equipment to be used in 
the multi-disciplinary themes of HUST.
The detailed reports are titled:

- FACDEV-Paper B1, Laboratories Development and Equipment (Executive Summary)
- FACDEV-Paper B1.1, Laboratory Facilities Development HUST-DIU (Detailed paper)
- FACDEV-Paper B2, laboratory Technician Training
- FACDEV-Paper C, Laboratory Equipment Detailed list (Spreadsheet)

6 Computers

Ready access to computing and information services is a central requirement of any university, and the international benchmarks and linkages associated with the new model universities mean that this aspect of campus design has demanded particular attention. Many overseas universities now require that every student buy an approved notebook computer, with wireless facilities, prior to enrolment, together with approved software. However, for the purposes of this paper, standard workstations have been provided for all academic and administrative staff members; a proportion of technical staff members; and 15% of students at any one time.

A standard workstation profile has been identified, and the full costs of the above provision, with appropriate furniture, networking and printers and scanners, are included in the overall estimates for the project. Finally, note that licenses for proprietary software such as Microsoft Office, and security packages, represent a significant additional cost. Many universities in Europe and Latin America have migrated to open source operating systems and software to reduce those costs, and a similar strategy should be considered carefully for any workstations at HUST that do not absolutely require access to proprietary software.

7 Site Plan for HUST

The ADB TA team has developed a site plan for HUST, suitable for the allocated space in the HHTP Education zone. The site plan is designed to identify the most appropriate use of the site to fit the purposes and initial design specifications of HUST, taking account of an initial student capacity of 5000, and initial establishment of the six multi-disciplinary academic streams, and relevant under-graduate discipline teaching requirements.

The proposed site plan for HUST is a replacement for an earlier plan that was originally developed based on Terms of Reference that differed to the current requirements – ie former requirements were for facilities conforming to normative Vietnam university style and building standards. The New Model University for HUST is to be established initial for a design limit of 5000 students and to accommodate ne international building standards for teaching and research spaces, and have those spaces suitable to foster integration of teaching and research.

The New model site plan must also include modern environmental design principles for sustainable environment, and efficient use of the construction funds available from the loan. The proposed site plan for HUST is below (next page).
<table>
<thead>
<tr>
<th></th>
<th>Proposed Site Layout for HUST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bên xe buýt - Bus stop</td>
</tr>
<tr>
<td>2</td>
<td>Bãi xe công cộng - Public parking</td>
</tr>
<tr>
<td>3</td>
<td>Bãi xe cá nhân - Parking for private</td>
</tr>
<tr>
<td>4</td>
<td>Vườn cây ở lối vào - Entry garden</td>
</tr>
<tr>
<td>5</td>
<td>Tòa nhà quản lý trung tâm - Central admin building</td>
</tr>
<tr>
<td>6</td>
<td>Quản lý (sẽ xây giai đoạn sau) - Future admin</td>
</tr>
<tr>
<td>7</td>
<td>Sân chữ nhật - Quads</td>
</tr>
<tr>
<td>8</td>
<td>Họp, hội nghị - Conference facility</td>
</tr>
<tr>
<td>9</td>
<td>Quản lý học tập &amp; nhà học - Academic Admin &amp; Teaching Building</td>
</tr>
<tr>
<td>10</td>
<td>Các phòng thí nghiệm học tập tiên nghi – Academic Laboratories Facilities</td>
</tr>
<tr>
<td>11</td>
<td>Phòng thí nghiệm (sẽ xây giai đoạn sau) – Future Laboratories</td>
</tr>
<tr>
<td>12</td>
<td>Trung tâm Tài nguyên học tập – Learning Resources Center</td>
</tr>
<tr>
<td>13</td>
<td>Ký túc xá được đăng ký - Post Graduate Dormitories</td>
</tr>
<tr>
<td>14</td>
<td>Ký túc xá sinh viên theo học – Under Graduate Dormitories</td>
</tr>
<tr>
<td>15</td>
<td>Cơ sở vật chất trường hợp khẩn cấp – Emergency Facilities</td>
</tr>
<tr>
<td>16</td>
<td>Cơ sở ban quản lý - Facility Management Unit</td>
</tr>
<tr>
<td>17</td>
<td>Vườn ươm cây - Plant Nursery</td>
</tr>
<tr>
<td>18</td>
<td>Trung tâm nghiên cứu (giai đoạn sau) – Future Research Center</td>
</tr>
<tr>
<td>19</td>
<td>Khu vực sê phát triển trong tương lai – Future Development</td>
</tr>
<tr>
<td>20</td>
<td>Lối vào (giai đoạn sau) – Future Entry</td>
</tr>
</tbody>
</table>
An earlier plan was approved in June 2009, before the TA team campus development began work. The TA team and the French consortium indicated that it was not suitable for use as a NMU and needed to be redeveloped. Discussions with the HHTP and the Vice-Minister for Hoa Lac Park indicated that variations to the approved plan could be considered. On this basis this plan was prepared. This plan is agreed between the TA team and the French and is recommended to the MOET as appropriate for the further development of HUST. The recommended cost estimates for capital construction are based on it.

This plan was available from September, in the Mid-Term Draft Report, and was discussed twice with the HHTP administration. MOET did not focus on the plan until after the Final Review Mission. On more detailed examination it was discovered that the earlier plan, approved in June 2009, included 84 Hectares, 20 more than had been previously agreed between MOET and the HHTP. Accordingly MOET and the HHTP reviewed the decision and advised on 11th February 2010 that only 64.8 H can be allocated to HUST. The Preparation Project was due to complete on the 12th February, 2010. This plan, and accompanying cost estimates, will therefore need to be revised before loan processing commences.

Any restructure of the plan will bring into question the opportunity for future student expansion (discussed above).

8 Capital Investment Requirements for HUST

The processes and criteria by which space requirements have been estimated for the new university are set out in Section 2 above. The new campuses have been laid out to the same standards as are used for new buildings in established international universities. This standard leads to the minimum realistic investment required to ensure that the new universities face no major impediments, in terms of buildings and equipment, to developing their research capacity and reputation and seeking world-class standing. (The norms used are above at the beginning of this Annex). However, as explained in more detail below, the university will require supplementary capital injections in future years to maintain its developmental momentum.
The initial capital investment required for HUST, including allowances for finance charges and cost escalation over the construction period, is set out below: Table 2 summarises the projected costs of buildings, equipment and infrastructure for a new campus at Hoa Lac, designed to accommodate 5,000 students, on the basis of the space standards and cost norms detailed above.

### Table 3: Cost Estimates for Construction

<table>
<thead>
<tr>
<th>Zone</th>
<th>Buildings with Standard FFE $US,000</th>
<th>Laboratory Equipment, Computers, Books and Online Resources $US,000</th>
<th>Overall Project Cost $US,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>5960</td>
<td>225</td>
<td>6185</td>
</tr>
<tr>
<td>Learning Resources</td>
<td>2787</td>
<td>7,950</td>
<td>10,734</td>
</tr>
<tr>
<td>Undergraduate Faculties</td>
<td>27010</td>
<td>20,527</td>
<td>47,537</td>
</tr>
<tr>
<td>Research Institutes</td>
<td>27,153</td>
<td>40,654</td>
<td>67,807</td>
</tr>
<tr>
<td>Residences</td>
<td>26,071</td>
<td>15</td>
<td>26,086</td>
</tr>
<tr>
<td>Grounds and Services</td>
<td>24,511</td>
<td>18</td>
<td>24,529</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>109,940</td>
<td>69,389</td>
<td><strong>182,878</strong></td>
</tr>
<tr>
<td>Contingency and Professional Fees</td>
<td>22,860</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost Escalation over Five Years</td>
<td>17,092</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial Charges During Implementation</td>
<td>19,959</td>
<td></td>
<td>Total $42,789</td>
</tr>
</tbody>
</table>

**NOTES:**
- Space allocations are as shown in Table 1 above.
- Building costs per square metre of gross floor area are as shown in Tables 2 and 3 above.
- Research work is assumed **NOT** to involve significant levels of nuclear radiation.
- No stadium has been included – a similar facility is to be built close to the campus.
- Library spaces and costs are aligned with international universities, including HKUST.
- Equipment costs are based on those at equivalent international university laboratories.
- Computer provision follows standard international university practice.
- Cost escalation has been calculated using standard factors for domestic and foreign price escalation notified by ADB.
- Financial Charges during Implementation are calculated as shown in Section 5 of the notes to the Cost Estimates in Annex 8 below.

**NB:** The table above excludes provision for resettlement of the current occupants of the HUST site, for which the estimate is currently $13.563m. Also, the figures in the table will require review in the light of the notification on 11th February 2010 that the HUST site is to be 64.8 hectares, not 84 hectares as indicated by the boundaries on the map previously given to the TA Team.

### Potential Future Capital Investment to achieve World Class ranking

World class Universities seek to maintain their place in the top rankings by continually updating and upgrading their facilities to expand or enhance their capacity for higher
output and quality in research and teaching. This is particularly the case for research infrastructure. Universities regularly identify new or expanded areas for research and then inject new capital to build laboratories and acquire the latest scientific equipment. These new investment injections cannot always be planned far ahead, because they are agreed on an ‘ad-hoc’ or ‘as-needed’ basis, so that the university can respond to the changing economic or development needs of their country or region, or remain well positioned to hold its reputation as a research leader in an emerging field. For example, key investments made by or on behalf of HKUST are summarised in an Appendix in Volume V, Technical papers, of the TA 7105 Final Report. Such continuing investments will, over time, typically exceed the initial establishment cost.

If HUST is to pursue the goal of achieving World Class standing, the State will have to support a continuing program of investment in research infrastructure and research project funding at a higher level than has ever been delivered in Vietnam. The required level cannot yet be identified precisely. However, preliminary estimates have been made, based on an assumption that HUST will seek to grow to at least 15,000 EFTS, within 15 years following the end of the establishment phase. At those levels of enrolment, HUST will have a real opportunity to build teams of researchers and PhD students able to pursue major, long-term research programmes.

To achieve their respective goals, the universities would have to grow at an average of 7.5% per annum. In the process, their operating costs would benefit from some economies of scale. For example, the student-staff-ratio would be allowed to increase until the original 20:1 target was reached. While the initial investment estimates include an allowance for cost escalation (since the amount of the loan would be determined in 2010, and drawn down progressively between then and 2017), the figures in the following tables are all expressed in current dollar terms.

Table 4 – Growth Cost Projections

<table>
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<tr>
<th>YEAR</th>
<th>HUST</th>
</tr>
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<tbody>
<tr>
<td>2015</td>
<td>242.8m</td>
</tr>
<tr>
<td>2025</td>
<td>65.0m</td>
</tr>
<tr>
<td>2030</td>
<td>90.0m</td>
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<tr>
<td>TOTAL over 2010-2030</td>
<td>397.8m</td>
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COMPONENT D: SUB-PROJECT MANAGEMENT AND IMPLEMENTATION

[Note for Final Report – As at time of finalisation the details for Project Management are not agreed with the Government. MOET developed a preferred approach for a centralised Project Management Unit, and submitted it for approval of the Deputy Prime Minister in November 2009 as Decision No 7885/QD-BGDDT. Neither details of this preference, nor the draft Regulation, were advised to or discussed with the TA team. The TA team learned of the regulation from the WB, after the draft of this proposal was prepared and submitted to MOET for discussion (18 December). The TA team requested information on the Government’s proposal but did not receive a copy of the Decision until during the Final Review Mission on 22 January. MOET comments received in writing on 11 February (one day before the close of the TA team operations), request that this proposal be replaced by the provisions of the MOET Decision.

The ADB Aide Memoire of the Final Review Mission advises that the proposal for the centralised project management is not favoured, and that further discussion on the approach to project management will be necessary before continuing with loan processing. Accordingly the proposal of the TA team is reproduced here with minor adjustment to note the establishment of the MOET Central PMU for Excellent Universities, but all other details await further discussions with the Government at a later time]

Overview of Implementation management

The approach to managing the implementation will be that of high devolution to the responsible university based Sub-Project Management Units; with high level oversight by a Ministerial Steering Committee. A MOET based PMU will oversight and monitor implementation progress. The rationale for this devolved model is that it offers the most effective and efficient model to manage what will be highly complex requirements; and that it is an essential part of the demonstration effect of the NMUs.

Full devolution to the university offers the most effective and efficient method to ensure the necessary close integration of management for construction of new facilities simultaneously with development of the management and academic systems and capacity in each university. The appropriate efficiency will derive from the planning, decision making and activity management being within the control of relevant office holders in each university, reflecting the special character and circumstances of each university and the likely different rates of progress through the stages of the work. It is also consistent with the concept of university autonomy, which is so critical to the universities’ development as true NMUs. International standard universities accept full responsibility to manage and integrate academic and facilities development. Into the future, after the Establishment and Consolidation Phases (the first 10 years) the mature universities will need to have built their own capacity through experience for managing future expansion in capacity ,including direct experience in planning new facilities, procuring and managing construction and the consequent program, staff and student expansion. This experience can only be built effectively if they have the active responsibility from the beginning, while receiving strong Technical Assistance throughout the Establishment phase.

Under future plans for the education management reforms authorised under the HERA, MOET assumes new roles in policy and regulation and system performance monitoring, - the ‘steering from a distance’ model. Accordingly, equally as the NMUs are to be used as
demonstration models for governance and financing and academic reforms, so too they must be also used to develop the skills and experience in managing the planning for and implementation of further campus development and management and academic development. The only opportunity to do this is during the loan period while they have access to strong Technical Assistance, which will be financed under the loan. This is such a critical success factor, and fundamental to the future sustainability of each NMU, that the ADB will require this devolution in implementation management as a condition of the loan.

The devolved model is outlined as follows:

**High Level Steering Committee**

The Executing Agency will be MOET. A Ministerial Steering Committee (MSC) will provide overall guidance to the Project on strategy for development and support cross-agency policy dialogue necessary to ensure the regulatory and financing policies for supporting the NMUs are coordinated in the best interests of the State. It will also approve an overview Implementation and financial plan, including the General Procurement Plan for each of the NMUs. The contribution of the NMUs to facilitating stronger economic development in Vietnam will be best served by the Government at the most senior political levels ensuring that there is coherent and strategic planning across a range of activity areas that will gain from improvements in science research in Vietnam. The MSC will be chaired by the Deputy Prime Minister, who is also the Minister for Education.

In addition to the MOET, the MSC will comprise representatives of Government Ministries with interests in policy and financing for education, investment and science. These include, as a minimum, but not necessarily limited to: the Ministry of Finance (MOF), the Ministry of Science and Technology (MOST), the Ministry of Planning and Investment (MPI), the Ministry of Justice (MOJ), the Ministry of Agriculture and Rural Development (MARD), the Ministry of Industry (MOI), the Ministry of Home Affairs (MOHA).

**MOET Project Management Unit (MOET-PMU)**

Sub-component D-1 – MOET Procurement of Construction and Financial Supervision and progress monitoring

The primary responsibility for managing implementation will be devolved to the Sub-Project Management Units to be established in each university under the leadership of the Rector/President. The responsibilities of these SPMUs are detailed further below. Under this model the MSC and the MOET-PMU will have Technical Assistance in steering the devolved implementation from two independent specialist organizations: One will be a specialist overall construction supervisor firm, to oversight the procurement and implementation by the separate construction contractor in each university (called the ‘Design-build Manager’); and the second will be an independent auditor to regularly review the accounts of each of the SPMUs as they manage the procurement and disbursement of the loan funds.

MOET, through the PMU will be responsible for procuring and contracting directly the two firms for overall construction supervision and for independent audit. These consulting firms will report directly to the MSC via the CPU. The PMU will monitor and receive reports from these contractors and ensure the reports are submitted to the MSC with MOET comment. They may, if appropriate, circulate the reports to other relevant MOET Departments and other Ministries, including MOF and MPI, and coordinate comments from them for forwarding to the MSC. Overall the PMU responsibility will include:
• facilitating dialogue across MOET departments and the participating universities, as well as day-to-day coordination with other relevant agencies

• facilitating the processing and approval by the MSC of each SPMU integrated procurement and implementation plan

• consolidating project reports from the overall construction supervisor, the independent auditor, and the SPMUs, and forwarding them to the MSC with MOET comments

• preparing consolidated financial statements for the project as a whole, signed by MoET, for the information of the MSC, and the ADB

• using the Design and Monitoring Framework (Annex 1) and the Assurances Profile (Annex 13), preparing half-annual assessments of operating progress and achievements towards Project objectives and outputs. These reports will be prepared by MOET for the MSC in advance of the ADB half-annual supervision missions and will be used to support and to inform the review

• ensuring that recommendations in the reports of the construction supervisor, the auditor and the SPMUs are followed up effectively, in the light of guidance from the MSC.

**Devolved Implementation to University Based SPMUs**

*Sub-component D-2 – SPMU Management of Implementation (all components)*

The primary responsibility for implementation of the project to construct the new university facilities and develop the management and academic profile of the university will be the formal responsibility of the University Council of HUST.

Accordingly there will be a fully detailed Sub-Project Management Units (SPMU) established at HUST to implement and to supervise the project. These will work under the general direction of the University Council, and be headed by a full-time professional project manager to manage the operations of the SPMU and support and advise the Council and the Rector. MOET may endorse the appointment of the SPMU manager on the recommendation of the University Council.

The SPMU will assume full responsibility and control over the deployment and disbursement of the loan funds and the government contributions to the loan for each university, and will manage it to ensure the effective and timely achievement of the purpose of the loan to support the establishment of the NMU in the six years of the loan agreement. The SPMU will be responsible for the financial management and will be accountable to the University Council, which will in turn account to MOET, and the MSC. Full responsibility means the right to:

• develop an overall procurement and implementation plan, assisted by the procurement adviser, and the overall construction supervisor supplying technical expertise and capacity building, and submit it for clearance by the MOET-PMU and the MSC. Once the plan is approved by the MSC the SPMU then proceeds to manage the implementation assuming full responsibility to:
  - plan and approve the TORS for the Design-Build Manager and any agreed subsidiary contracts for construction actions, and for the capacity building activities for university management and academic development
- to manage the tendering and approve the award of contracts consistent with the MSC approved plan
- to sign the contracts for the services and forward all details to the MOET-PMU for information and record keeping
- to receive the loan funds and the government counterpart contribution into the special accounts established for the purpose; and
- to pay the disbursement on correct invoices, once certified by the overall construction supervisor; and
- make quarterly reports to the MOET-PMU on progress and expenditure, and submit all records to review by the independent auditor.

The overall construction supervisor will be procured by MOET as a priority at the earliest stage after loan effectiveness. It shall be a condition of effectiveness that MOET has completed the advance tendering procedures and is ready to sign contracts such that the supervisor can mobilise experts within one month of the effectiveness. The overall construction supervisor contract shall be in effect for the whole duration of the construction works. The firm must supply appropriate expertise at times required and must include at least three full-time management staff in Vietnam at all times. The construction supervisor must supervise the procurement of the construction contractors, and may not have any commercial links with any contractors selected.

Once commenced, overall construction supervisor will then assist the SPMUs in the procurement for the Design-Build Manager. After the Design-Build Manager has commenced work the overall construction supervisor will then assist the SPMU to monitor the progress of the Design-Build Manager, and will certify all construction related invoices before they are authorized for payment by the SPMU. Procurement for the design-build construction contracts must use ICB, with international firms mandatory as lead contractors.

After the Design-Build Manager has commenced that firm will give priority to assisting the SPMU to develop the integrated project management plan, and then subsequently will continue support the SPMU in the later procurement of any subsidiary contracts for construction at the site, as required and consistent with the plan.

Procurement action for the Design-Build Manager will be in one integrated tender that will seek proposals that cover works for three phases of the campus development in the university. These include:

- **Architectural concept designs** for all buildings identified for construction within the Establishment period, to be based on the approved Site Plan and conforming to specifications of the Design guidelines (to be issued with the tender call) and the approved HTP Master Plans for HUST
- **Costed civil works** for the ground preparation and site works and utilities installation
- **Indicative costing plans** for the construction of all buildings in the specified Establishment period plan
- **Indicative costing plans** for **fit-out** of furnishings and fittings in all buildings in the plan
- **Indicative costing plans** for final landscaping surrounding the constructed sections of the campus allocated site
• Indicative costing plans for the management of the sourcing, procuring and installation of all laboratory equipment and the management IT systems (bids will not cover the cost of the equipment and installation by the suppliers, as that is to be determined by the university and submitted to the ADB for prior approval before being placed under the control of the Construction General Contractor for implementation management – see below Component C-3)

• Indicative costing plans for the soft-opening and testing of facilities before final hand-over to the University Council.

[NB: Detailed costing of the plans is not feasible until after the Concept Plans have been accepted by the Government and the Design-Build Manager Contract is awarded and the detailed architectural plans are completed].

International Design-Build Manager firms may associate or form consortiums or joint ventures to tender and undertake the works. Firms /consortiums may tender for both of the HUST and DIU contracts, or for only one. If any firm or consortium were to succeed in winning both contracts for HUST and DIU the works must be managed separately, though identifying efficiencies of scale by using some common staffing where appropriate and feasible will be permitted. Each contract must employ a full-time Site General Manager and other full-time technical experts as required in the TOR. Other staffing will be at the discretion of the bidders, with senior management and technical positions and personnel to be identified in the tender proposal.

**SPMU financial management**

The SPMU will be responsible for ensuring the accounts are kept and managed to international standards. They will ensure all accounts are made available to the independent auditor for review on an annual basis (and more regularly if necessary). The auditor will have full authority from the University and MOET to inspect all the accounts and records maintained by the SPMU and under its contract, will be required to report simultaneously to the University Council, MOET, the MSC and to the ADB on the use of the funds by the SPMU. The SPMUs will also accept full responsibility for liaison and coordination with the overall construction supervisor.

The SPMUs will be responsible for all procurement and contract management for the capacity building activities under Components A&B, and will have access to a full-time procurement adviser for Component A&B for the first year until the contracts are in place.

Government funds for counterpart contribution shall be placed in the account of the autonomous university for management in an integrated implementation plan. Separate agreements under the Loan Agreement will be established to allow for the direct payment by ADB to specified contractors of from the SPMU of invoices properly authorised by the supervising contractor and the SPMU.

The Project Management Structure is detailed in Diagram 1 at the end of this Annex.

**Advance Procurement and Financial Management Preparation**

The TA 7105 Preparation Project has developed draft procurement documentation that includes

• An overall procurement plan and indicative timetable for the procurement
• TORs for Technical Assistance for Capacity building under Components A and B
• Design Guidelines for Construction of HUST; and
• A general procurement strategy for construction and TORs for the Construction supervisor and audit/probity supervisor.

More detailed and specific TORs will need to be developed as more information about the specific programs, site plans and construction is completed, which will occur after the end of the preparation contract. It is expected that at least one year will elapse between the end of the preparation contract and the approval of effectiveness of the loan. In this time it is recommended that the ADB and MOET agree to undertake additional work that will constitute advance actions before effectiveness, to ensure that each of the DIU and HUST SPMUs are fully established, staff recruited and trained, have operating procedures in place for procurement management and financial management, and are ready to commence project implementation activities immediately on effectiveness.

Advance actions should include:

• Approval of each SPMU and appointment of leadership staff
• Approval of all necessary regulations to ensure appropriate delegations to the university President/Rector and SPMU to manage the procurement selections, and approve and sign contracts
• Establishment of separate bank accounts for each university to receive the loan funds and the Government counterpart funds.
• Establishment of financial record keeping procedures to ensure that adequate tracking is kept of the respective expenditure of both the ADB and Government funds from the SPMU accounts, recognising that most payments will use a combination of Government and loan funding.
• Approval by the SBV and ADB of all loan account draw-down procedures and accounting requirements, and invoice payment procedures. Direct payments from the ADB are mandatory as a feature of the fully devolved implementation responsibility
• Selection on merit criteria of the full-time and part time staff of the MOET-PMU and of each SPMU
• Provision of training in procurement and in financial management sufficient to meet ADB requirements to those new staff of SPMUs who require it
• Approval by the ADB and by the Minister of Education of the procurement strategy for the construction supervisor and for the audit/probity supervisor
• Commencement of the first and second stages of the procurement action for these two contracts that are to be managed by the MOET-PMU, with completion of procurement stages up to and including tender assessment and readiness for approval of contract award before effectiveness – ready to sign contracts within one month of effectiveness.

TA shall be available to HUST SPMU to support this advance project management function, including the provision of the required training to who staff who shall be selected and employed on contracts at least three months in advance of the expected date of effectiveness. This TA will also extend to support MOET in the advance procurement action for the supervisor firms.

A procurement and project management advisor will be procured and appointed on an individual contract to MOET, full-time for at least six months. This consultant will support the
MOET-PMU in the management of the advance procurement actions, and simultaneously assist the two SPMUS in their establishment and training. This consultant will be contracted after loan approval, and the procurement action must be completed in time for the consultant to commence services at least four months in advance of effectiveness. (This means in practice that the individual procurement advertising and selection procedures action must commence by MOET before loan approval). The cost of this advance consultant may be agreed to be a charge on the TA provisions of the loan, under this Component D. However to offer good faith and commitment MOET must agree to advance the payment from its Government commitment. Once the loan is effective the advance from MOET may be reconciled against the Government’s total loan contribution. The TA consultant must be an international position, selecting an internationally experienced consultant.

**Procurement Guidelines**

All procurement to be financed under an ADB grant will be carried out in accordance with ADB’s *Procurement Guidelines (2007, as amended from time to time)*. The Design-Build Manager will be responsible for the undertaking of all civil works, and sourcing and installation of all equipment, and furniture. The SPMU will be responsible for all other procurement. Procurement of the design-build contracts, and for the goods such as computers and laboratory equipment, will be supervised by the Design-Build Manager, and will use international competitive bidding procedures. The Design-Build Manager will be required to use ICB for the procurement of the laboratory equipment (except for any supplied by donors). The international Design-Build Manager will associate with local construction firms and will supervise the undertaking of any Local Civil works for site works preparation and landscape finishing works. These works may be packaged into national competitive bidding if they are in the range of $5.0-$10 million, and use regional/local competitive bidding for other smaller packaged lots. Prior review will be used in the procurement processes, including for equipment.

Procurement Packages: Procurement is expected to be in coherent packages, to facilitate the full integration of the work. This applies to both the procurement for civil works and to the procurement for TA for Capacity Building under Components A & B. The development of the physical campus needs to be managed in a carefully planned sequence and the implementation must be controlled carefully to ensure the sequence is most efficient. Splitting of procurement into numbers of smaller packages will seriously hinder coherent sequencing and could create difficulties in contract management that will led to serious delays, and thus to the Government incurring additional finance drawing charges.

**Implementation Period**

The Project will be implemented over 6 years, estimated from approximately July 2011 to June 2017\(^\text{10}\). The Government will be requested to give assurances that adequate budgetary provision for the government contributions to the Project will be included in the fiscal years from 2009/2010 to 2016/2017]. The anticipated closing for the Loan will be 30 Dec 2017.

Organisation charts to illustrate the Project Management and procurement Relationships Implementation arrangements are below in Diagram 1. (next page)

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\(^{10}\) These dates may change after further discussions with the Government.
Diagram 1 – Sub-Project Management Organisation Chart

HUST

Ministerial Steering Committee
Ministries:

Office of the Minister for Education

MOET - PMU
+coordinator from DHE & DPF for HUST

University Council

Sub-Project Management Unit
HUST
Rector (CEO)

Construction Management Department

Financial Management Department

Capacity Building Management Department

Administration and Liaison

Direct reporting lines
Information conduit only
Diagram 2—Procurement Plan Relationships

A1-Procurement Adviser
- Advises of procurement of contracts for A2 & A3
- Adviser SPMUs on recruitment and training of procurement staff

A2-Overall Construction Supervisor
- Assist MOET in monitoring construction
- Assist SPMUs in procurement for Design-Build Manager and training for construction management
- Quality control, inspect and verify invoices

A3-Independent Auditor
- Assist MOET in monitoring financial management
- Assist SPMUs in establishing chart of accounts and training for financial management
- Audit accounts, report on finance use and practices

B1n1: TA for Capacity Building – University Leadership & Management
B1n2: TA for Capacity Building for Academic Development

B2- Design-Build Manager
Permanent in HUST
Procure, Manage
Sub-Contracts: indicative

B3: Site Preparation
B4: Zone A
B5: Zone B

B6: Dormitories
B7: Laboratory Equipment
Annex 8 - Detailed Cost Estimates and Disbursement Plan – HUST

Table 1, Part 1: Components A & B - Capacity Building

<table>
<thead>
<tr>
<th>Component A - Establishing University Management and Systems</th>
<th>ADB Loan</th>
<th>GoV</th>
<th>Totals</th>
<th>% For Ex</th>
<th>% Base</th>
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<td></td>
<td>Foreign</td>
<td>Local</td>
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<th>% Base</th>
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<td></td>
<td>Foreign</td>
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<tr>
<td>Consulting</td>
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<td>Software</td>
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<td>Totals B1-B5</td>
<td>$5,415.0</td>
<td>$0.0</td>
<td>$5,415.0</td>
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<tr>
<td>Counterpart funding (all) @15%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Rent, utilities etc</td>
<td>$0.0</td>
<td>$812.3</td>
<td>$812.3</td>
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<td>Total Component B</td>
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<tr>
<td>Component C - Buildings and Equipment</td>
<td>ADB Loan</td>
<td>GoV</td>
<td>Totals</td>
<td>% For Ex</td>
<td>% Base</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------</td>
<td>----</td>
<td>--------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>Resettlement Costs for Site</strong></td>
<td>$0.00</td>
<td>$13,563.90</td>
<td>$13,563.90</td>
<td>0</td>
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<tr>
<td><strong>A Administrative Zone</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Headquarters Zone Buildings + FFE</td>
<td>$3,853.8</td>
<td>$428.2</td>
<td>$4,282.0</td>
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<td>Conference Facilities Buildings + FFE</td>
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<td>$680.0</td>
<td>90.0</td>
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<td>University Club Buildings + FFE</td>
<td>$410.4</td>
<td>$45.6</td>
<td>$456.0</td>
<td>90.0</td>
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<tr>
<td>All Zone A Buildings Buildings + FFE</td>
<td>$4,876.2</td>
<td>$541.8</td>
<td>$5,418.0</td>
<td>90.0</td>
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<td>All Zone A Equipment Equipment</td>
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<td>$111.6</td>
<td>$1,116.0</td>
<td>90.0</td>
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<tr>
<td>Taxes and Duties VAT @ 10%</td>
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<td>$541.8</td>
<td>$541.8</td>
<td>100.0</td>
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<tr>
<td><strong>Total Zone A</strong></td>
<td>$5,880.6</td>
<td>$1,195.2</td>
<td>$7,075.8</td>
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<td><strong>B Academic Zone</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty of Applied Science - Undergraduate Buildings + FFE</td>
<td>$10,166.7</td>
<td>$1,129.6</td>
<td>$11,296.3</td>
<td>90.0</td>
<td>5.1</td>
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<tr>
<td>Faculty of Technology - Undergraduate Buildings + FFE</td>
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<td>$1,002.9</td>
<td>$10,028.9</td>
<td>90.0</td>
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<tr>
<td>Faculty Offices and Catering Equipment</td>
<td>$7,446.6</td>
<td>$827.4</td>
<td>$8,274.0</td>
<td>90.0</td>
<td>3.8</td>
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<tr>
<td>Research Institutes* - Postgraduate and Research Buildings + FFE</td>
<td>$22,216.0</td>
<td>$2,468.4</td>
<td>$24,684.4</td>
<td>90.0</td>
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<tr>
<td>Learning Resources Centre Buildings + FFE</td>
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<tr>
<td>Faculty Offices and Catering Equipment</td>
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<td>Taxes and Duties VAT @ 10%</td>
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<td>$5,177.4</td>
<td>$5,177.4</td>
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<td><strong>Total Zone B</strong></td>
<td>$108,041.9</td>
<td>$17,182.0</td>
<td>$125,224.0</td>
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<tr>
<td></td>
<td>ADB Loan</td>
<td>GoV</td>
<td>Totals</td>
<td>% For Ex</td>
<td>% Base</td>
</tr>
<tr>
<td>----------------</td>
<td>----------</td>
<td>-----</td>
<td>--------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>Foreign</td>
<td>Local</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>C</strong> Dormitories &amp; Student Activities</td>
<td>$13,917.2</td>
<td>$1,546.4</td>
<td>$15,463.6</td>
<td>90.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Dormitories</td>
<td>Buildings + FFE</td>
<td>$2,544.6</td>
<td>$282.7</td>
<td>$2,827.3</td>
<td>90.0</td>
</tr>
<tr>
<td>Indoor sports facilities</td>
<td>Buildings + FFE</td>
<td>$4,869.5</td>
<td>$541.1</td>
<td>$5,410.5</td>
<td>90.0</td>
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<tr>
<td>Outdoor Sport Facilities</td>
<td>Other Civil Works</td>
<td>$0.0</td>
<td>$2,370.1</td>
<td>$2,370.1</td>
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<tr>
<td><strong>Total Zone C</strong></td>
<td>$21,331.3</td>
<td>$4,740.3</td>
<td>$26,071.5</td>
<td>81.8</td>
<td>11.8</td>
</tr>
<tr>
<td><strong>D</strong> Services and Grounds</td>
<td>$9,352.4</td>
<td>$1,039.2</td>
<td>$10,391.6</td>
<td>90.0</td>
<td>4.7</td>
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<tr>
<td>Services - waste disposal, storage, maintenance facilities etc</td>
<td>Other Civil Works</td>
<td>$760.9</td>
<td>$84.5</td>
<td>$845.5</td>
<td>90.0</td>
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<td>Parking</td>
<td>Other Civil Works</td>
<td>$2,577.3</td>
<td>$286.4</td>
<td>$2,863.6</td>
<td>90.0</td>
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<tr>
<td>Road &amp; Pedestrians</td>
<td>Other Civil Works</td>
<td>$2,045.5</td>
<td>$227.3</td>
<td>$2,272.7</td>
<td>90.0</td>
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<td>General Landscape</td>
<td>Other Civil Works</td>
<td>$5,318.2</td>
<td>$590.9</td>
<td>$5,909.1</td>
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<tr>
<td>Reticulation of utilities within site</td>
<td>Other Civil Works</td>
<td>$0.0</td>
<td>$2,228.3</td>
<td>$2,228.3</td>
<td>0.0</td>
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<tr>
<td><strong>Total Zone D</strong></td>
<td>$20,054.3</td>
<td>$4,456.5</td>
<td>$24,510.8</td>
<td>81.8</td>
<td>11.1</td>
</tr>
<tr>
<td><strong>TOTAL BUILDING AND EQUIPMENT COSTS</strong> (Zones A+B+C+D)</td>
<td>$155,308.1</td>
<td>$27,574.0</td>
<td>$182,882.1</td>
<td>84.9</td>
<td>82.9</td>
</tr>
<tr>
<td>Professional Fees @7.5% of Building and Equipment Cost</td>
<td>Professional Fees</td>
<td>$11,222.3</td>
<td>$1,246.9</td>
<td>$12,469.2</td>
<td>90.0</td>
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<tr>
<td>Taxes on Professional Fees</td>
<td>Professional Fees</td>
<td>$1,246.9</td>
<td>$1,246.9</td>
<td>0.0</td>
<td>0.6</td>
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<tr>
<td><strong>TOTAL COMPONENT C BASE COSTS inc RESETTLEMENT</strong></td>
<td>$166,530.4</td>
<td>$43,631.7</td>
<td>$210,162.1</td>
<td>79.2</td>
<td>95.3</td>
</tr>
<tr>
<td>Component D - Project Management</td>
<td>ADB Loan</td>
<td>GoV</td>
<td>Totals</td>
<td>% For Ex</td>
<td>% Base</td>
</tr>
<tr>
<td>----------------------------------</td>
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<td>-----</td>
<td>--------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td>D1 Sub-project management</td>
<td>Management</td>
<td>$900.00</td>
<td>$100.00</td>
<td>$1,000.00</td>
<td>90.0</td>
</tr>
<tr>
<td>Total Base Costs - Components A + B + C + D</td>
<td>$175,605.37</td>
<td>$44,957.97</td>
<td>$220,563.36</td>
<td>79.6</td>
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<table>
<thead>
<tr>
<th>E Contingencies</th>
<th>ADB Loan</th>
<th>GoV</th>
<th>Totals</th>
<th>% For Ex</th>
<th>% Base</th>
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</thead>
<tbody>
<tr>
<td>E1 Physical Contingencies @ 5% of Component C Cost- Pre-tax</td>
<td>Physical contingencies</td>
<td>$7,481.5</td>
<td>$831.3</td>
<td>$8,312.8</td>
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<tr>
<td>E2 Physical Contingencies for Components A,B and D</td>
<td>Physical contingencies</td>
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<td>$200.0</td>
<td>100.0</td>
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<td>E3 Foreign Price Escalation for Components A,B and D</td>
<td>Price Escalation</td>
<td>$285.0</td>
<td>$0.0</td>
<td>$285.0</td>
<td>100.0</td>
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<tr>
<td>E4 Domestic Price Escalation for Components A,B and D</td>
<td>Price Escalation</td>
<td>403</td>
<td>$403.0</td>
<td>0.0</td>
<td>0.2</td>
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<tr>
<td>E6 Foreign Price Escalation for Component C</td>
<td>Price Escalation</td>
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<td>$0.0</td>
<td>$5,000.0</td>
<td>100.0</td>
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<tr>
<td>E7 Domestic Price Escalation for Component C</td>
<td>Price Escalation</td>
<td>$0.0</td>
<td>$12,092.0</td>
<td>$12,092.0</td>
<td>0.0</td>
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<tr>
<td>E8 Taxes on Item E1</td>
<td></td>
<td>$831.3</td>
<td>$831.3</td>
<td>0.4</td>
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<tr>
<td>E9 Totals</td>
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<td>$14,157.6</td>
<td>$27,124.1</td>
<td>47.8</td>
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<thead>
<tr>
<th>F ADB Loans</th>
<th>ADB Loan</th>
<th>GoV</th>
<th>Totals</th>
<th>% For Ex</th>
<th>% Base</th>
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<tbody>
<tr>
<td>F1 Cost of OCR Loan before FCDI</td>
<td></td>
<td></td>
<td>$179,011.91</td>
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<tr>
<td>F2 Cost of ADF Loan before Interest</td>
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<td></td>
<td>$9,560.0</td>
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<table>
<thead>
<tr>
<th>G Financial Charges During Implementation - OCR Loan</th>
<th>ADB Loan</th>
<th>GoV</th>
<th>Totals</th>
<th>% For Ex</th>
<th>% Base</th>
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</thead>
<tbody>
<tr>
<td>G1 Front-End Fee FCDI</td>
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<td>$0.0</td>
<td>$1,808.2</td>
<td>0.8</td>
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<tr>
<td>G2 Interest During Construction FCDI</td>
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<td>$14,271.9</td>
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<tr>
<td>G3 Commitment charges FCDI</td>
<td>$3,879.1</td>
<td>$0.0</td>
<td>$3,879.1</td>
<td>100.0</td>
<td>1.8</td>
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<tr>
<td>G4 Total, FCDI for OCR Loan</td>
<td>$19,959.2</td>
<td>$0.0</td>
<td>$19,959.2</td>
<td>100.0</td>
<td>9.0</td>
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<tr>
<td>G5 Interest on ADF Loan, 2011-2016</td>
<td>0</td>
<td>573.6</td>
<td>573.6</td>
<td>0.3</td>
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</tr>
</tbody>
</table>

<p>| H Total Cost of Sub-Project (Elements A-F) | $208,531.11 | $59,689.14 | $268,220.27 | 77.7 | 121.6 |</p>
<table>
<thead>
<tr>
<th>Components A, B and D</th>
<th>ADB Loan</th>
<th>GoV</th>
<th>Totals</th>
<th>% For Ex</th>
<th>% Base</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consulting</td>
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<td>$6,467.0</td>
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<td>$1,708.0</td>
<td>100.0</td>
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<td>Management Expenses</td>
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<td>$100.0</td>
<td>$1,000.00</td>
<td>90.0</td>
<td>0.5</td>
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<tr>
<td>Rent, utilities etc</td>
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<td>$1,226.3</td>
<td>$1,226.3</td>
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<table>
<thead>
<tr>
<th>Component C</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Resettlement</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Buildings + FFE</td>
<td>$67,934.3</td>
<td>$7,548.3</td>
<td>$75,482.5</td>
<td>90.0</td>
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</tr>
<tr>
<td>Other Civil Works</td>
<td>$24,923.7</td>
<td>$2,769.3</td>
<td>$27,693.0</td>
<td>90.0</td>
<td>12.6</td>
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<td>Equipment</td>
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</table>

<table>
<thead>
<tr>
<th>Taxes and Duties</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Professional Fees</td>
<td>$11,222.3</td>
<td>$1,246.9</td>
<td>$12,469.2</td>
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<td>5.7</td>
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<td>Value Added Tax</td>
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</table>

<table>
<thead>
<tr>
<th>Physical and Price Contingencies and Financial Charges During Implementation (FCDI)</th>
<th>ADB Loan</th>
<th>GoV</th>
<th>Totals</th>
<th>% For Ex</th>
<th>% Base</th>
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</thead>
<tbody>
<tr>
<td>Physical Contingencies</td>
<td>$7,681.5</td>
<td>$831.3</td>
<td>$8,512.8</td>
<td>90.2</td>
<td>3.9</td>
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<tr>
<td>Price Escalation</td>
<td>$5,285.0</td>
<td>$12,495.0</td>
<td>$17,780.0</td>
<td>29.7</td>
<td>8.1</td>
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<tr>
<td>FCDI</td>
<td>$19,959.2</td>
<td>$0.0</td>
<td>$19,959.2</td>
<td>100.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Interest on ADB Loan</td>
<td>$573.6</td>
<td>$573.6</td>
<td>$573.6</td>
<td>0.0</td>
<td>0.3</td>
</tr>
</tbody>
</table>

| Totals                                                                                     | $208,531.1| $59,689.1| $268,220.3| 77.7     | 121.6  |

NB: The Government has signed an agreement with the Government of France that will bring an estimated 100 million Euros additional donor contribution to the Establishment and Consolidation phases of HUST (first 10 years) from a consortium of French universities. Approximately Euro 40 million will be deployed for training of potential future staff, via completion of PhDs in France over 10 years, with the expectation many will return to teach and research in HUST. The balance, approximately Euros 60 million has been tentatively allocated equally across the proposed six thematic areas, and will be used to fund the provision of French academic and management leadership. Much of this is expected to fund recurrent costs for teaching and research project work. And undefined proportion is expected to be used for purposes equivalent to capacity building for development. The TA team estimated that this may be in the order of $1.5 million over the first five years. This notional allocation requires review and refinement by the French consortium.
Notes on the Detailed Cost Estimates and Loan Financing Plan

A. Cost Estimates
Cost estimates are presented in the above table, in the format required by the ADB. Cost estimates for the whole project are presented in the main report. The sub-project reports provide separate cost estimates for HUST and DIU. The following notes cover some technical issues relating to the project as a whole.

For information about broader issues relating to the cost estimates, please refer to
- Annex 6 of this Report, for investment in buildings and equipment, and
- Annexes 4 and 5 for investment in capacity building.

1. Investment and Recurrent Expenditure
These estimates relate to investment in capacity-building (Components A and B), in buildings and equipment (Component C), and in the management of the investment process (Component D).

Projections of the recurrent funding needed to sustain HUST are given in Annex 3 to this Report. The preparation of detailed estimates for recurrent funding lies outside the scope of the TA Team’s Terms of Reference.

Three general caveats apply to these estimates:

1. There is to be further discussion of phasing and loan modalities between the GoV and the ADB. This could significantly affect the provision for price Escalation and FCDI. So at this stage it is better to focus mainly on the base costs.

2. While the estimates were in preparation, the boundaries of the HUST site were indicated to change, and the estimates will need adjustment at a later stage, before processing of the loan.

3. At the Final Review VAST, the domestic partner for HUST, indicated that it was generally happy with the curriculum assumptions underlying the proposals for the campus and with the broad character of the provision proposed. The French consortium, however, wishes to consider them further. In the event of any changes the estimates may need further adjustment.

2. Foreign and Local Expenditure
In these estimates “Foreign” expenditure is that proposed to be funded from the ADB loan, and “Local” expenditure is funded by the Government of Vietnam. International strategic partners (ISPs) may also contribute to funding, but at the time of preparation the TA Team had no basis to estimate their contributions. The only adjustment made in respect of ISP contributions is that the distribution of funds under Components A and B has been weighted towards DIU, on the grounds that the French consortium has committed to help HUST with capacity-building.

Local expenditure has been calculated on the basis that the GoV would make a percentage contribution to all types of expenditure, and would pay the whole amount of:
- The cost of resettling the current occupants of the Hoa Lac site;
- all GoV taxes and duties raised on project expenditure, and
- price escalation on its own expenditure.
The proportion for the across-the-board GoV contribution was set at 10%. Including all forms of GoV contribution, the GoV share of project expenditure as a whole works out at about 22%.
3. Price Basis

The estimates were prepared in US dollars, on the basis of prices prevailing around July 2009. For buildings and infrastructure the TA Team estimated floor areas, road lengths etc required in various types of buildings, and used evidence of prices relating to those building types in Vietnam during 2009 to calculate costs. Prices for scientific equipment were obtained from suppliers.

Price escalation over the period during which the loan will be active (2011 to 2016) has been calculated in accordance with ADB requirements as follows:

- For expenditure to be funded by the ADB loan (i.e. all “Foreign” expenditure) the Manufactures’ Unit Value Index\(^\text{11}\) has been used. Percentage changes in the MUV Index from the previous year are 1.5% for 2010, 0.7% for 2011, 0.0% for 2012, and 0.5% in each year for 2013, 2014, 2015 and 2016;
- For expenditure to be funded by the GVN, price escalation in 2010 is assumed to be 5%, then 6% in each subsequent year to 2016.

The ADB and GVN contributions will be used to purchase similar kinds of goods and services, both within Vietnam and imported. The main reason why the inflation projections are widely different is that the ADB loan is denominated in USD, and it is assumed that if Vietnam inflation continues to be higher than that in developed countries, the VND will depreciate against the currencies on which the MUV Index is based.

4. Taxes and Duties

The estimates for the costs of buildings and standard furniture, fittings and equipment were originally prepared on a basis which included Value Added Tax, charged in Vietnam at 10%. Building cost estimates have been adjusted by a factor of 10/11, and the VAT has been shown separately under “Taxes and Duties”.

The TA Team’s enquiries indicate that specialised scientific equipment imported for use at the NMUs is likely to be assessed as exempt from VAT and import duties.

5. Financial Charges During Implementation (FCDI)

The Charges on a loan from ADB’s Ordinary Capital Resources which make up FCDI are:

- A Front-End Fee of 1% of the value of the loan to cover the administrative costs incurred in loan origination;
- Once a loan is made active, Interest During Construction is charged annually on the decreasing balance of the loan until it is fully expended, or the period of the loan expires, as an incentive to expedite use of the loan. These interest charges may be capitalised, and so become part of the loan to be repaid. The rate of interest set by

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ADB is a Floating Rate, known as the 5-year LIBOR “Fixed Swap” Rate\textsuperscript{12}. For this report a stylised rate of 2.5% has been used, plus the ADB spread of 0.2%, 2.70% in all.

- A Commitment Fee of 0.75% is also charged on the decreasing balance of the loan. It too may be capitalised.
- At the option of the borrower, these charges may be capitalised and added to the loan amount. The estimates assume that GVN takes that option.
- ADFHT loans carry an interest charge of 1% in the 8-year grace period. The Cost Estimates allow for the payment of this interest during the six years when the loan is active.

6. Progress of Expenditure

The calculation of price escalation and FCDI requires assumptions about the rate at which project funds will be expended over time. The assumptions used for these estimates are shown in the following table:

<table>
<thead>
<tr>
<th>Financing and Disbursement Plan -</th>
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<tbody>
<tr>
<td><strong>Projected Incidence of Expenditure Component C</strong></td>
</tr>
<tr>
<td>Buildings</td>
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<tr>
<td>Proportion in Year</td>
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<tr>
<td>Equipment</td>
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<tr>
<td>Proportion in Year</td>
</tr>
<tr>
<td>Contingency and professional fees</td>
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<tr>
<td>Proportion in Year</td>
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<tr>
<td>Proportion in Year</td>
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</table>

For buildings, progress of expenditure is timed to achieve an opening of the new premises in Sept 2015. 60% of the expenditure is projected to take place in the final two years, reflecting the end-loading characteristic of construction projects.

For equipment expenditure is paced evenly over five years, on the grounds that some equipment could be bought for use in temporary premises before the permanent buildings are completed.

The period of the loan will be six years. This will allow some capacity-building expenditure to occur during the first year in new premises when there will be an expansion in the

\textsuperscript{12} The rate is published daily at [www.adb.org/Documents/Brochures/Libor/indicative_rates.pdf](http://www.adb.org/Documents/Brochures/Libor/indicative_rates.pdf)
numbers of students, and hence of staff.

The timing assumptions in the Plan above may be optimistic. The TA Team has developed calculator tools which will enable Price Escalation and FCDI to be quickly re-calculated once decisions on phasing and loan modality have been made.
Vietnam has made significant advances in improving the access of disadvantaged to education, especially in increasing enrolment of girls, students from ethnic minorities and low income regions into basic and secondary education. That is a necessary pre-condition to eventually improving their access to further education and especially to Higher Education. In the HE sector, as regards gender, between 1999-2000 and 2006-07 the number of students in higher education in Vietnam rose from 720,000 to 1,173,000, and in that time the proportion of women students rose from 42% to 55%. Thus in HE as a whole women students are now a clear majority in Vietnam.

Current HE statistics in Vietnam do not break down subject of study by gender. Data from the VHLSS\(^\text{(1)}\) to show gender differences in students’ subjects of study, demonstrating a high concentration of males in science and technology disciplines\(^\text{(2)}\). Women account for 43% of the academic staff in the HE sector, but are even less represented in universities specialising in science and technology.

Ethnic minorities make up about 13% of the population of Vietnam, but only 0.5% in HE students, as shown in MOET statistics for 2007. Older data from the 2004 VHLSS indicates ethnic minority participation much higher at 4.6%\(^\text{(3)}\). Reasons for this discrepancy are not clear, but even if the VHLSS figures are adopted, participation is only about one-third of what it would be if ethnic minorities were represented in higher education pro rata to their share of the general population. Lecturers from ethnic minorities remain very lowly represented in the HE workforce, less than 1% and decreasing proportionally as the workforce increases with student enrolment expansion.

Low-income households have a low share of the HE student population. According to VHLSS 2004\(^\text{(4)}\), about 21% of the HE student population come from the two lowest income quintiles; about 65% from the two highest quintiles; and about 14% from the middle quintile. From VHLSS 2006 a similar pattern in assessments of learning capacity; in the top income quintile 28% were assessed at Distinction level, grading down to 6% in the lowest income quintile.

The NMUs will experience some challenges in ensuring policies and services to support attaining higher levels of participation for all the groups that currently experience difficulties in equal access to HE. In particular their orientation on science and technology will of itself make it more difficult for the NMUs to be at the leading edge of enhancing access to HE for disadvantaged groups, but it is right that the special opportunities which NMUs offer should be open to all; and in the NMUs’ own interest that students from all different backgrounds should be able to compete for places.

Special, pro-active actions are possible and can be implemented, if the appropriate policy for financing is adopted to support the universities to do so. An action plan that can be developed and implemented by each NMU to enable and support enrolment of increasing proportions of students and staff from the special groups is recommended.

Students at NMUs should be eligible for the forms of student support available at other public universities, including fee waivers and rebates, and access to Social Policy Bank loans. These

\(^{(1)}\) Vietnam Household Living Standards Survey, 2006 sweep.
\(^{(2)}\) Data on participation are presented in the TA 7105 Mid-Term Report, Volume II, and summarised and referenced in Annex 15.
\(^{(3)}\) Vietnam, Higher Education and Skills for Growth, World Bank 2008, Figure 17.
\(^{(4)}\) Vietnam, Higher Education and Skills for Growth, World Bank 2008, Figure 18.
schemes will need some adaptation for NMUs, so that amounts available to students take account of the much higher fees payable at NMUs. Specific proposals are made that the universities should develop and implement their own programs, such as postgraduate scholarships, tailored to the needs of the students that are additional to any entitlements students may have from the normal Government scheme, and that the special financing mechanism recommended to ensure the NMUs have adequate recurrent financing should include appropriate levels of reimbursement to the universities for fee income foregone as they implement the Equity Action Plan measures set out below in Table x.

Equity Action Plan measures include pro-active ways to: (i) ensure reduction of barriers to admissions, with assistance with English language, and preferential access to accommodation in university dormitories and special promotion links with high schools; (ii) special targeted financial assistance, organised and managed through the university’s student support service; (iii) measures to incorporate gender and ethnic sensitive issues into programs and curricula, and special promotions to encourage more women to enrol and to seek teaching positions, for which there are many successful examples available in other countries; (iv) policies to ensure that physical facilities do not present barriers and that adequate transport is available to enable good access, especially for the poor and students with physical disabilities; and (v) measures to invest in continuous improvement of the approaches over time by ensuring the collection and analysis of quality data on enrolments and progress of students from disadvantaged groups. Technical Assistance for each university to assist in developing the initial detailed policies is included in the Capacity building programs for funding under component A.

Table x: Equitable Access to the New Model Universities: Action Plan

<table>
<thead>
<tr>
<th>Strand</th>
<th>Actions Proposed</th>
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<tbody>
<tr>
<td>A. Admissions</td>
<td>1. NMUs to assist with the learning of English applicants otherwise qualified but who have lacked opportunities for language learning (eg because of attending a remote school).</td>
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<td>2. NMUs to consider the need for preferential admissions policies for disadvantaged students.</td>
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<td>3. NMUs to form links with, and support, classes in upper secondary schools for students gifted in science and technology with a view to enhancing opportunities for disadvantaged students to meet the admission standard.</td>
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<tr>
<td>B. Student Support</td>
<td>1. MoET to ensure that students admitted to NMUs have access to the existing fee waiver, scholarship and loan schemes available for other public university students on terms which allow for the higher cost of fees at NMUs, and that NMUs are compensated for fee waivers on the basis of the income which they forego.</td>
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<td></td>
<td>2. GVN to make Social Policy Bank loans available to NMU students on terms which reflect the cost of NMU fees.</td>
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<tr>
<td></td>
<td>3. NMUs to give disadvantaged students priority for places in on-campus dormitories.</td>
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<td></td>
<td>4. NMUs to allocate some scholarships for postgraduates on an equity basis.</td>
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<td></td>
<td>5. NMUs and MoET to build an element into NMU operating cost budgets to allow the Student Services Offices to develop flexible responses to needs for special assistance – eg for students with disabilities.</td>
</tr>
</tbody>
</table>
| C. Curriculum and Teaching | 1. NMUs to integrate in the curriculum gender, ethnic minority, poverty and disability issues wherever relevant.  
2. NMUs to ensure that the Centre for Teaching and Learning Excellence is staffed and equipped to train and support academic staff in addressing gender, ethnic minority and disability issues, and meeting the special needs of disadvantaged students.  
3. NMUs to encourage women, ethnic minorities and people with disabilities to apply for academic and other positions, and provide necessary support.  
4. Where feasible, postgraduate programs should be available in part-time mode, to make it easier to combine them with paid work and child-rearing.  
5. NMUs to establish pre-schools to care for children of staff and postgraduate students. |
| D. Facilities | 1. Architects, supervising contractors, and NMUs to ensure that students with disabilities have access to all university buildings, including teaching accommodation, dormitories and toilets and bathrooms, and that paths and entrances are accessible to wheelchairs.  
2. NMUs to provide for the needs of students with disabilities in their use of teaching equipment (eg blind or deaf students).  
3. NMUs to work with transport companies to ensure that buses bringing students to university may be used by persons with disability. |
| E. Monitoring and Evaluation | 1. NMUs to make gender, poverty of background, ethnic minority status, and disability fields in their collection of data about students and staff.  
2. NMUs to monitor participation and attainment by disadvantaged students, and numbers of staff from disadvantaged backgrounds, and to report the results in their annual reports. |